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Involving professionals in research. In the field of ageing and health.

Etzerodt Laustsen, Christine

2022

Document Version:
Publisher's PDF, also known as Version of record

Link to publication

Citation for published version (APA):
Etzerodt Laustsen, C. (2022). *Involving professionals in research. In the field of ageing and health.* [Doctoral Thesis (compilation), Department of Health Sciences]. Lund University, Faculty of Medicine.

Total number of authors:
1

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Involving professionals in research

In the field of ageing and health

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Involving professionals in research

In the field of ageing and health

Christine E. Laustsen

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DOCTORAL DISSERTATION

by due permission of the Faculty of Medicine, Lund University, Sweden.
To be defended at Kristianstad University, Aula, Elmetorpsvägen 15.
April 1st, 2022, at 9.00 am.

Faculty opponent
Associate Professor Lena Rosenberg, Karolinska Institutet

Organisation LUND UNIVERSITY	**Document name** Doctoral dissertation
	Date of issue April 1st 2022
Author: Christine E. Laustsen	Sponsoring organisation

Title and subtitle Involving professionals in research: In the field of ageing and health

Abstract

Involving professionals in research can ensure the acquisition of knowledge, that is relevant, applicable and sustainable. Professionals are people who work in health systems, or organisations that contribute to health systems, such as practitioners, managers or other decision-makers. They have context-specific knowledge which the researchers often lack. Therefore, when they are involved in research, the perspective from research and the perspective from practice can be integrated, helping to bridge the gap between research and practice and strengthening health systems. However, there is a lack of knowledge about professionals' involvement in research in the field of ageing and health. Furthermore, demographic changes in society, which will lead to an increase in the number of older people, are expected to result in greater demand for care and services from health systems. Hence, it is important to bridge the gap between research and practice, ensuring that research in the field of ageing and health is useful in practice to improve conditions for ageing populations and society at large. There is a need for further exploration of the involvement of professionals in research in the field of ageing and health in order to harness potential and address challenges with the aim of creating successful conditions for the involvement of professionals in the research process. Therefore, the overall aim of this thesis was to explore professionals' involvement in research on ageing and health, from the perspective of professionals and researchers and to contribute strategies for involving professionals in research.

The experiences of professionals were explored in study I through interviews which were analysed using grounded theory. A participatory and mixed method called group concept mapping was used in studies II & III to collect and analyse the experiences of both researchers and professionals. The results of studies I-III were reviewed scientifically using content analysis, and a guide for collaboration between professionals and researchers was developed by collaborating with professionals through research circles.

The results of this thesis show three important areas in terms of involving professionals in research in the field of ageing and health: the prerequisites for involvement, the process of involvement and the outcome of the involvement. Furthermore, this thesis reveals an interplay between these areas. It highlights the importance of ensuring that the process aligns with the intended outcome of the involvement, and that the prerequisites align with the process of involvement. External prerequisites for enabling professionals to be involved in research include the organisation where they worked, the politics that governed their work, having time for involvement within ordinary working hours and receiving support from their managers and colleagues. Internal prerequisites influencing professionals' involvement in research included belief and confidence in their own ability to get involved in research. During the process of involvement, research and practice adapt to one another. The different roles the professionals and the researchers had during the process entailed different responsibilities and expectations. Equally, the process was influenced by the relationships between professionals and researchers and how they interacted. Hence, the process of involvement can either enable or challenge opportunities for mutual learning and development. The involvement of professionals was experienced as influencing the research process and the usability of the research results, as well as influencing the professionals involved and their practice. Together, these outcomes were considered to ultimately benefit the older people who were the intended beneficiaries of the research.

In conclusion, there should be systematic consideration of the interplay between the prerequisites for involving professionals, the process of involvement and the intended outcome of the involvement. This thesis provides useful strategies for involving professionals in designing and conducting research projects.

Key words Ageing, Health, Health systems, Involvement, Knowledge co-creation, Older people, Participatory Research, Practice, Professionals, Research

Classification system and/or index terms (if any)

Supplementary bibliographical information		**Language** English
ISSN 1652-8220		**ISBN** 978-91-8021-198-7
Recipient's notes	**Number of pages** 96	Price
	Security classification	

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Involving professionals in research

In the field of ageing and health

Christine E. Laustsen

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Paper 4 © The authors (manuscript unpublished)

Faculty of Medicine
Department of Health Sciences

ISBN 978-91-8021-198-7
ISSN 1652-8220

Printed in Sweden by Media-Tryck, Lund University
Lund 2022

Media-Tryck is a Nordic Swan Ecolabel certified provider of printed material. Read more about our environmental work at www.mediatryck.lu.se

MADE IN SWEDEN

To professionals and researchers interested in working together, with the aim of improving how research is used, as well as its benefits for practice and intended beneficiaries.

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Svensk sammanfattning (Summary in Swedish)

Involvering av yrkesverksamma i forskning inom åldrande och hälsa

Bakgrund och syfte

Det är ett välkänt problem att det tar lång tid innan forskning når ut till praktiken och omsätts i det dagliga arbetet. Det finns mycket forskning som inte kommer till användning. Den bristande omsättningen av forskning i praktiken kan ibland bero på att forskningen saknar relevans för patienterna och de yrkesverksamma personerna. Yrkesverksamma personer kan helt enkelt ha svårt för att omsätta forskningen i praktiken. Yrkesverksamma personer är, i detta sammanhang, människor som arbetar inom hälso- och sjukvården eller i organisationer som bidrar till hälso- och sjukvården. De kan till exempel vara praktiker såsom undersköterskor, sjuksköterskor eller beslutstagare såsom chefer.

Involvering av yrkesverksamma personer i forskning kan säkra att kunskapen som erhålls från forskningen är relevant, applicerbar och hållbar i praktiken. Yrkesverksamma personer har unika insikter i specifika situationer och sammanhang relaterat till deras arbete. När de är involverade i forskning kan de vara förmedlare av denna kontext-specifika kunskap. När de involveras i forskning så forskas det inte *på* dem, utan *med* dem. Involvering i forskning kan se olika ut, vara på olika sätt och i olika delar av forskningsprocessen, beroende av situationen och behovet. Yrkesverksamma personer kan till exempel involveras i utveckling av forskningsfrågor, design av studien, rekrytering av deltagare till studien, samla in data eller utföra en intervention till deltagarna, eller de kan involveras i tolkning av forskningsdata, eller hjälpa till med att sprida forskningsresultat.

När yrkesverksamma personer involveras i forskningen kan perspektivet från forskningen och praktiken därmed integreras. Detta kan bidra till att överbrygga gapet mellan forskningen och praktiken och därmed stärka hälso- och sjukvårdssystemet. Detta är särskilt viktigt inom området åldrande och hälsa, eftersom andelen äldre personer kommer att öka i framtiden. Detta kommer bland

annat att leda till ett ökat behov för sjukvårds- och omsorgsinsatser bland äldre personer, vilket kan bli en utmaning sett utifrån ett samhällsperspektiv. Forskning inom området åldrande och hälsa fokuserar bland annat på hälsa och social omsorg för äldre, eller rehabilitering och stöd från omgivande miljöer, som alla bidrar till att förbättra äldre personers möjlighet till hälsosamt åldrande.

Dock saknar vi kunskap om involvering av yrkesverksamma personer i forskning inom området åldrande och hälsa. Det finns därför ett behov av att få mer kunskap inom området, för att på bästa sätt kunna tillvarata möjligheterna och hantera utmaningarna som finns för att involvering av yrkesverksamma personer i forskning ska bli framgångsrik. Avhandlingens övergripande syfte var därför att utforska involvering av yrkesverksamma personer i forskning inom området åldrande och hälsa utifrån de yrkesverksammas och forskarnas perspektiv samt bidra med strategier for involvering av yrkesverksamma personer i forskning.

Metoder

Avhandlingen består av fyra delstudier där involvering av yrkesverksamma personer i forskning inom åldrande och hälsa har undersökts. I delstudie ett har det undersökts hur dessa personer upplevde att samverka med forskare i ett forsknings- och utvecklingsprojekt kring förebyggande hembesök. De intervjuades individuellt och intervjuerna analyserades kvalitativt med metoden grundad teori. Det fokuserades på hur de beskrev sina upplevelser av själva processen för involvering och vad som påverkade denna process.

I delstudie två och tre användas en mixad metod kallad ”group concept mapping” där datamaterial analyserades kvalitativt och kvantitativt. I delstudie två undersöktes forskares perspektiv på vad involvering av yrkesverksamma personer i forskning inom åldrande och hälsa kan leda till. I delstudie tre undersöktes yrkesverksamma personers eget perspektiv på vad deras involvering i forskning inom åldrande och hälsa kan leda till.

I delstudie fyra var syftet att ta fram en guide för samverkan mellan yrkesverksamma personer och forskare. Därför gjordes ytterligare en genomgång och kvalitativ analys av delstudie ett, två och tre, där metoden innehållsanalys användes. Yrkesverksamma personer och forskare träffades då genom forskningscirklar, för att samverka kring skapandet av en guide som kunde vara användbar för både de yrkesverksamma och forskarna.

Resultat

Från de fyra delstudierna framgår tre övergripande områden som är av vikt för yrkesverksamma personers involvering i forskning. Dessa tre områden är förutsättningar för involvering, processen för involvering och utfallet av

involvering. Resultaten visar att det finns ett samspel mellan dessa tre delar, där de påverkar varandra. Förutsättningarna påverkar yrkesverksamma personers möjligheter att involvera sig i forskning och kan därmed påverka processen för deras involvering. Processen kan i sin tur påverka utfallet av involveringen. Slutligen kan utfallet av involveringen, som kan ske under forskningsprojektets gång, påverka förutsättningarna och processen.

Förutsättningar för involvering inkluderar båda externa förutsättningar och interna förutsättningar. Externa förutsättningar var de som fanns i den omgivande kontexten, som de yrkesverksamma och forskarna befann sig i. Den omgivande kontexten omfattar t.ex. den organisation personerna arbetade i och den politik som styrde deras arbete. Exempelvis beskrevs det att ha tid inom ordinarie arbetstid och få stöd från chefer och kollegor som viktiga förutsättningar för yrkesverksamma personers involvering i forskning. Interna förutsättningar för att vara involverad i forskning handlade om det som man tog med sig in i ett forskningsprojekt. Till exempel upplevde de yrkesverksamma personerna att deras motivation for att involveras påverkades av om de ansåg sig själva som kapabla att bidra till forskningen med sin kunskap och expertis.

Processen för involvering beskrevs som en anpassning av forskningen och praktiken gentemot varandra, där aspekter som är av vikt för praktiken och för forskningen anpassas gentemot varandra. De yrkesverksamma personerna och forskarna hade olika roller som innebar olika ansvar och förväntningar. Interaktioner och relationer som var mellan de yrkesverksamma och forskarna var av vikt för att möjliggöra deras involvering, och även för möjligheten till ett ömsesidigt lärande och utveckling.

Utfallet av involvering visade att yrkesverksamma personers involvering i forskning kan påverka själva forskningsprocessen och användbarheten av forskningsresultaten. Dessutom kunde deras involvering leda till en påverkan hos de yrkesverksamma själva och praktiken. Till exempel kunde de uppleva att de hade tillägnat sig nya färdigheter och förmågor, vilket bidrog till utvecklingen av praktiken.

Slutsats

Denna avhandling bidrar med ny kunskap gällande involvering av yrkesverksamma personer i forskning inom åldrande och hälsa. Den illustrerar att involvering av yrkesverksamma i forskning måste ses i relation till deras förutsättningar för involvering, processen för involvering och det tilltänkta utfallet av involveringen, samt samspelet mellan dessa områden. Avhandlingen bidrar med strategier för involvering av yrkesverksamma personer i forskningsprocessen. Systematiskt övervägande kring samspelet är av vikt för att processen för involveringen överensstämmer med det tilltänkta utfallet och att förutsättningarna stämmer

överens med processen. Dessa tre områden är viktiga att reflektera över och diskutera tillsammans med de yrkesverksamma, när forskare designar och genomför forskningsprojekt där yrkesverksamma involveras.

Original papers

The thesis comprises the following four studies, which will be referred to in the text by their Roman numerals.

I. Laustsen, C. E., Petersson, P., Westergren A. & Haak M. (2021). Exploring health professionals' experiences of being involved in a research project. *Knowledge Management Research & Practice* 19(2), 230-238.

II. Laustsen, C. E., Westergren, A., Petersson P. & Haak M. (2021). Conceptualizing researchers' perspectives on involving professionals in research: A group concept mapping study. *Health Research Policy and Systems* 19(1), 39.

III. Laustsen, C. E., Petersson, P., Westergren, A. & Haak, M. (2021). Involvement of professionals in research: Knowledge integration, development of practice, and challenges: A group concept mapping study. *Health Research Policy and Systems* 19(1), 115.

IV. Laustsen, C. E., Haak M., Westergren, A. &. Petersson, P. Knowledge transformation: Improving the usability of research results through collaboration with professionals. (In manuscript).

Preface

A holistic view of human beings appealed to me when I decided to take an education as an occupational therapist several years ago. After completing a degree in occupational therapy, I started work as an occupational therapist in a municipality, focusing on rehabilitation for older people. I worked with assistant nurses, nurses, physiotherapists and the older people themselves, striving to improve their opportunities for healthy ageing, despite physical or mental decline, or illness. During these years working as an occupational therapist, I felt a need to increase the integration of theory and practice, so alongside my work I took a Master's degree in Medical Science at Lund University. I became more interested in research, and after completing my Master's degree, I began work as a project administrator on a research project at Lund University. This was followed by an opportunity to become the project leader of a municipal development project, which involved developing occupational interventions for the older people in the municipality. The experience I gained from this, especially concerning the challenges of implementing evidence into practice and integrating research and practice, piqued my interest in how researchers and professionals can work together.

When I was given the opportunity to become a PhD student on this research project, focusing on the involvement of professionals in research in the field of ageing and health, it was a natural path for me to take. During these years as a PhD student, I have learned a lot about both research and practice. In conducting research, collaborating with other researchers and professionals, and studying theories and scientific aspects of involving professionals in research, I have gained new knowledge and a greater understanding of both research and practice, and how these areas can work together. However, as the saying goes: *the more you know, the more you realise you don't know.* This is not necessarily a disadvantage. However, it stresses the need for, and the importance of working with others who have knowledge in areas where one's own knowledge is lacking. Hence, the gearwheels in the picture on the front page illustrate how several parts need to work together to make results. A gearwheel on its own does not have a significant function, but joint together, they all play a significant part. When gearwheels, small and large, work together, they bring about the intended outcome. This illustrates that to benefit practice different professionals and researchers need to work together to increase the use of research on ageing and health. In turn, this will lead to improved healthcare and services for the older people, who are its beneficiaries.

This thesis is located within the field of health sciences, where theories from different areas or disciplines are combined to solve issues in the best possible way. However, researchers' own experiences and education influence the way research is conducted and interpreted. My own approach to research is influenced by the fact that I am an occupational therapist who has a strong focus on enabling involvement and participation in meaningful activities, with the person at the centre. This means that I see the importance of interaction between the person, the activity and the environment, as well as the interaction between different people, if they are to carry out and take part in activities, and develop as human beings. A sociocultural view of knowledge, where people learn from each other through social interaction, is well in line with the perspective I brought with me to the research conducted for this thesis. This has influenced the choices of methods for conducting the studies, as well as my own learning process concerning research and the involvement of professionals in research.

Definitions

Forms of knowledge	Knowledge can take many different forms, and can for example be tacit, explicit, particular or general. Different forms of knowledge can be transferred, exchanged or integrated when professionals are involved in research.
Health systems	Health systems include all the levels in organisations which *"are responsible for delivering services that improve, maintain or restore the health of individuals and their communities"* (World Health Organization [WHO], n.d.-a).
Involvement in research	In this thesis, involvement is seen as a concept which brings together different approaches and methods in involving people in research. A common feature is that the research is conducted *with* people and not *on* people (Nowotny et al., 2003).
Practice	A workplace where a group of professionals form a community with a common understanding of practice and a common standard of conduct (Eikeland, 2015).
Professionals	In this thesis, the term professionals covers all people who work in health systems or in organisations which contribute to health systems. They have a unique insight into specific situations and contexts related to their work, and when they

	are involved in research they can be mediators of this context-specific knowledge (Brante, 2009).
Research in the field of ageing and health	Research in the field of ageing and health focuses on health from a perspective of ageing. This might involve areas which can prevent ill health and promote good health, such as healthcare and social care for older people, or rehabilitation and supportive environments.
Researchers	People with specialised education within research. They conduct scientific and systematic work which aims to acquire knowledge or create new knowledge where insights are lacking (Kristensson Uggla, 2019).
System theoretical perspective	A system theoretical perspective illustrates an interdependency between a person, such as an older person, and the surrounding context and structures, such as the different levels of health systems in which professionals work.

Abbreviations

GCM	Group concept mapping
GT	Grounded theory
HCA	Hierarchical cluster analysis
MDS	Multidimensional scaling
RC	Research circle
WHO	World Health Organization

Introduction to the research context

This thesis and the studies included aim to gain more knowledge about the involvement of professionals in research in the field of ageing and health, and to contribute strategies to help professionals and researchers who wish to work together on research projects. These strategies and knowledge may be useful in order to harness potential and to address challenges when aiming to create successful conditions for professionals to be involved in the research process.

Research should be relevant and of use to the society and people it is intended to benefit. The viewpoint that research concerns everyone, not just academics (Kristensson Uggla, 2019), has contributed to the demands that researchers should involve people in the research process, and not simply inform them about research results. Hence, to ensure that research is relevant and usable, there is a call to involve people from outside academia in the research process.

Involvement in research is a well-developed area in the United Kingdom (INVOLVE, 2012) and Canada (Canadian Institutes of Health Research, 2012b), where organisations support both the researchers who wish to involve people in their research and the people who wish to be involved in research. In Sweden, the Health and Medical Services Act (Hälso- och sjukvårdslagen, 2017) stipulates that regions and municipalities should take part in research and, if necessary, collaborate with universities on research projects. Furthermore, according to the Swedish Higher Education Act (Högskolelag, 1992), universities should collaborate with society to ensure mutual exchange and they should make efforts to ensure that society benefits from the knowledge and competence available in universities. In addition, involving people from outside academia in research is often a requirement of research-funding bodies in Sweden (Forte, 2019; Lindberg, 2018). Although researchers, policy-makers and research-funding bodies assume there can be positive outcomes from involving people in research, there is a level of uncertainty about why and how the involvement should take place (Greenhalgh et al., 2019; Staley et al., 2019). Specific descriptions of the involvement also tend to be lacking in grant proposals and project plans (Hultqvist et al., 2021).

The studies in this thesis were conducted within the UserAge programme. This is a large inter- and transdisciplinary research programme with the overarching aim of understanding user involvement in research on ageing and health from different perspectives (Iwarsson et al., 2019). There is often a need to involve a number of

stakeholder groups in research projects (Beckett et al., 2018; Rycroft-Malone et al., 2016), meaning that different people from outside academia, who can contribute to the research or stand to benefit from it can be involved in the research process. This might be patients, carers or professionals according to the relevance to the research project. However, this thesis specifically focuses on professionals' involvement in research.

A user council involving older people was established within the UserAge programme. The user council has been involved since the point when the funding application was written for the programme, and it has provided feedback over the course of the studies included in this thesis. The goals of the UserAge programme were to "maximize the impact of involvement in research on ageing and health, enhance the execution of high-quality research, increase the knowledge about what differences user involvement can make, and evaluate the impacts of research about and with user involvement" (Iwarsson et al., 2019, p. 3).

In order to gain knowledge to contribute to these goals, more insight was needed into the process of involvement and what the involvement could lead to. By exploring professionals' experiences of being involved in research, and researchers' experiences of involving professionals, categories and concepts were developed, and scientific knowledge was acquired. To improve the usability of the knowledge acquired, the results of the studies were reviewed scientifically, and a guide for collaboration between researchers and professionals was developed.

The studies were conducted within the Research Platform for Collaboration for Health at Kristianstad University, which started in 2003 and has been building collaboration with Region Skåne and seven municipalities in north-eastern Skåne (Bromölla, Hässleholm, Hörby, Kristianstad, Osby, Perstorp and Östra Göinge). The aim of the collaboration is to develop the practice of health and social care in north-eastern Skåne through research which focuses on the needs of the individual. A coordination group for the research platform involving both professionals and researchers decides whether the research projects go ahead with support from the platform. The coordination group was therefore involved in decisions about the studies in this thesis. From a very early phase, it helped decide whether the studies were of sufficient quality and whether they contributed to the aims of the research platform. Their involvement continued throughout the process, in the sense that emerging studies and results were presented to the group and discussed with the members.

Background

Involvement in research

The involvement of professionals in research has attracted increasing attention over the last few decades. In this thesis, professionals are defined as people working in health systems, or in organisations which contribute to health systems, and can be practitioners, managers or other decision-makers. Their involvement in health research can ensure the acquisition of knowledge which is relevant, applicable and sustainable for practice (Green, 2008; Nyström, Höög, et al. 2018; Pentland et al., 2011). Hence, the process of involving professionals can integrate the perspectives of both researchers and professionals, which can lead to a greater understanding of the issue in question (Reason & Canney, 2015). In turn, this can help bridge the gap between research and practice, and strengthen health systems (Boaz et al., 2015; Theobald et al., 2018). Furthermore, demographic changes in society which will lead to an increase in the number of older people, are expected to result in greater use of care and services in health systems (Bloom et al., 2015). To improve conditions for the ageing population and society at large, there is a need to ensure relevant and usable research in the field of ageing and health. When professionals are involved in healthcare research, they can ensure that the context in which the research is to be used is taken into consideration, and that the research focuses on areas relevant to practice (Bullock et al., 2012; Pentland et al., 2011). The research itself can aim to develop healthcare where older people are the focus, but professionals are often those who have the authority to implement the results or recommendations from research into practice and policy (Kothari et al., 2017). Trying to bridge the gap between research and practice often entails an integration of professionals' and researchers' perspectives, which may even result in mutual learning and development (Cornwall & Jewkes, 1995). However, knowledge about the involvement of professionals in research conducted in the field of ageing and health is lagging behind (Iwarsson et al., 2019). Hence, this thesis aims to contribute knowledge and strategies by exploring the involvement of professionals in research in this field.

Research approaches for enabling involvement

In this thesis, involvement is seen as a concept which includes different approaches and methods in terms of involving people in research. Despite these different approaches, a common feature is that the research is conducted *with* people and not *on* people (Nowotny et al., 2003). Involvement in research that seeks to bridge the production and utilisation of knowledge by creating knowledge through continuous interaction between researchers and people from outside academia is often referred to as *Mode 2*. The opposite is often referred to as *Mode 1*, which characterises more conventional research, where research and practice are separated (Gibbons, 1994). Hence, involvement in research entails more than traditional participation in an interview or answering a survey. For example, research approaches which focus specifically on involving professionals are known as researcher practitioner engagement (Daniels et al., 2021), practice-research engagement (Brown et al., 2003), integrated research-practice partnerships (Estabrooks et al., 2019) and engaged scholarship (McCormack, 2011). These approaches involve researchers and professionals working together and taking both the research process and practice into consideration. Projects where researchers and professionals work together are also sometimes known as research and development projects, since they aim not only to provide knowledge like more conventional research projects, but also to apply the knowledge in practice (Walshok & Stymne, 2008).

More commonly known research approaches which enable involvement include action research, participatory action research and community-based research. Different people can be involved, and different methods can be used, but the way the methods are applied is influenced by the worldview and attitude of the researcher (Cornwall & Jewkes, 1995; Jull et al., 2017). The approaches are often flexible, reflective, and iterative and do not follow a linear process (Cornwall & Jewkes, 1995). Conducting research with people from outside academia derives from action research (Hughes, 2008). In the 1940s, the social psychologist Kurt Lewin discovered that involving participants entailed a learning process (Stefanac & Krot, 2015), and he developed the paradigm of action research (Greenwood, 2015). According to Lewin, social science cannot provide usable results if it is decontextualised, and therefore human behaviour should be seen and understood as part of a larger system. Moreover, Lewin highlighted how learning takes place through group processes (Greenwood, 2015). Action research seeks to contribute to both research and practice (Coleman, 2015) through knowledge generation and problem solving (Eikeland, 2015), and involves an action, a change or development for the people involved, or a change in their circumstances (Bradbury, 2015). The term participatory action research was developed in the 1970s (Swantz, 2015). Participatory action research involves a bottom-up approach, and focuses on the needs and priorities of the people in question (Cornwall & Jewkes, 1995). Furthermore, researchers engage with the people and become insiders, in order to understand their worldview more fully. In the 1990s, an approach known as

community-based participatory research emerged in the health sciences. It seeks to emancipate a community, meaning a group of people who share aspects such as a common history, values, sense of culture or identity. This approach builds on equal partnerships between researchers and the community, and emphasises shared decision-making as a principle for facilitating co-learning (Nicolaidis & Raymaker, 2015). Community-based participatory research is motivated by a perspective of social justice and social change (Jull et al., 2017). Therefore, as in action research, there is a strong focus on the action, or the change desired by the community (Nicolaidis & Raymaker, 2015). However, involvement in research does not necessarily aim to improve circumstances for the people involved.

The term *involvement in research* can have different meanings, and sometimes *involvement in research* and *engagement in research* are used interchangeably. In this thesis is *involvement* used and defined as an umbrella concept covering a continuum in terms of how people can be involved in the research process. *Involvement* is used to include the perspective of doing something, where *engagement* is seen as defining a feeling of being a part of something, and does not necessarily include actively carrying out different activities (Kennedy & Davis, 2017).

Involving people from outside academia in research can ensure that the knowledge gained through the research is relevant and usable for them. The aim of research in general is to acquire or create knowledge about a certain area or research question in a scientific and systematic way. However, research is also underpinned by philosophical assumptions (Kristensson Uggla, 2019). Many research approaches which enable involvement in research share perspectives in terms of their ontological and epistemological views. Ontology involves what we believe reality is and how it is constituted, while epistemology concerns how we believe we can acquire knowledge (Coleman, 2015). In involving people in research there often is a focus on creating together. The research is based on the people's experiences of reality and the context in which the research is conducted. This concurs with the philosophy of social constructionism, which suggests that people construct the world and the world construct the people. Hence, knowledge is created through social processes which are historically and culturally situated (Gergen & Gergen, 2015). This philosophy suggests that research projects are situated in a context, and that the researchers and the people involved can learn from each other. Positivism, on the other hand, claims that the world is 'out there' waiting to be discovered. There is often a focus on a cause-and-effect relation in terms of predicting and modelling the 'best way of doing' something. The dilemma of this aspect of positivistic research is that, in order to estimate a real cause-and-effect relation, the research needs to be objective, generalisable and context-free (Coleman, 2015). This is not particularly compatible with research approaches which enable involvement. In other words, a researcher's approach can be affected by the philosophical assumptions underpinning it, such as ontological and epistemological views, and

these can affect how and why the researcher wishes to involve people from outside academia in the research process (Carter & Little, 2007; Greenhalgh et al., 2016). Equally, there may be different motives for involving professionals in the research process.

Motives for involving professionals

Involving professionals in research can be motivated by different values such as pragmatic, democratic, or emancipatory values. Nevertheless, these different values can be combined in the same research project. In research motivated by pragmatic values, involving professionals mainly focuses on how professionals can contribute practical solutions to an issue (Cornwall & Jewkes, 1995; Hughes, 2008). The workability of the research results steers the research process in order to integrate theory and practice, hence the process focus on practical requirements and use. However, researchers with a pragmatic orientation have been criticised for focusing on the existing context, and for making measures work within existing structures rather than considering changes to these structures, which can impede development (Johansson & Lindhult, 2008).

In research motivated by democratic values, involving professionals in research is driven by equity and a belief that all people should be given a chance to contribute their views. Arnstein (1969) described degrees of involvement in society as eight levels on a ladder. This ladder covers a continuum of involvement, ranging from non-participation, to tokenism, to citizen power. Arnstein's description of involvement builds on democratic values and criticises the lack of opportunity for people to give their opinion on issues which affect their lives and the society in which they live. The ladder has inspired policy-makers and researchers for decades in terms of involving people in decision-making. However, it has also been criticised for its dichotomic view on involvement, which suggests that people are either included or excluded. A more nuanced and varied view on involvement recommend involving a variety of people to different extents, and using a variety of methods for doing so (Tritter & McCallum, 2006). This can ensure that their involvement is relevant, and that the aim of their involvement is taken into consideration. When the involvement of professionals in research is based on democratic values, the research generally aims to give the professionals a voice, and to enable them to give their opinion on research that may affect them. Democratic values also assume that all forms of knowledge are equally important.

Another motive for involving professionals in research can be to facilitate emancipation. This might involve a reflexive and transformative process where professionals develop their understanding of the situation. This process often reveals suppressive power structures (Johansson & Lindhult, 2008), or support professionals in realising that they are not subjected to their work, but rather in control of it (Cordeiro & Soares, 2016). However, emancipatory values are not

always obvious in terms of involving professionals. They apply more to situations involving suppressed or stigmatised groups of people. Nevertheless, to a greater or lesser extent, methods which focus on involvement and blur the boundaries between those using the knowledge and those producing it, address power relations between the people involved and researchers (Cooke et al., 2017), in this case the professionals and the researchers.

Involving professionals

It is important to reflect on why professionals should be involved in research, when they should be involved in the research process and to what extent (Jönson et al., 2021). There can be different aims in terms of professionals and researchers working together. The aim may be to adapt research to the context (Pentland et al., 2011), to increase the relevance of the research (Bullock et al., 2012), and to improve healthcare practice (Boaz et al., 2015). The purpose could be to develop new procedures or tools for professionals to use in practice, or to develop the organisation, implement a specific practice or support of political decision-making (Gredig et al., 2020). Professionals can be involved in different steps of the research process, such as developing research questions, designing the study, recruiting participants (i.e. the older people) for the study, collecting data, delivering an intervention, interpreting research findings or disseminating research results (Daniels et al., 2021). The research is conducted *with* them (Nowotny et al., 2003), but their involvement may vary in terms of extent or degree. For example, researchers can consult the professionals, or professionals and researchers can collaborate on research projects. A continuum for involvement in research, extending from information to collaboration, is used in a framework for citizen engagement developed by the Canadian Institutes of Health Research (2012a). This continuum was developed for public involvement in decision-making by Health Canada, which is a Canadian federal department (Health Canada, 2000). The continuum illustrates how people can be involved to varying degrees, although involvement is often more complex than a continuum can show. For example, the continuum only illustrates the relation between the people involved and those who involve them, while involvement in research on ageing and health is often more complex given the context in which the research project and the people involved are situated. A continuum of co-production in research is described by Beckett et al. (2018), where co-production goes beyond consultation and means that the people involved can influence the research process. This continuum illustrates how different people, such as patients, practitioners, managers, policy-makers and researchers, can take part in the different steps of the research process. Additionally, Beckett et al. (2018) highlight the need for a system theoretical perspective within the framework, to capture and analyse the breadth of impact of co-produced research. Furthermore, they indicate that there are paradigmatic implications, since

research which is co-produced can potentially have conceptual and cultural impacts, and can change ways of understanding the world (Beckett et al., 2018).

Obstacles to involving professionals

As well as considering the aim and extent of the professionals' involvement and the parts of the research process in which they can be involved, it is also important to consider how involvement in research entails interactions and relations between professionals and researchers, and how these vary (Gredig et al., 2020). The process of involvement can sometimes be challenged by the interactions between professionals and researchers, who can have different world views, and therefore may not understand each other's viewpoints or language (Bartunek & Rynes, 2014; van der Graaf et al., 2017). Tensions can occur between professionals and researchers working together, due to different logics and ways of communicating, the different timescales through which they work, and the difference between what is considered rigorous in research and what is seen as relevant for practice (Bartunek & Rynes, 2014). Researchers and professionals may need to acquire insights or skills and capabilities in terms of working together, since these do not come naturally to everyone (Rycroft-Malone et al., 2016). Also, there is a lack of guidance on the involvement of professionals in research (de Moissac et al., 2019). It can be difficult for professionals to understand the research process and results, and professionals and researchers may not share the same aims in terms of using the research. Also, the cost of professionals' time could impede their involvement in research (van der Graaf et al., 2017). It can be challenging for professionals to be involved in research, since they often lack time for the extra assignments within ordinary working hours (Di Bona et al., 2017), and there is often too little funding to invest in their time (Laird et al., 2020). Moreover, researchers experience that involving professionals costs time, effort, and money, and that these issues make it difficult to involve professionals (Ross et al., 2003). The increased focus on involving professionals in research has improved understanding of what could facilitate or impede their involvement in general. However, the involvement of professionals in research in the field of ageing and health requires further exploration (Iwarsson et al., 2019).

The field of ageing and health

People are living longer, leading to demographic changes involving an increasing number of older people (Foreman et al., 2018). In 2021, 26.1% of the population in Sweden was aged 60 years or over and in 2050 this is projected to increase to 30.7% (World Health Organization [WHO], n.d.-b). In 2021, 5.4% of the population in Sweden was aged 80 years or over and in 2050 this is projected to increase to 9.4% (WHO, n.d.-c). Economic challenges are expected, due to an increased need in

health systems for long-term care and other services for older people (Bloom et al., 2015). This highlights a need to improve older people's opportunities for healthy ageing (WHO, 2020), by preventing ill health and promoting good health (Bloom et al., 2015; WHO, 2015). Healthy ageing is defined by the WHO as *"developing and maintaining the functional ability that enables well-being in older age*" (WHO, 2015, p. 3). Functional ability is determined by a person's physical and mental capacities, along with the physical, social and policy environments in which the person lives, and the ways in which these interact. Hence, attempts to improve older people's opportunities for healthy ageing entails a broad focus on a number of aspects of their physical and social context, as well as biological changes associated with ageing (WHO, 2017). For example, there is a need for systemic changes to help manage and minimise the consequences of loss of functional and mental capacity, and the consequences of chronic disease which often appear in old age (WHO, 2015). Collaboration between governments, health systems and different professionals needs to be improved to meet these challenges, along with a person-centred approach to accommodate the diversity of older people (WHO, 2015, 2020). Research in the field of ageing and health focuses on health as people age, which can involve areas such as preventing ill health and promoting good health. Examples include healthcare and social care for older people, or rehabilitation and supportive environments. Moreover, an important aspect to consider in research in the field of ageing and health involves the health systems to which the research results are intended to be applied.

A system theoretical perspective

The professionals working in the health systems play an important role not only in applying research results, but also in their daily work in supporting older people in finding opportunities to age in a healthy way. In this thesis, health systems include all the levels in organisations which "*are responsible for delivering services that improve, maintain or restore the health of individuals and their communities*" (WHO, n.d.-a). If health systems are considered from a system theoretical perspective, several levels are relevant to the issues for improving opportunities for healthy ageing. In a system theoretical perspective, a person is regarded as embedded in interlocking and interdependent layers of context and structures. Therefore, a person's biological, psychological and social environment are taken into account, along with the reciprocal relation between them (Greenfield, 2012). This thesis makes use of a system theoretical perspective to illustrate the relation between the older people at the point of focus, and professionals working at different levels in health systems. A system theoretical perspective comprises the following: the microsystem, which includes the relations and interactions between an older person and their immediate environment (e.g. family, friends or home-care personnel); the mesosystem, which includes a number of microsystems and the relations and interactions between them (e.g. interactions between the older person's

family and home-care personnel); the exosystem, which includes the formal and informal environments which do not involve the older person directly (e.g. local policies and social services); the macrosystem, which includes the overarching cultures of institutions and ideologies which permeate the society (e.g. laws and values); and finally, the chronosystem, which illustrates development and influence over time (Bronfenbrenner, 1977; Greenfield, 2012). A system theoretical perspective illustrates the complexity of health systems, and how the provision of health services for the older people is affected by the actions of professionals at several levels in these systems, as well as by collaboration between professionals from different healthcare organisations. It has been shown that the involvement of professionals in research can improve the process of care, and consequently the health outcomes (Boaz et al., 2015). Also, considering issues from a system theoretical perspective and involving professionals from several levels in health systems can ensure learning and development at a number of different levels, and therefore make changes more sustainable (Nyström, Höög, et al. 2018). However, recognising the complexity of health systems, which involves aspects such as the interaction of professionals with different perspectives in providing services for the older people (Augustinsson & Petersson, 2015), also provides a basis for addressing the challenges of involving professionals in research. Differences in perspectives and agendas within health systems can lead to tensions between professionals, which is a challenge in terms of involving them in research (Bowen et al., 2017). Furthermore, professionals' willingness to use and implement research findings is affected by the context and prerequisites of health systems, as well as their readiness for change. This involves how the professionals perceive the need to implement research or develop practice, as well as the fit between the innovation and the health system (Greenhalgh et al., 2004). Hence, one way of improving the usability of research in the field of ageing and health is to involve professionals in the research process.

Usability of research

Research in the field of ageing and health can focus on developing evidence to support practice in making evidence-informed decisions. Practice in health systems seeks to be informed by evidence, meaning that professionals working in healthcare make an effort to integrate the best current evidence from research, the expertise of professionals and the preferences of the individuals who receive the care or service (Sackett et al., 1996). It is important to report research in a scientific way. However, in order to facilitate healthcare practice to make use of the best available evidence, research needs to be accessible and usable. This highlights the importance of how research is produced and reported. In particular, research questions should be issues of importance to the people the research affects, and the design and methods should be appropriate to the research question (Chalmers & Glasziou, 2009). Where research is seen as irrelevant by patients and professionals, the resulting lack of

usability impedes implementation in practice (Ioannidis, 2016). It is estimated that only about 50% of healthcare studies reach practice, and the average timeline from research study to implementation is 17 years (Balas & Boren, 2000). The shortage of usable research contributes to the gap between research and practice, and this may result in older people not always receiving the best possible healthcare (Graham et al., 2006), jeopardising their chances for healthy ageing. In order to bridge this gap between research and practice in the field of ageing and health, the context for practice needs to be taken into account (McCormack et al., 2002). This is where involving professionals in the research process can provide a solution in terms of bridging this gap.

Professionals and researchers

The relations and interactions between professionals and researchers are crucial for successfully involving professionals in research. Professionals and researchers are often considered to belong to different worlds, and to value different kinds of knowledge, which can create barriers to relations and interactions when researchers involve professionals in research (Van de Ven & Johnson, 2006; van der Graaf et al., 2017). In this thesis, professionals and researchers are considered as different groups. In some respects the two groups are very similar, and in others they are quite different. Also, many professionals are specialised in one area, meaning that they are very knowledgeable in their own area, but this also results in a demarcation between different professional groups (Brante, 2014).

The term *professions* means that the people have a specific education, through which they have acquired specific ethics and codes (Brante, 2009). According to Brante (2014) can professions be classified into classic professions, new professions and pre-professions. Classic professions, such as doctors and researchers, are often specialised in terms of higher university degrees, and often build on a well-established paradigm and way of seeing the world (ontological model). New professions, such as nurses, occupational therapists and social workers, emerged in connection with the expansion of the welfare system. Their university education is not as specialised as that of classic professions, and they are often more interdisciplinary. They are influenced by a number of different paradigms. Pre-professions do not rely on a specific paradigm, but fulfil functions which have arisen in society, as a result of new technologies, for example, or demands on expert knowledge in specific areas such as communication, finance or diet. People from these three groups, as well as assisting occupations (such as assistant nurses), are professionals in the welfare state of Sweden (Brante, 2014). The term *professionals* encompasses people who work in health systems or in organisations which contribute to health systems. Professionals working within the same practice share a common understanding and work according to the same standards. These

professionals might work on several organisational levels. They might be practitioners who provide a service for the older people and have face-to-face contact with them, such as doctors, dieticians, occupational therapists or assistant nurses. Alternatively, they might work at a more administrative level, such as managers and decision-makers, and have the power to regulate and develop healthcare. This means that the professionals referred to in this thesis include professionals from all three groups of professions as well as assisting occupations (Brante, 2014). However, the common feature of professionals in the thesis is that they have a unique insight into specific situations and contexts in relation to their work, and in terms of their involvement in research they can be defined as mediators of context-specific knowledge (Brante, 2009). Therefore, professionals working in practice understand patterns that researchers might not see (Daniels et al., 2021). Professionals have more contextual knowledge, and are the ones who apply research results or theories in practice. Researchers often use knowledge in a more theoretical way. However, researchers do not constitute a single, homogeneous group. They may be educated in, and work within different paradigms (Kuhn, 2012), meaning they build their research on different ontological and epistemological stances. In turn, this can mean that researchers schooled in different paradigms could have different views on what counts as knowledge (Guba & Lincoln, 1994). This can result in tensions between researchers on the same research project (Carter & Little, 2007), and it can even influence how and why they involve professionals in research. However, a common characteristic of researchers is that their scientific and systematic work aims to acquire knowledge or create new knowledge where insights are lacking (Kristensson Uggla, 2019).

Forms of knowledge

In involving professionals in the research process, several different forms of knowledge are used to acquire and create knowledge which is contextually relevant and applicable in practice (Pentland et al., 2011). Knowledge can take a number of different forms and be described in a variety of ways. As early as 350 BC, Aristotle (1999/350 BC) described different forms of knowledge such as episteme, techne and phronesis. Episteme is described as general and theoretical knowledge, which is not bound to a single person or situation. Techne is described as skills or craft, and knowing how to do something in terms of creating or producing it. Phronesis is described as knowledge acquired through an understanding of the context and through one's own experiences. Phronesis is often referred to as reflective wisdom which is used to make judgements. McHugh and Walker (2015) describe forms of knowledge in another way, elaborating on Polanyi's ideas of tacit and explicit knowledge (Polanyi, 1958). They describe a continuum of knowledge from tacit to explicit, and add a dimension to the continuum, to illustrate the degree of application of knowledge, from particular to general. Explicit knowledge can be communicated easily, but tacit knowledge is more difficult to communicate (McHugh & Walker,

2015). Tacit knowledge is personal and internalised; it refers to knowing how to do when performing an activity, such as riding a bike. This knowledge, which is difficult to communicate and thereby share with other people, is often acquired by "learning by doing" or by mentorship (Polanyi, 1958). Professionals' practical knowledge of how to perform their work can be referred to as tacit and intuitive (McCormack, 2003). Particular knowledge can be applied to a single situation or person, and general knowledge is applicable to several situations or individuals (McHugh & Walker, 2015). However, forms of knowledge cannot be divided stringently, since they are often combined or influenced by one another. For example, the justification for theoretical knowledge derives from its grounding in experiences which are generalised in order to build theories (Ladyman, 2002). Theoretical knowledge is explicit and general (McHugh & Walker, 2015), but the skills involved in conducting research also depend on tacit knowledge. Thus, tacit and explicit knowledge are entwined in carrying out an activity, e.g. when a professional provides an older person with healthcare or a researcher analyse an interview text. In involving professionals in research, the use and integration of different forms of knowledge imply a broad perspective on knowledge. This is reinforced by the argument that several forms of knowledge are needed in both research and healthcare. Though, evidence-informed practice has been criticised for reinforcing theoretical knowledge (McHugh & Walker, 2015). However, Sackett et al. (1996) clearly describe how several forms of knowledge are integrated in evidence-informed practice to give the best possible care. Hence, practice informed by evidence involves combining the best available evidence from systematic research, the expertise of professionals and patients' own preferences and rights. However, trying to bridge the gap between research and practice by involving professionals in research should not only include practice informed by evidence but also evidence informed by practice (Green, 2008). Hence, when professionals are involved in research, some sort of knowledge translation takes place, and this is influenced by the way in which the professionals are involved.

Knowledge translation

Knowledge translation takes place in form of knowledge transfer, exchange or integration when professionals are involved in research. WHO's knowledge translation framework for ageing and health includes a number of elements such as the context for using the research, efforts in terms of linkage and exchange, creating new knowledge, pushing efforts, facilitating pulling efforts, pulling efforts and evaluation (Ellen et al., 2017). Hence, knowledge translation is seen as an umbrella term. However, it is argued that the term knowledge translation has come to represent only the transfer of knowledge, i.e. knowledge produced, packaged and transferred to the knowledge user in linear one-way communication (Rycroft-Malone et al., 2016). This understanding therefore diminishes the interactive

relation between research, practice and different forms of knowledge (Greenhalgh & Wieringa, 2011).

One aspect to take into consideration when professionals and researchers wish to work together includes the ways in which professionals are involved in research on ageing and health, and how these influence the opportunities for translating, exchanging or integrating knowledge. When knowledge is able to be transferred, it is seen as objective and context-free information which can be packaged and transferred in a linear way from one person to another (Greenhalgh & Wieringa, 2011). This can also be described as researchers pushing knowledge in the direction of relevant professionals, or professionals pulling knowledge when they seek to access and acquire research evidence (Ellen et al., 2017). However, a challenge in relation to transferring knowledge is that certain knowledge needs to be seen in a specific context in order to be able to interpret the information and make use of it. This can be eased by involving professionals in the research process and by exchanging knowledge. Exchange of knowledge requires an interactive dialogue (Greenhalgh & Wieringa, 2011). In other words, the relationship between researchers and professionals is important in order to have a dialogue which enables knowledge to be exchanged (Ellen et al., 2017). If the translation of knowledge is taken a step further, the knowledge can be integrated (Van de Ven & Johnson, 2006). In this sense, there is a dialogue between researchers and professionals, and mutual learning and development take place, so that knowledge is merged and new knowledge is created (Tenkasi & Hay, 2008). This integration of knowledge, which involves a reflective process resulting in mutual learning and development, aligns with the assumption that people learn through social interaction, by sharing thoughts, experiences and perspectives (Filipe et al., 2017; Lincoln & Guba, 2013).

Learning and development

Professionals and researchers can contribute to each other's learning processes when they work together on research in the field of ageing and health. Their knowledge in different areas illustrate the differences and demarcation between professionals and researchers, but it also provides an opportunity for development by learning from each other. Mutual learning can be one of the aims of research when researchers and professionals work together (Cornwall & Jewkes, 1995), and social interaction between people such as professionals and researchers can facilitate learning and the development. Learning at workplaces, which takes place through interaction between people, is explained by Engeström (2018), who developed the theory of expansive learning. This theory was developed within the framework of activity theory and thereby builds on the idea of interaction between interdependent activity systems. An activity system consists of rules, community, division of labour, instruments, subject and object, all of which mutually influence one another (Engeström, 2011). Activity theory is grounded in the cultural historical

school. It builds on the thoughts of Vygotsky and Leontjew regarding a dialectic process which involves how human beings, an activity and the environment influence one another (which is seen in relation to the history and the specific context) (John-Steiner & Mahn, 1996). Activity theory can be used to analyse the learning and development which takes place through the interaction of different activity systems (Engeström, 2011), such as the interaction between professionals and researchers. An example might involve work groups of professionals and researchers collaborating and sharing an object, such as a research project. According to Engeström (2011), learning and development are driven by contradictions or tensions within an activity system or between different activity systems. The theory of expansive learning embraces the idea that knowledge is not always stable, and that some knowledge cannot be acquired, but sometimes new knowledge needs to be created (Engeström, 2001). Consequently, viewing knowledge as socially constructed it cannot be isolated from its context, if it is to be applicable and sustainable (Engeström, 2018; Lincoln & Guba, 2013). It is therefore essential to involve professionals in research on ageing and health, since the professionals working in health systems are those who have the knowledge within an organisation (Nonaka, 1994; Wensing & Grol, 2019). Even though, professionals and researchers have considerable knowledge and expertise in their area, they need to work together in order to improve the usability of research in the field of ageing and health.

Rationale

People are living longer, meaning that demographic changes will lead to an increasing number of older people (Foreman et al., 2018; WHO, n.d.-b; n.d.-c), which is expected to result in greater use of care and services in health systems (Bloom et al., 2015). To improve conditions for the ageing population and society at large, it is necessary to ensure there is relevant and usable research in the field of ageing and health since this can strengthen the health systems. There is a need to involve professionals in research on ageing and health to improve the usability of research. One way to improve usability is to ensure that the knowledge acquired is relevant, applicable and sustainable in practice. Professionals who might be affected by the research on ageing and health, or who might contribute to it, should be involved in the research process to improve the usability of the research and bridge the gap between research and practice. Although professionals can be involved in different ways, some mutual aspects are important to take into consideration in terms of researchers involving professionals, or professionals wishing to work with researchers on research projects on ageing and health. Also, despite the assumption that involving professionals in research can ensure context-specific knowledge and improve the relevance and usability of research results, evidence is scarce (Daniels et al., 2020). Knowledge about the involvement of professionals in research in the field of ageing and health is particularly lagging behind (Iwarsson et al., 2019). There is a need to explore the involvement of professionals in research on ageing and health in order to harness potential and handle challenges when aiming to create successful conditions for their involvement. Therefore, this thesis seeks to improve knowledge about the involvement of professionals in research in the field of ageing and health, and to contribute strategies for facilitating this involvement.

Aims

The overall aim of the thesis was to explore the involvement of professionals in research in the field of ageing and health from the perspective of the professionals and researchers themselves, and to contribute strategies for involving professionals in research.

The specific aims of the studies were as follows:

Study I: To explore health professionals' experiences of their involvement in a research project related to ageing and health.

Study II: To identify conceptual areas of professionals' involvement in research projects on ageing and health, from the perspective of the researchers themselves.

Study III: To conceptualise professionals' involvement in research on ageing and health, from the perspective of the professionals themselves.

Study IV: To develop a scientifically based guide for collaboration between professionals and researchers.

The following research questions guided the studies included in the thesis:

- How do professionals describe their experience of the process of involvement in a research project on ageing and health, and what influences the process of involvement? (Study I)
- What can involvement of professionals in research projects on ageing and health lead to, from the perspective of the researchers and from the perspective of the professionals? (Studies II & III)
- What is important for a successful collaboration between professionals and researchers? (Study IV)

Methods

Research approach

This thesis is located within the subject of health sciences. The studies are based on a sociocultural learning perspective. This means that they are based on a view that interaction between the person, the activity and the environment, as well as the interaction between different people are of importance in terms of involvement in activities, and in terms of learning and developing as human beings in society. Furthermore, this thesis was conducted within the UserAge programme (Iwarsson et al., 2019), and therefore aims to contribute to understanding the involvement of professionals in research on ageing and health. This provided the context for the professionals' involvement. In other words, the professionals involved in the studies in this thesis had prior experience of being involved in research conducted in the field of ageing and health. The researchers involved had prior experience of involving professionals in research which were conducted within the field of ageing and health. The studies were both about involvement of professionals and were conducted with professionals and other researchers.

Design

The four studies described in this thesis have exploratory designs. Their design was based on the research questions, which were determined by identifying gaps in knowledge and a consequent need for further research. The design of study IV emerged gradually, since it was found that there was a need to improve the usability of the knowledge acquired through studies I-III.

In study I, the professionals' experiences of being involved in a research study on ageing and health was explored. Their experiences of being involved in one specific research project were chosen, to gain a deeper insight into the process of involvement. A wider perspective was taken in studies II and III, in which researchers and professionals from a diverse range of research projects took part. Studies II and III, explored what the involvement of professionals could lead to from the perspectives of the researchers (study II) and the perspectives of the professionals (study III). It became clear that the knowledge acquired from studies I-III could prove challenging for professionals and researchers to make use of in

practice. Therefore, in study IV, it was decided to review the knowledge from studies I-III scientifically, to improve the usability of the results, and develop a guide for collaboration between professionals and researchers.

The coordination group at the Research Platform for Collaboration for Health and the user council within the UserAge programme were involved in the early phases of developing the research questions and planning the design of the studies. Furthermore, methods were chosen which would not only help the search for answers to the research questions, but which would also enable people to be involved. The professionals were involved in progressively more activities over the course of the studies. In the first study, professionals were involved through a member check, meaning that they were consulted on the preliminary results. This was done to ensure that the professionals recognised their own experiences in the categories and the descriptions. It resulted in further discussion of the results, which were then revised. In the second and third studies professionals and researchers were involved in a number of steps in the research process including interpreting data (statements) by sorting and rating, and a member check of the results. The method used in the fourth study enabled collaboration with the professionals. There was a repeated dialogue about the reviewed research results, and a guide was developed. See table 1 for an overview of the four studies.

Table 1. Overview of studies I-IV

	Study I	Study II	Study III	Study IV
Ontology	Social constructionism			
Epistemology	Sociocultural learning			
Aim	To explore health professionals' experiences of their involvement in a research project related to ageing and health	To identify conceptual areas of professionals' involvement in research projects on ageing and health, from the perspective of the researchers themselves	To conceptualise professionals' involvement in research on ageing and health, from the perspective of the professionals themselves	To develop a scientifically based guide for collaboration between researchers and professionals
Design	Explorative, qualitative design	Explorative, mixed method design	Explorative, mixed method design	Explorative, qualitative and collaborative design
Method	Grounded theory	Group concept mapping	Group concept mapping	Content analysis & research circles
Participants	Professionals, n = 17	Researchers, n=30	Professionals, n = 33	Professionals, n=7
Data collection	Individual interviews	Group brainstorming sessions, individual sorting and rating	Group brainstorming sessions, individual sorting and rating	Scientific articles
Analysis	Constant comparative method	Multidimensional scaling, hierarchical cluster analysis and qualitative analysis	Multidimensional scaling, hierarchical cluster analysis and qualitative analysis	Inductive content analysis
Activities in which the professionals were involved	Member check of results	Interpreting statements by sorting and rating, and member check of results	Interpreting statements by sorting and rating, and member check of results	Repeated dialogue about reviewed results and development of a guide

Participants

Sampling procedure

Purposeful sampling strategy was used to find professionals and researchers with experience and knowledge in the area of focus for the studies who could contribute their knowledge (Creswell & Plano Clark, 2017). Variation of the participants concerning their education and experience was sought when seeking participants for studies II-IV (Merriam & Tisdell, 2016). Professionals were defined as people who work in health systems or in other organisations which contribute to health systems, and included a range of professionals from practitioners to managers and decision-makers. The professionals needed to have experience of being involved in research in the field of ageing and health. Researchers were defined as people working on research within an academic institution and needed to have experience of involving professionals in research in the field of ageing and health. In study I, professionals who had more than six months' experience of being involved in one

specific research project on ageing and health were asked to take part in individual interviews. The principle of theoretical sampling was used in study I, meaning that the order of the interviews within the sample was based on the emerging findings (Charmaz, 2014). For example, as a result of interviews where the professionals made positive comments about their involvement in the research project, some more critical voices were sought. After emerging theorisation of the findings had been saturated (Charmaz, 2014), three more interviews were conducted, both to confirm saturation and to give all the professionals a chance to speak about their experiences of being involved. In study II, researchers with experience of having involved professionals in research projects on ageing and health were invited to take part. The search for researchers with this experience was conducted at a national level and facilitated by contact with researchers within the field of ageing and health. For studies III and IV, professionals with experience of involvement in different research projects in the field of ageing and health were invited to take part. The search for potential professionals who could take part in these studies involved obtaining contact information through researchers who had experience of involving professionals in research projects on ageing and health.

Participant characteristics

Seventeen professionals who had been involved in a research project took part in study I. They had up to 40 years of work experience in healthcare, were between 41 and 65 years old and 65% were women. They had been trained as nurses (n=10), physician (n=1), physiotherapist (n=1), or otherwise trained in social care and public health (n=5). The professionals in this study were all involved in the development and implementation of a research project focusing on preventive home visits for senior citizens (Pre-H). Of the 17 professionals, 13 worked in municipalities, either as managers or conducting home visits. The other four worked in other organisations at a regional level, and had advisory functions in the project.

In all, 30 researchers took part in study II. The researchers had experience of involving professionals in research projects in the field of ageing and health. The professionals were involved as members of reference groups or steering groups as advisers in terms of the research, or by helping to recruit participants, collect data, interpret data, or disseminate results. The academic levels of the researchers ranged from PhD students (n=4), and those who had completed a PhD (n=12), to associate professors (n=8), and professors (n=6). A majority of the researchers were women (73.3%). 26.6% of the researchers had between 5 and 10 years' experience in research and 63.3% had more than 11 years' experience.

Professionals were involved in studies III and IV. They had prior experience of involvement in research projects as members of reference groups or steering groups giving advice on the research, as project leaders, or by recruiting participants, collecting or interpreting data, or disseminating results.

Thirty-three, professionals took part in study III. They had been trained as assistant nurses (n=2), behavioural scientist (n=1), dieticians (n=6), doctor (n=1), nurses (n=8), occupational therapists (n=8), physiotherapists (n=3), public health strategist (n=1), social workers (n=2) and software developer (n=1). Six of them worked as managers. Most of the professionals were women (75.8%). 36.4% were aged 41 to 50 years. 42.4% were above 50 years and 21.2% were below the age of 41. Seven of them had between 1 and 10 years' experience in their line of work, 14 had between 11 and 20 years' experience and 12 had above 20 years' experience. They worked in a municipality (n=21), at regional level (n=11) or were self-employed (n=1).

Seven professionals took part in study IV. They were aged 38 to 52 years, and had at least seven years' experience in their line of work. They were trained as an assistant nurse (n=1), a nurse (n=1), occupational therapists (n=2), a physiotherapist (n=1), and social workers (n=2). Two of them worked as managers, three as practitioners and two worked on development projects.

Data collection and analysis

In study I, qualitative data were collected through individual interviews and analysed using grounded theory (GT). In studies II and III, group concept mapping (GCM) a mixed method was used. Qualitative data were collected through brainstorming sessions and quantitative data were collected through sorting and rating activities. The data were therefore analysed both qualitatively and quantitatively. Data were analysed qualitatively in study IV using content analysis, and professionals were involved via research circles (RCs).

Grounded theory

In study I, a GT approach was chosen since this enables researchers to develop a theoretical description of the emerging findings, which are grounded in the data. Furthermore, this approach enables researchers to work inductively and systematically throughout the data collection and analysis, which takes place simultaneously and iteratively. Constructionist GT inspired by Charmaz (2014) acknowledges the researcher's involvement in the collection and interpretation of data. Thus, the analytical process makes use of researchers' preunderstanding and develops it.

Individual interviews

Individual interviews were conducted with professionals using an interview guide with themes, and obstacles and opportunities within these themes. The themes

included the process involved in the research projects, experiences from collaborative activities, and roles and interactions within the research project. Questions were modified between interviews according to the insights which emerged, and this helped to focus the data collection as well as dig into and gain insights into the professionals' experiences. For example, the professionals found it difficult to elaborate on questions about their role in the projects. The questions were therefore altered to focus on expectations of their involvement in the research project, which helped them elaborate more fully. The interviews were conducted at a place decided by the professionals, and this was often their workplace. The interviews lasted from 39-95 minutes, and all were recorded and transcribed verbatim.

Constant comparative method

The analysis consisted of several steps, beginning with inductive interpretation and line-by-line coding of the first two interviews, and moving on to coding segments of data in the following interviews. The constant comparative method was used for this analysis. This meant that the analysis was an iterative process of going back and forth between data and emerging findings throughout the analysis to ensure that the findings were grounded in the data. Categories were developed, and axial coding was used to understand the relationships between the categories. Abstraction to a theoretical level was facilitated by abduction and by using gerunds in labelling the categories in order to focus on the process. Memos were written to help reflect on the process, and to engage in ongoing analysis. This helped to clarify and elaborate on the emerging categories, and to acquire an understanding of the process the professionals described in the interviews (Charmaz, 2014).

Group concept mapping

In studies II and III, GCM was used, which is a mixed method involving the participants in some of the steps of the research process (Kane & Rosas, 2018). The qualitative phase preceded the quantitative phase, which aligned with the exploratory sequential design (Creswell & Creswell, 2018; Hanson et al., 2005). GCM was chosen for its ability to capture and conceptualise people's experiences, and therefore to define conceptual areas by specifying indicators of the content and establishing boundaries of the concept area (Rosas, 2017). GCM is a structured research process involving the following steps: the first planning phase; brainstorming; the second planning phase; organising; analyses; interpretation and use (figure 1). The study is planned in the first phase, which is followed by brainstorming sessions where the participants generate statements by brainstorming endings to a focus prompt. In the second planning phase, the statements are reviewed and synthesised by the researchers. Next, the participants are involved in

organising the statements by sorting and rating them. Then the data are analysed, and this step is followed by the interpretation and use of the data.

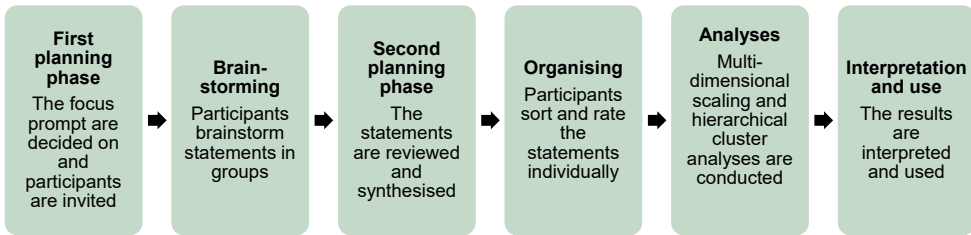

Figure 1. The process for the GCM studies

Brainstorming

Brainstorming sessions were conducted on different days and in different places to make it easier for the participants to take part. The participants chose the day and time which suited them, and they were offered to take part face-to-face or by using a video conference platform. In study II, 26 researchers participated in six brainstorming sessions with two to six participants in each. In study III, 29 professionals participated in eight brainstorming sessions with two to eight participants in each. The brainstorming sessions were held at different places, e.g. their workplaces or online, as best suited the participants. The participants were given instructions to complete a focus prompt by constructing a statement. The aim of the brainstorming sessions was to capture the participants broad experiences which they expressed in statements. Therefore, the rules for brainstorming were followed in the sense that the participants were asked to brainstorm freely and not debate each other's statements, since the intention was not to reach consensus on them (Kane & Rosas, 2018). The focus prompt for studies II and III was *"Involving professionals in research on ageing and health can lead to …".* The participants were encouraged to think about positive as well as negative aspects of what involvement could lead to in relation to both research and practice. Statements like this should have only one focus, otherwise they have to be split into two statements. The brainstorming sessions lasted between one and two hours, and were led by two researchers, one facilitating the brainstorming, and one writing down the statements. The statements were written down and displayed directly on a screen for the participants to see and were saved for further analysis.

Organising

To ensure there was a manageable number of statements for the participants to organise, and to ensure they were representative of the participants' experiences, the collected statements were reviewed and synthesised. The participants then sorted

the statements to indicate their interpretation and perception of how the statements related to each other (Kane & Rosas, 2018). This was done by using a web-based system, Concept System ® groupwisdom™ (Concept System Inc, Ithaca, NY). This system enabled the participants to undertake the sorting and rating activities when it suited them. They could log into the system over a long period and log in several times. The participants sorted the statements into groups based on how they perceived them to be related to each other, and labelled each group of statements. They were instructed not to sort all statements into one group or to put a single statement into a group of its own. They were also told not to create groups by priority or value, and not to create groups with a variety of statements labelled 'miscellaneous' or 'other'. They were informed that it was important to sort the statements first and then rate them. These rated statements were used to assess the participants' perception of the extent to which each statement could strengthen practice when conducting research with the involvement of professionals. Equally, they were used to assess the participants' perception of the extent to which each statement could strengthen research conducted with the involvement of professionals. The participants rated the statements on a Likert scale from 1-4 (1=not at all, 2= a little, 3 = a lot, 4 = very much), and were encouraged to use the entire range of response categories. In study II, 27 researchers sorted the statements, 26 researchers rated their perception of the extent to which the statements could strengthen research, and 24 researchers rated their perception of the extent to which the statements could strengthen practice. In study III, 29 professionals sorted the statements, 30 professionals rated their perception of the extent to which the statements could strengthen practice and 28 professionals rated their perception of the extent to which the statements could strengthen research.

Analyses

The sorting by the participants was analysed using multidimensional scaling (MDS) analysis and hierarchical cluster analysis (HCA) (Kane & Rosas, 2018). The Concept System ® groupwisdom™ (Concept System Inc, Ithaca, NY) was used to conduct the analyses. These analyses allowed the participants' qualitative interpretation of how the statements related to each other to be converted into quantitative information. First, a similarity matrix was calculated. A similarity matrix contains the information from all the sorting by the participants in as many columns and rows as there are statements. Thus, the matrix is a one-mode, n x n matrix, meaning that the rows and columns represent the same thing (Everitt et al., 2011). The sorting of statements was represented in binary terms, i.e. 0 or 1 and the data were fed into one aggregated similarity matrix. This meant that, for each time a participant had sorted two statements together, a 1 was added to the cell. The matrix was a summarised quantitative representation of the participants' qualitative sorting of statements, and enabled a MDS analysis (Kane & Rosas, 2018).

The position of each statement was illustrated by points on a two-dimensional map, using non-metric, MDS analysis. This form of analysis was used because the input data were ordinal. Statements which were sorted together most frequently by the participants appeared closer to each other on the map, illustrating the relations between the statements (Kane & Rosas, 2018). The MDS gave a visual representation of similarities or dissimilarities between the participants' judgement (Everitt, 2011), and in GCM studies this illustrates the participants' interpretation of how the statements relate to each other. The fit between the similarity matrix and the spatial location of the points on the map was represented as a stress value. The lower the stress value the better the fit (Rosas & Kane, 2012). Using GCM the stress value usually lies between .20 and .35 (Kane & Rosas, 2018).

Cluster analysis is a way of classifying and grouping data according to the dissimilarities and similarities of the data (Everitt et al., 2011). HCA was used to calculate the cluster solution using an agglomerative method called Ward's method (Kane & Rosas, 2018). This meant that each statement (illustrated as a point on the map) began as its own cluster. Sequentially, the two clusters with closest statistical proximity merged together. In Ward's method, the two clusters which merge indicate the lowest increase in terms of cluster variance. The error sum of squares, which is the squared difference or Euclidian distance between each point and the cluster's new centroid is calculated for each possible merge of clusters. This means that the two clusters which merge are those with the least variation from the new centroid (Everitt et al., 2011). Deciding on cluster solutions relies on the homogeneity (internal cohesion) of the clusters and on the separation (external isolation) from other clusters (Everitt et al., 2011). In GCM studies, the statements in suggested clusters, and therefore the qualitative content of the clusters and the bridging values, are taken into consideration in deciding on a cluster solution (Kane & Rosas, 2018). The aggregated sorting by all participants is calculated and shown as the bridging value (BV). A statement's BV can range from 0 to 1, and helps to interpret the relative cohesiveness of different parts of the map. The closer to 0 a statement is, the more often it has been sorted with statements in its closest proximity. Based on the sorting of data, these statements anchor the area conceptually on the map on which they are located. A statement with a BV close to 1 indicates that it has often been sorted with statements further away on the map. The BV for a cluster represents the average of all the BVs for the statements in each cluster. If a cluster has a high BV, it indicates that it is a heterogeneous cluster. A low BV indicates it is a homogeneous cluster. A cluster's BV is illustrated graphically as layers of the cluster.

Further qualitative analysis of the latent construct of the concept map was conducted in studies II and III. This enabled the maps to be interpreted and observe higher level areas (Mehdipanah et al., 2013; Miller et al., 2012; Trochim & Kane, 2005). Furthermore, the average values were calculated of all the ratings of the statements, making it possible to present the data in a go-zone map (bivariate scatterplot) and

an absolute pattern match. A go-zone map is used for illustrating the average rating for each statement, and the absolute pattern match for illustrating the average rating of each cluster (Kane & Rosas, 2018). These maps are useful in interpreting the data and further assessing the results. Finally, member checks of the results were conducted.

Content analysis

Content analysis is a useful method for acquiring knowledge and insights into a specific area. It is flexible in its design and suitable for analysing text (Elo & Kyngäs, 2008). Elo and Kyngäs (2008) describe two different approaches to content analysis, deductive and inductive. In a deductive approach, existing theories and literature are used to predetermine categories. This approach is often used to test theories in new settings. An inductive approach, which was used in study IV, enables the researcher to interpret data inductively through open coding, creating categories and abstracting into main categories. This approach is recommended when previous knowledge about the area is fragmented (Elo & Kyngäs, 2008). In content analysis, main and subcategories are created, but the method does not aim to reveal relations between the categories. In study IV the method was used to review the results of studies I-III, and to create categories which could be the basis for the development of a guide for collaboration between professionals and researchers.

Research circles

RCs are a participatory method involving the participants in a democratic and collaborative process. The method enables the researcher and participants to co-create knowledge through dialogue. Where RCs are used, the research process is influenced by underlying democratic values, where everybody's voice is heard, and everyone can influence the co-created knowledge (Holmstrand, 2008). The ongoing dialogue offers participants and researchers the opportunity to develop new understanding by exchanging experiences, knowledge and ideas, thereby contributing to each other's learning processes. RCs have their theoretical foundations in the 20th century (Härnsten, 1994). The method originates in study circles, which are used in adult education in Swedish society (Härnsten, 1994), as well as in education for professionals working within healthcare (Westergren, 2012). A characteristic of RCs is that the focus lies in a problem or area which is often is brought to the RCs by the professionals themselves (Härnsten, 1994). RCs are considered to enable a process of organising the exchange of knowledge between researchers and professionals. In this way, Härnsten (1994) argues that, on an ideological level, RCs are very similar to participatory action research. Furthermore, to nurture the learning process it is usual for everyone who takes part in the RCs to

prepare beforehand (Haak et al., 2015). This may involve reading and familiarising themselves with some material. In study IV, the professionals prepared for the first RC by reading popular science summaries of the three studies, and descriptions of the preliminary categories. The preparation before the second RC involved the professionals familiarising themselves with the reviewed guide. Research circles are a flexible method which can be adapted to fit the aim of the study, the people who take part in the RCs and the context. RCs were chosen to enable a collaborative process with the professionals in developing the guide which was built on the categories from the content analysis. The RCs were conducted through a video platform. Each RC lasted for about two hours.

The process in study IV

The process in study IV was structured using the following steps: initial qualitative content analysis; first RC; continued qualitative content analysis and development of the guide; second RC; finalising the guide (figure 2).

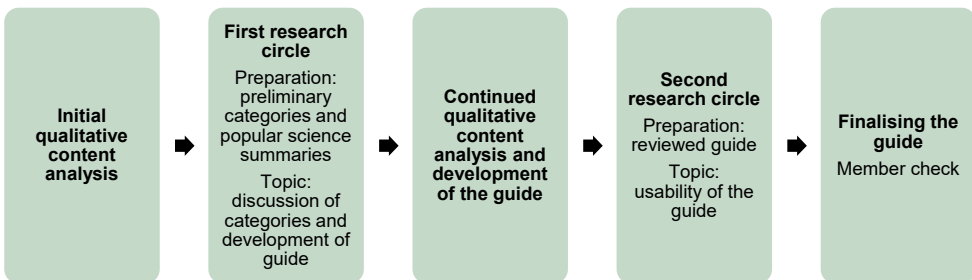

Figure 2. Overview of the process in study IV.

The initial content analysis was conducted inductively, driven by the research question "what is important for a successful collaboration between professionals and researchers?". The results of studies I-III were reviewed and analysed individually. They were then discussed by the researchers at two meetings, where the coding was compared and discussed, and categories were created. This resulted in ten tentative categories.

The professionals who had agreed to take part in the RCs had prepared for the first RC by reading about the three studies and the preliminary categories. The categories were then discussed during the first RC as sections in a guide. The discussion and reflections revealed that further synthesis was needed to improve the readability and usability of the guide. Two main categories were identified through discussion in the RC: one relating to work processes and one relating to interaction in collaboration. It was also discussed that the text in the guide needed to illustrate

clearly that it was aimed at both professionals and researchers. Finally, the need to illustrate the categories in a model was discussed, to highlight the relation between them and the continuous circular process. Hence, the professionals saw a relation between the main categories, where one permeated the other.

The categories, the guide and the notes from the first RC were discussed by the researchers at a second meeting. The content and labels for each category were developed and verified against the data. The guide was developed using the categories as areas for successful collaboration, and highlighted aspects for reflection and discussion in these areas.

During the second RC the focus was on discussing and developing the guide. The professionals were emailed the draft of the guide before the second RC, and were asked to look at four aspects in particular: first, the content of the text in the guide; second, the language in the guide and whether the messages were understandable; third, the layout of the guide which was presented in a table (one column in the table described what to consider in terms of each area, and another described what to reflect on and discuss in relation to each area); fourth, the model illustrating the areas. During reflections and discussion in the second RC it became apparent that collaboration between professionals and researchers, the objective of the guide, could take place in a variety of contexts and groups. A decision was therefore reached not to give specific examples of how to collaborate in the guide, but instead to describe important areas for collaboration and formulate questions for the groups of professionals and researchers to reflect on and discuss. In this way, the guide would help professionals and researchers to engage in ongoing dialogue and collaboration.

Finally, the guide was further discussed and reviewed by the researchers, on the basis of the discussion in the second RC and verified against the data. The guide with the latest revisions was emailed to the professionals for member check and further feedback. Four of the professionals responded by email or by telephone calls, and were generally positive and satisfied with the guide. Two of the professionals suggested minor corrections to some of the text in the guide in order to clarify the content.

Ethical considerations

Ethical considerations involve a process of continuous reflection in which researchers need to engage. Before the studies in this thesis began, an ethical review (DNR: 2018/34) was conducted by the Ethical Review Board in Lund, Sweden. Studies I-III were approved, and the review board gave an advisory opinion, as it was decided that no ethical permission was required. According to Swedish legislation (Lag om etikprövning av forskning som avser människor, 2003), no ethical permission is needed when the research not will be gathering sensitive data, and when it does not involve any risks to the participants. As this was the case for study IV, ethical approval was not required. Ethics were taken into consideration in the four studies, particularly in terms of benefits for participants versus the burdens and risks, the autonomy of the participants as well as the involvement in the research process.

Benefits and risks

The Helsinki Declaration developed by the World Medical Association stresses that medical research with humans should only be conducted if the potential benefits of the study outweigh the burdens and risks for the people taking part (World Medical Association, 2013). It was judged that the studies would be of value for the area explored, and not involve any risk for, or harm to, the participants. There were no direct benefits to the people who took part in the four studies. However, their contribution was considered to add to the development of knowledge within the area, which could benefit future research projects involving professionals. The burden for the participants was taken into consideration, especially in terms of studies II-IV. These studies demanded more of the participants in terms of their time and effort than participation in more conventional research studies, where participants take a test or answer questions. It was considered that the importance of involving the professionals and researchers to ensure their perspectives were included outweighed the burden of demands on their valuable time. However, a general risk with involving people when there are no prior relationships between the researchers and them is that there is no guarantee it will be successful for any of the parties.

All data were handled confidentially, and stored so that no unauthorised person could access them. Data were stored separately from information that could be used to identify the people who took part in the studies. Personal data were processed and stored in accordance with the General Data Protection Regulation (GDPR). Kristianstad University has an overarching responsibility for the research data, and follows the guidelines according to the GDPR. The studies and results were presented in a way that minimised the risk of identifying the participants. In studies where the method involved the participants interacting with each other, such as the

brainstorming session in studies II & III or the RCs in study IV, the participants were informed that they would meet other participants. Since no sensitive data were collected, it was not seen as an obstacle or risk, and in fact some of the participants benefited from it by making new contacts for their future work.

Autonomy

Respecting people's autonomy and helping them to make informed decisions are a part of good research practice (Swedish Research Council, 2017). In all four studies the people who were invited to take part received both written and oral information about the study, such as the aim of the study, the method that would be used and the estimated time their involvement in the study would take. They were given the researchers' contact information, so they were able to raise any questions about the study or their involvement in it with them directly. Informed consent was obtained from all participants before they took part in the studies. They were informed that their involvement was voluntary and that they could end it at any time. It was considered that this clear information about the studies and their involvement in them enabled the participants to make informed decisions. Moreover, care was taken to ensure that the people who were asked to take part did not feel obliged to do so. For example, study I included participants who were involved in another research project (Pre-H). Some of the researchers in study I were also involved in the other project in which the participants were involved. Therefore, actions were taken to minimise the risk of the participants feeling obliged to participate in study I simply because of their involvement in the other project or their relationship with the researchers. When they were invited to study I, the participants were informed that only the researchers who were not involved in the other research project would know who had agreed and who had declined to participate.

Involvement in the research process

The Council for International Organizations of Medical Science (CIOMS) in collaboration with the WHO has developed international ethical guidelines for health-related research involving humans. These guidelines stress the importance of involving stakeholders in the research process, to help ensure the ethical and scientific quality of the research. A variety of stakeholders should be involved early in the process to ensure that the research is relevant (Council for International Organizations of Medical Sciences, 2016). In the UserAge programme (Iwarsson et al., 2019) different stakeholders, such as older people on a user council and research experts on an international advisory committee, were involved in the process of planning the research studies and evaluating the process the studies followed during the programme. Equally, professionals from healthcare organisations who collaborate with the Research Platform for Collaboration for Health at Kristianstad

University were consulted on the planning of the studies included in this thesis. Furthermore, professionals and researchers were involved in studies.

When people are involved in the research process, the interaction between them and the researchers often means that the research becomes relational and situational. For this reason, unforeseen ethical dilemmas and issues may arise (Øye et al., 2019). Hence, ethical issues need to be taken into consideration throughout the interactions to build and maintain trust and equal relations (Council for International Organizations of Medical Sciences, 2016). Equally, *"*research ethics is not static"*,* as the Swedish Research Council notes (Swedish Research Council, 2017, p. 9). This is especially relevant when people are involved in the research process, as the process can change or new challenges can arise, so that new decisions need to be taken. It is therefore important that the researchers constantly reflect on ethical issues which emerge, and reinterpret them or apply them differently (Swedish Research Council, 2017).

Ethical issues were constantly taken into consideration, reflected upon and discussed with supervisors. Ethical issues taken into consideration included the interactions with the people involved in the studies and the demands placed on them, especially in terms of the use of their time and effort in the various parts of the research in which they were involved. The people involved were professionals working largely in health organisations, or other researchers. Often, they took part in the studies within working hours, meaning that the involvement in the research studies took time from ordinary work assignments or demanded that they still fulfilled their ordinary work assignments but in a shorter time. Some of the participants had to obtain permission from their managers to take the time away from their work to be involved in the studies, and some had the flexibility to plan their work themselves. However, an important ethical consideration was to ask the participants to be involved in parts of the research process which were both meaningful for them and useful for the research projects. Furthermore, there is a tacit dimension to involving people in research, especially when their involvement can be unpredictable for both the researchers and the people involved (Löfman et al., 2004). Therefore, to support people to be involved without feeling any obligation, researchers sometimes need to rely on an unspoken and implicit understanding of the relation between them and the people involved. Consequently, alongside informed consent, ethical issues were taken into consideration on an ongoing basis, to ensure that the participants felt capable to contribute but did not feel obliged to be involved. Furthermore, some of the people who took part in the studies were given verbal or written support. Examples of how a tacit dimension was taken into account in enabling people to be involved included acknowledging the importance of their experiences and knowledge for the studies, as well as discussing aspects where they might be unsure how to proceed. Moreover, an important ethical aspect involved disseminating the results of the studies to the people who have been involved, as well as anyone who might have an interest in

the results. Hence, the published articles and popular science summaries were sent to the people who had been involved in the studies. In addition, presentations of the studies were given at relevant forums.

Results

The four studies conducted within the framework of this thesis contributed to the overarching aim of the thesis, which was to explore professionals' involvement in research in the field of ageing and health from the perspective of professionals and researchers and to contribute strategies for involving professionals. The main results which emerged from the four studies are related to prerequisites for involving professionals, the process of involvement and outcomes of the involvement. The results of the thesis illustrate that the area *prerequisites* include external and internal prerequisites. The area *process* involves adapting research and practice, roles, interactions and relationships, as well as mutual learning and development. Finally, the area *outcomes* involves influences on the research process and the usability of the research results, as well as influences on professionals and practice. The involvement of professionals in research on ageing and health can be enabled or challenged by the prerequisites for involvement, the process of this involvement and its intended outcomes. The prerequisites affect professionals' opportunities to be involved in research, and can even affect the process during their involvement. In turn, the process can affect the outcomes of the involvement. Finally, the outcomes, which can emerge during the research project, can affect the prerequisites and the process. Hence, involvement in research is not a simple linear process, but an ongoing iterative process with constant interplay between the three areas, which can affect and change each other (see figure 3).

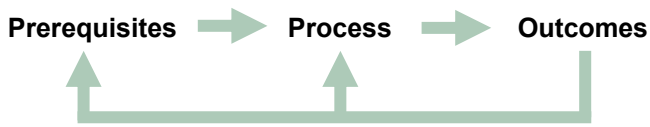

Figure 3. Illustration of the interplay between prerequisites, process and outcomes.

Prerequisites for involvement

External and internal prerequisites can enable or challenge professionals' involvement in research projects. External prerequisites are those involving the surrounding context in which the professional, the researchers or the research project are situated (I). Internal prerequisites are related to specific individuals and the characteristics they bring with them to the research project (I-IV).

External prerequisites

External prerequisites were related to the surrounding context. The professionals experienced that the context in which they were situated had influenced their involvement in the research project and the project itself (I, IV). In particular, the professionals described prerequisites which were related to the organisation where they worked, the politics governing their work and prerequisites which were related to the research process. Political governance, such as political agendas and political decisions, influenced the organisations' overall involvement in research projects, and could therefore influence how individual professionals were involved. Politics could even influence the mutual goal of the project for professionals and researchers, and the process towards this goal (I). Deciding on a mutual goal early in the process was found to be important to ensure the required prerequisites for successful work processes in collaboration between professionals and researchers (IV). The organisational context established the professionals' work conditions, and was a prerequisite which affected their opportunities to be involved in research. For example, having time within ordinary working hours and support from their managers and colleagues were described as important for enabling professionals to be involved in research (I-III), ensuring the continuity of their involvement and the extent of it (II). Even research-related prerequisites such as procedural requirements could influence the process of the research project and therefore the involvement of the professionals (I). For example, when decisions made in the research project led to a need for a change in routines in the professionals' organisations, this became an additional burden for the professionals due to extra assignments (I).

Internal prerequisites

Internal prerequisites involved what the professionals and the researchers brought with them to the research project which could enable or challenge the professionals' involvement. The professionals described that confidence and belief in themselves were prerequisites for their involvement. For example, their motivation for involvement included whether they believed and had confidence that their knowledge and expertise in their area of work made them capable of contributing to the research (I, III). They were also motivated by wishing to work informed by

evidence in their work, and the wish that the research project would strengthen the quality of their practice (I). Internal prerequisites also involved what researchers brought with them to the research project regarding their capability of involving the professionals in the research process. Some of the researchers had experienced that the involvement of professionals demanded greater engagement (II). Some researchers had even experienced they needed to protect their integrity when professionals were involved, and that their freedom was diminished (II). Other internal prerequisites included professionals' and researchers' willingness to learn from each other (III), and underlying values and approaches which influenced the interactions between them (IV).

Process of involvement

During the process of involvement, research and practice could begin to adapt to one another (I). The process of involvement was influenced by the roles, interactions and relationships between professionals and researchers working together on a research project. This entailed different responsibilities and expectations towards each other (I, II). In other words, the relationship between professionals and researchers and how they interacted influenced the process of involvement such as how they work together. This, in turn, influenced how they learned from each other and developed new skills or competences (IV). Planning the process of involvement was important for successful interaction between the professionals and researchers, as well as for a successful work process when working towards fulfilling the aims of the involvement (IV).

A process of adapting research and practice

When professionals and researchers work together, an adaptation process can take place between practice and research, and this in turn can facilitate the professionals' involvement in the research process (I, II). Aligning aspects valued by research with those valued by practice was a time-consuming process, but was necessary to ensure that the interests and values of both parties were incorporated (II), and that mutual values and approaches were developed for establishing common ground in the project (IV). If interests or values of one part dominated the other, it could lead to tensions or conflicts within the group of researchers and professionals (II). Researchers had experienced that research projects involving professionals could lead to less generalisable knowledge, or even poor research where scientific quality might be compromised (II). The researchers considered that the research community might question the quality of the research if it adapted to practice (II). On the other hand, when the interests and values of both parties were balanced, there was a shared feeling of ownership of the project (II), collaboration was facilitated (IV) and there was

greater integration of knowledge (III). Balancing interests and values from practice and research was described as an ongoing process (I, IV). The professionals experienced the process as a long and blurred journey (I), while the researchers experienced it demanded creativity and flexibility on their part, and that it could make the research process unpredictable (II). It could be challenging for researchers to balance the ethical considerations involved in research with adapting it to practice and the wishes of professionals (II). Equally, it could be challenging for professionals to balance their knowledge about the context and preunderstanding of the participants (i.e. the older people) with the agenda or criteria of research projects (III).

Roles during the process of involvement

Different roles entailed different responsibilities and expectations, so a successful work process involved discussing and planning the division of roles and areas of responsibility between professionals and researchers (I-IV). Discussing and planning roles and responsibilities early in a projects process was preferred (IV); if roles and expectations were unclear, the process could be experienced as blurred, and lead to insecurity and frustration for the professionals (I-III). However, depending on the aim and method used in a research project, the way in which the professionals were involved could change or develop, making it difficult to build on static roles and responsibilities (II). An ongoing and iterative dialogue could therefore be required to clarify roles, responsibilities and expectations (I, IV).

When professionals were involved in research projects, they were often assigned new roles as intermediaries or coordinators. In addition, they were often assigned new tasks which could detract from the time they had for their everyday work (III). The professionals often had a responsibility to contribute their knowledge about practice and the prerequisites of the organisation where they worked (I-III). At the same time, the professionals were often assigned a mediating role in terms of transferring research results to the organisation in which they worked (I, II). They described how they experienced a feeling of standing in between the group of researchers and their workplace colleagues (III), but also felt like a link between research and practice (I). They therefore felt a responsibility to represent practice to ensure that the research project made a real contribution to it (I). Acting as this link between research and practice was especially challenging for the professionals when different world views and values between the two groups made them feel divided in their allegiance (III). For example, they were sometimes questioned by their colleagues about their involvement in research, and how they prioritised work tasks (II). Furthermore, the professionals may have had an important role as a link between the researchers and the older people who were participating in the research projects. Hence, they were seen to be more in a position to provide situational information to the older people, who were participating in the research project, which contributed to improved understanding or learning in the older people (III). The professionals also experienced

that their involvement could make the older people feel secure about participating in research, as they trusted the professionals (III).

The researchers' roles and qualities were not always clearly defined in terms of involving professionals in research projects. The researchers often had the role of leading the project, and experienced that the process of involving professionals included a more complex and demanding role for them (II). The professionals saw the researchers in the role of facilitators and leaders of the project, linking the group together (I). Researchers were also seen by the professionals as experts in research whose role was to translate research for them (I). Researchers saw it as their responsibility to make research understandable and accessible, in order to strengthen both research and practice (II). Researchers sometimes experienced conflicts in their roles when they involved professionals, in the sense that they were trying to work towards the positive outcomes expected of the involvement, and at the same time maintain the quality of the research (II).

Interactions and relationships

The interactions and relationships between the professionals and researchers could enable or challenge the involvement of professionals in research projects. During the process of involvement, some of the professionals had experienced mutual trust, respect and acknowledgement between themselves and the researchers (I, II). When the researchers showed genuine interest in their practical experience and knowledge, the professionals felt that their views and knowledge were just as important as those of the researchers. This feeling of equality helped enable them to ask questions, to become more deeply involved, and to contribute their views and knowledge (I). When the professionals felt they were seen and heard, they felt engaged in the research process (III). The professionals considered that the researchers' approach and attitudes towards them established the standard for interaction in the group (I). However, some professionals had experienced challenges in their relations with researchers. These challenges were linked to different kinds of knowledge and a lack of understanding of each other's real-world situations and starting point (III). Researchers could experience conflicts between themselves and the professionals (II), and one part could even experience being a hostage in the projects (II, III). Communication and dialogue were seen as important for fostering good relations (II-IV), reaching consensus (III) and gaining trust (I). Equal and trusting relationships which built on democratic processes were found to increase the chances of successful interaction between professionals and researchers. Dialogue, and reflecting on ground rules for interaction, where mutual values and approaches were discussed, led to a better chance of the interaction being successful (IV). Equally, if the interactions built on democratic processes which aimed to balance power between professionals and researchers, professionals had a feeling of ownership of the research project (I, II).

Mutual learning and development

The process of involving professionals could enable or challenge the opportunities for mutual learning and development. When professionals were involved in research, both the professionals and the researchers were able to inspire and learn from each other (II, III), and acquire a better understanding of each other's perspective (IV). They improved their understanding of each other's area of expertise, so that the professionals learned about research and the researchers learned about practice (II, III). Researchers described how they learned from professionals who were involved in the research project, and acquired a better understanding of professionals' perspectives (II), their practice and the prerequisites of their organisations (I, II). Similarly, professionals described how they obtained insights into the research process when they were involved in a research project (I). When professionals learned about the research process, it changed their understanding of research, de-dramatising it so that their attitudes to it changed (II, III). It enhanced their understanding of how decisions in research projects could be affected by methodological or ethical considerations. With this new understanding of the prerequisites for research, the professionals were better able to take part in decision-making (I, III). Furthermore, when professionals were involved in research and had the chance to learn, their confidence in their own abilities and knowledge improved (III). They grew in their roles (II), and developed a critical approach (III). The learning and development process undergone by the professionals gave them the competences and abilities required to contribute their knowledge and perspectives and thereby to influence the research in which they were involved (III). The new knowledge and skills even helped the professionals to inspire developments in terms of their practice (III). Hence, professionals increased their interest and engagement in research and development projects through their involvement; the more they learned and developed competences, the more interested they were in becoming involved in further development projects (III). Dialogue between professionals and researchers was emphasised as a way of promoting mutual learning (II), and the mutual learning was experienced as contributing to the adaptation process (I) and to more applicable and sustainable knowledge (II).

Outcomes of involvement

The involvement of professionals was experienced as influencing the research process and the usability of the research results, as well as influencing the professionals involved and their practice. Together, these outcomes were considered to ultimately benefit older people (I-IV). Discussing and reflecting on the intended outcomes of involving professionals were highlighted as important for a successful work process when collaborating (IV). Setting mutual goals concerning the outcomes for the research project and outcomes for the involvement of the

professionals was experienced to help balance the interests of both professionals and researchers (IV). Both researchers and professionals had experienced they were able to integrate knowledge and bridge the gap between research and practice. Thus, when professionals were involved in research, practice was informed by evidence, and the research was informed by practice (II, III).

Influence on the research process and usability of the research results

Researchers and professionals experienced that professionals' involvement could influence the research process and the usability of research results (II, III). The research process could be influenced positively when the professionals involved were made responsible for recruiting participants or collecting data. The professionals had experienced that their involvement could improve the recruitment of participants and the quality of the collected data (III), and the researchers had experienced that the professionals enabled the research to take place (II). However, the researchers had also experienced cases where the involvement of professionals could distort the results of research, as the professionals' personal interests affected the research process (II). However, the involvement of professionals could lead to the generation of new research questions (III), of which the researchers were initially unaware (II). Furthermore, the research was considered more justifiable in an ethical sense (II), since ethical challenges which arose over the course of the research project could more easily be brought to the researchers' attention and addressed. This was facilitated by opportunities for dialogue between professionals and researchers, as well as professionals' role as intermediaries between the researchers and the participants, i.e. the older people (III). The more reliable results and more applicable and sustainable knowledge was considered to improve the research and its usability (II, III). Moreover, it was found that when professionals help disseminate the knowledge acquired from research it improved usability (II), particularly when the knowledge was communicated in more everyday language (III). Similarly, the involvement of professionals was experienced to speed up the implementation of research results in practice (III), and to improve the legitimacy of research projects on ageing and health in general (II, III). This could be related to the professionals' experience that the research project was more anchored in practice when they were involved (III). It could also be related to the researchers' experience that the results had increased legitimacy when professionals were involved (II).

Influence on professionals and practice

Both researchers and professionals had experienced that involving professionals in the research process influenced the professionals themselves and had an influence on practice (II, III). The involvement of professionals had led to a learning and development process for them, which was experienced as contributing to the ongoing

development of practice (III). It was experienced that their involvement in research facilitated the development of practice where conditions in organisations were changed, and even resulted in a workplace that was more attractive for the professionals (II). Hence, regardless of the results of the research, professionals' involvement and learning process were seen as having an effect on practice (III). Also, it was experienced, that the involvement of professionals improved the benefits of the research project for the older people who were its intended beneficiaries (III), leading to better healthcare services for them (II), improving health and preventing ill health (III). Therefore, when professionals were involved in a research project, they could improve knowledge and understanding of older people's needs (II, III), and ensure that the research focused on their everyday needs (III), ultimately contributing to more relevant interventions (III). Finally, involving professionals was experienced to bring social benefits (III) and changes to society (II).

Discussion

The results reveal an interplay between three main areas in terms of involving professionals in research in the field of ageing and health: prerequisites, process and outcomes. Hence, the results may be useful when planning, conducting and evaluating involvement of professionals in research projects in this field.

The significance of the prerequisites for involving professionals

The prerequisites for involving professionals in research in the field of ageing and health play a significant role, but are often not taken sufficiently into account in planning or initiating a research project involving professionals. Professionals and researchers need to reflect on, and discuss the prerequisites which will influence the involvement of professionals. This process can help make both professionals and researchers more aware of how these influence whether, and how professionals can become involved in research. It can help them decide whether to make use of existing prerequisites or adapt them to establish more favourable conditions. External prerequisites are related to the context, and professionals involved in research on ageing and health often work in health systems or other organisations which can contribute to older people's ability to age in a healthy way. In terms of professionals working within health systems, it is important to consider the legislation, policies and strategies which affect their work. Other studies evaluating research projects where professionals have been involved illustrate the importance of considering the context and the prerequisites for successful projects (Heaton et al., 2015; van der Graaf et al., 2017). In study I, organisational, political and research-related prerequisites were particularly found to influence professionals' involvement in the research project. For example, having time within working hours, and receiving the support and understanding of management and colleagues enabled professionals to become involved, an aspect which has also been highlighted in other studies (Di Bona et al., 2017; Laird et al., 2020). Di Bona et al. (2017) found that professionals were more able to be involved in research projects if they could share and discuss their experiences and feelings with peers who were also involved. Support and positive attitude from management were also important to encourage their involvement in research as well as management support in

deciding on the extent of the time the professionals would spend on the research. Laird et al. (2020) found that professionals' involvement was challenged by a lack of funding for the time they invested in the research project. One way of ensuring that the prerequisites are considered is therefore for professionals and researchers to discuss this when they are writing the research plan. External prerequisites as well as professionals' prior knowledge, values, attitudes and beliefs influence their use of the research (Green, 2008), so these need to be considered when involved in research.

Professionals' internal prerequisites involve belief and confidence in oneself as being capable of being involved in research (I, III), a willingness to learn from others (III), and underlying values and approaches (IV). When professionals are involved in research, it is important to reflect on the specific ontological models on which the profession is built (Brante, 2014), since professionals rely on these models when they make judgements in their work. Equally, professionals' ways of knowing are a prerequisite to be taken into account in involving them in research. Belenky's (1997) description and categorisation of women's ways of knowing, and how women develop knowledge, are of interest in terms of involvement in research. If researchers acknowledge that people have different ways of knowing and professionals built on different ontological models, they can treat them in a way that facilitates their involvement in research. In this thesis, professionals have been described as a single group. However, if their different ontological models and ways of knowing are taken into consideration, there are actually a number of subgroups with a variety of prerequisites for becoming involved in research. Thus, different professional groups' internal prerequisites are an important consideration for researchers wishing to involve them in research.

Although both external and internal prerequisites are of importance in involving professionals, it is difficult to say whether specific prerequisites or processes lead to a specific outcome, or whether these outcomes are the result of a mixture of prerequisites and processes. Furthermore, the importance of the prerequisites and the context makes it difficult to evaluate research projects in which professionals have been involved, and to translate the results to other areas (Heaton et al., 2015). A clear description of the prerequisites is therefore essential in articles generated by the research, as well as how they were addressed. This can help improve the transferability of the results of research studies.

The significance of process in involving professionals

The process of involvement is facilitated by considering how research can adapt to practice and vice versa, by balancing different interests and values (I). Furthermore, the roles given to the professionals and researchers can influence their interaction

and the work process. If professionals are to be involved in research, there needs to be an awareness of the challenges they could face, in terms of their role in the research project. Professionals involved in research are sometimes made responsible for transferring knowledge between research and practice, and can be called knowledge brokers (Glegg & Hoens, 2016). Knowledge brokers can identify and disseminate research into practice, enable the exchange of knowledge between professionals, policy-makers and researchers, and use knowledge to facilitate development in practice (Kislov et al., 2017). However, along with another study (Øye et al., 2019), this thesis shows that professionals found themselves between two groups with different world views, which put them in a vulnerable position. Being an intermediary or knowledge broker can lead to a feeling of being in between groups, and belonging to neither (Kislov et al., 2017). This vulnerable situation is made worse by uncertainty about whether the professionals represent themselves or the healthcare organisation, or whether they are speaking on behalf of the older people. Unclear roles and expectations can challenge professionals if they are involved in research projects (Sibbald et al., 2014). Hence, unwrapping and understanding the different roles of professionals and researchers, valuing the different knowledge they can contribute (Olswang & Goldstein, 2017) and clarifying their specific roles can help professionals to be involved in research.

The interactions and relationships between researchers and professionals involved in research influence how they work together on the research project. They have different knowledge, which often results in an asymmetric relation. Despite this, they can work together on equal terms if they consider each other's knowledge equally important (Kristensson Uggla, 2014). A recognition that professionals and researchers can contribute different perspectives (Van de Ven & Johnson, 2006) of equal importance can enable professionals to feel confident about the expertise and experience they contribute. This atmosphere of acceptance, alongside establishing a creative environment with trusting relationships and interactions facilitates the likelihood that knowledge will be shared and integrated through ongoing dialogue, which enables the co-creation of new knowledge (I). This co-creation, in turn, entails a process of mutual learning and development for those involved. Professionals are individuals who carry the knowledge in organisations (Nonaka, 1994). Hence, when the aim is to develop the organisation, it is essential to involve the professionals in research which can enable them to learn. Therefore, the involvement of professionals in research can contribute to their own learning and development, which can help develop practice in health systems and policies on ageing and health.

Researchers need to reflect on their values and their underlying ontological and epistemological stances, since this can affect how they interact with professionals (Johansson & Lindhult, 2008). In turn, this can influence the outcome of the research project. Equity and democracy are often valued by researchers who involve professionals in research projects (Holmstrand, 2008). Equity in research is about

acknowledging that the knowledge and experience of different people are equally important. This does not mean that researchers and professionals need to be equally active in all phases of the research process as long as they are kept informed during the process. It is not about the practical involvement of professionals, but about how researchers and professionals interact. In the process of involvement, values such as equity and democracy can be seen as mutual respect and acceptance, where professionals and researchers see each other as equal partners. Power is related to equity and democracy, but the way in which these concepts are viewed influences how people understand and interpret the process of involvement. For example, in Arnstein's (1969) ladder of participation, which focuses on power in decision-making the maxim is 'the more power the better'. However, in terms of involvement in research from a point of view of equity and democracy, there is a focus on inclusion. It is questionable whether it is possible to equalise power and avoid asymmetric relationships between researchers and professionals. Researchers have power in certain aspects given their insights into research, and professionals, particularly managers and decision-makers, have power in others, given their mandate to make decisions which affect the research project. However, determining where the power lies may be less important if not discussing how it is used. If it is used to contribute to equity and democracy by respecting the other people involved in the research project, recognising their knowledge as equally important, it will permeate the interactions and relations. Kristensson Uggla (2014) describes person-centredness in the relation between healthcare professionals and patients as an asymmetric, reciprocal partnership, and this can also apply to the context of involving professionals in research. He emphasises that, despite the asymmetric relations, partnerships can be formed on the basis of mutual trust. Where trust is involved in the relationship, one party is able to hand over responsibility or tasks to the other party. In study I, for example, the professionals felt confident in letting the researchers carry out research-related tasks. However, another aspect relevant to interactions and relationships in terms of involving professionals in research, concerns the hierarchical structures in an organisation, and between different groups of professionals (Martin & Williams, 2019). The health systems in which the professionals work are built on hierarchical structures where some groups of professionals may be more powerful than others. They may have acquired this power through structures in society, which gives some professions authority to make independent judgement and decisions (Brante, 2014). This can result in a power imbalance which influences interactions and relationships when different professional groups are involved in a research project. Furthermore, the exchange of knowledge and learning can be impeded by social boundaries between professional groups in health systems, such as work roles and work practices, and by epistemological boundaries such as different views on knowledge (Ferlie et al., 2005). The different cultures of professionals, sectors and levels within health systems can also lead to tensions, which can influence relations and interactions when professionals are involved in research.

The significance of the intended outcome of involving professionals

This thesis has shown that professionals' involvement in research in the field of ageing and health can influence the research process and the usability of the research results, as well as the professionals themselves and their practice. The outcome of involving professionals in research was rated higher in terms of strengthening research and practice than the process of involvement and prerequisites for involvement (II, III). When the intended outcome of research is to improve evidence-informed practice, findings highlight the importance of knowledge exchange between researchers and professionals (Boaz et al., 2019). This can be facilitated by an interactive, iterative process built on reciprocal, trusting relationships (I). However, as this thesis shows, involving professionals in research can also lead to an increase in practice-informed evidence, where the outcome can be perceived as more legitimate (II). Legitimacy can be achieved when the research process and results are considered representative of the perspective of the people who may be affected by them (Belcher et al., 2015), such as professionals.

According to Nutley et al. (2007) can different ways of using research be illustrated on a continuum from conceptual use to instrumental use. The continuum does not indicate a linear flow, since the use of research is interactive and continuous, and can include a conceptual and instrumental use simultaneously. The continuum can help define intended research outcomes, and therefore develop strategies for improving the conceptual or instrumental use of research. The conceptual use of research involves complex and indirect ways research can be used, such as its impact on knowledge, attitudes and understanding. Examples of the conceptual use of research include instances where research changes ways of thinking or raises awareness about an issue, such as awareness about the need to involve professionals in research to legitimise the research process and results. This way of using research might be less demonstrable but is still as important as instrumental uses. The instrumental use of research can result in a direct impact on practice or policy, such as when research is used to substantiate specific decisions or to identify a solution to a problem (Nutley et al., 2007). For example, research is used instrumentally when relevant interventions or services are developed for the older people as a result of involving professionals in research. The results of this thesis suggest that involving professionals can facilitate both conceptual and instrumental uses of the research. However, sustainable knowledge requires a system theoretical perspective, as learning at different levels in an organisation makes changes more sustainable (Nyström, Höög, et al. 2018). The framework developed by Beckett et al. (2018) illustrates a system theoretical perspective in terms of the outcomes of involvement in research. A system theoretical perspective can help identify important factors for reaching outcomes which influence every level. Also, involving professionals can facilitate a more conceptual and indirect use of research

in terms of the learning and development process which takes place for the professionals in question, and sometimes for the wider organisation. A dilemma concerning conceptual use of research is that it is indirect and often long-term. Consequently, it is difficult to identify whether the outcome would have occurred anyway (Meagher et al., 2008).

The interplay between prerequisites, process and outcome

The results of this thesis illustrate an interplay between prerequisites for involvement, the process of involvement and the outcomes of involvement. Where the aim is to maximise the impact of involvement in research on ageing and health, or to evaluate the outcome of research in which professionals have been involved (Iwarsson et al., 2019), it is important to consider the prerequisites, the process and the intended outcomes, as well as the interplay between these areas.

The intended outcome of the involvement of professionals determines how the professionals should be involved and thereby the process of involvement. Furthermore, the process of involvement determines which prerequisites are required to enable the process of involvement and facilitate the intended outcome. Discrepancies between the intended outcome of the involvement and the prerequisites can hinder the required process (Uvhagen et al., 2018). It is therefore relevant to reflect on and discuss the intended outcomes and decide on mutual goals, not only for the research project but also for the involvement itself. Mutual goals in terms of reaching the intended outcome are important for a successful work process in collaborating with professionals (IV). A realist evaluation of four research projects involving professionals showed that mutual goals in two of the projects acted as a mechanism to strengthen knowledge exchange, and therefore the success of the collaboration and the intended outcomes (Heaton et al., 2015). Realist evaluations aim to explain what works for whom, why it works and under what circumstances (Greenhalgh et al., 2016; Rycroft-Malone et al., 2013), and is therefore useful for evaluating involvement in research. However, involving professionals in research on ageing and health is complex, and it is difficult to say which processes lead to which outcomes under which prerequisites, as there are multiple levels and interacting systems. For this reason, a system theoretical perspective is required (Best & Holmes, 2010). Also, more knowledge is called for on the involvement of professionals in research, particularly exploring whether certain prerequisites lead to certain processes and then to certain outcomes (Oliver et al., 2019). Other frameworks and studies illustrate and share similar characteristics to the results of this thesis. One of these is the PARiHS framework, a practical tool for evaluating implementation of evidence in practice (Kitson et al.,

2008). It illustrates how the context, evidence and facilitation influence the implementation of research in practice (Kitson et al., 1998). The framework defines areas such as the context and evidence, which are similar to prerequisites. Equally, facilitation is similar to process, and implementation is the equivalent of outcome. Another is Donabedian's (1988) framework for quality of care, which includes structure, process and outcomes. These components should be measured when evaluating quality of care. Other studies which illustrate a relation between similar areas include one study by Tabriz et al. (2020), who used a model to describe key inputs, process and outcomes in terms of a case study about partnership between researchers and professionals. Similarly, Nyström, Karltun, et al. (2018) describe the partnership between researchers and professionals as consisting of preparation, process and impact. Furthermore, a longitudinal, realist evaluation was conducted by Rycroft-Malone et al. (2013) in terms of implementing research and showed that the context influences mechanisms (processes) and the mechanism leads to certain outcomes. This thesis, the PARiHS framework, Donabedian's quality framework, and the other studies emphasise an interplay between what are labelled prerequisites, process, and outcomes in the present thesis. However, it is important not to oversimplify the interplay between these areas, since they include several parts which all influence this interplay. Hence, the significance of the different parts within each area needs to be considered and evaluated in order to establish successful conditions for involving professionals in the research process.

Continuum of professionals and researchers working together

How professionals and researchers work together, or how professionals are involved in research in the field of ageing and health, can take different forms and can be illustrated by a continuum. The studies included in this thesis comprise the experiences of professionals who have been involved in different research projects to a different extent. The researchers who took part had experiences of involving professionals in different research projects and to a different extent. Although identifying the aspects of a continuum in terms of involving professionals was not a part of the aim of the thesis, it nevertheless provided insights into how professionals and researchers could work together. Hence, the results of studies I-IV and the above description of continuums of involvement (Arnstein, 1969; Health Canada, 2000; Tritter & McCallum, 2006) inspired a draft of a continuum of professionals and researchers working together on research projects (see figure 4). The goal of this description of a continuum is to enable a shared understanding and a common language for involving professionals in research.

Each step of the continuum of professionals and researchers working together includes the actions from the previous steps. Moreover, the figure illustrates how the different steps are influenced by the prerequisites for involvement, the process of involvement and the outcomes of the involvement, based on the results of this thesis. The arrows illustrate the direction of knowledge transfer, and the size of the dots illustrates the relations and power structure. The continuum is built on the different actions included in the professionals' involvement. The professionals can receive information on research where the researcher disseminates the information. This can be about the latest research findings, such as an intervention or service for older people. It can be disseminated orally through lectures or talks, or in written form through articles or by sending out bulletins. In addition, the professionals can provide the researchers with information through talks or questionnaires, for example. The researchers seek the professionals' knowledge or experiences to gain insights into practice, and they therefore consult them. The two actions, receiving or providing information, lay the foundation for one party to acquire understanding. The knowledge transfer is unidirectional, and the relationship is asymmetric. In a more dynamic process, the professionals can discuss with the researchers, meaning that they exchange knowledge and learn about each other's areas and knowledge domains so that they can cooperate. There is an ongoing dialogue where the information is discussed, and knowledge is exchanged. There is not necessarily a mutual goal or a benefit for both parties, since one party 'owns' the project and it is in their power to make decisions about it. Collaboration involves the co-creation of knowledge. Mutual learning and development occur for both parties, meaning that an iterative feedback process takes place. The knowledge from both parties must be seen as equally important, and mutual learning is essential if the perspectives of both parties are to be incorporated equally in order to integrate knowledge which results in the creation of new knowledge. When professionals and researchers collaborate, they decide on a mutual goal for both parties, and an agreement on how to reach the goal.

There is no single correct way for professionals and researchers to work together in research in the field of ageing and health, but the way in which they work together should be dependent on the intended outcome. The different steps illustrated in the continuum of professionals and researchers working together also illustrate the increasing extent of the involvement. The interplay between the prerequisites, the process and the intended outcome may require more attention the more extensive the involvement is. It is not surprising that research projects have been criticised for being asymmetric or tokenistic if their aim was to collaborate but the prerequisites for enabling collaboration were not met. A study by Sibbald et al. (2014), which interviewed 24 researchers and 25 knowledge users involved in research projects focusing on partnership and knowledge translation, indicated three different kinds of partnership: token, asymmetric and egalitarian (democratic). The egalitarian partnerships were characterised by an equal and symbiotic partnership between the researchers and the knowledge users. Asymmetric partnerships were defined as 'researcher led' with some involvement of knowledge users, and in the token

partnership researchers dominated. It is interesting that more than half of the people interviewed were involved in a research project classified as asymmetric, yet most of them were positive about the partnership process and outcome. This emphasises the need to clarify the intended outcomes of the involvement of professionals, to enable the required process and prerequisites to facilitate the process. The continuum illustrates how professionals can be involved to a varying extent. However, if the goal is to improve implementation of research in practice and shorten the timeline from research to practice (Balas & Boren, 2000), or to develop practice according to the best evidence, it often demands more than dissemination of information. Development generally requires learning, which is enhanced when different perspectives are discussed, and people understand the area from each other's point of view.

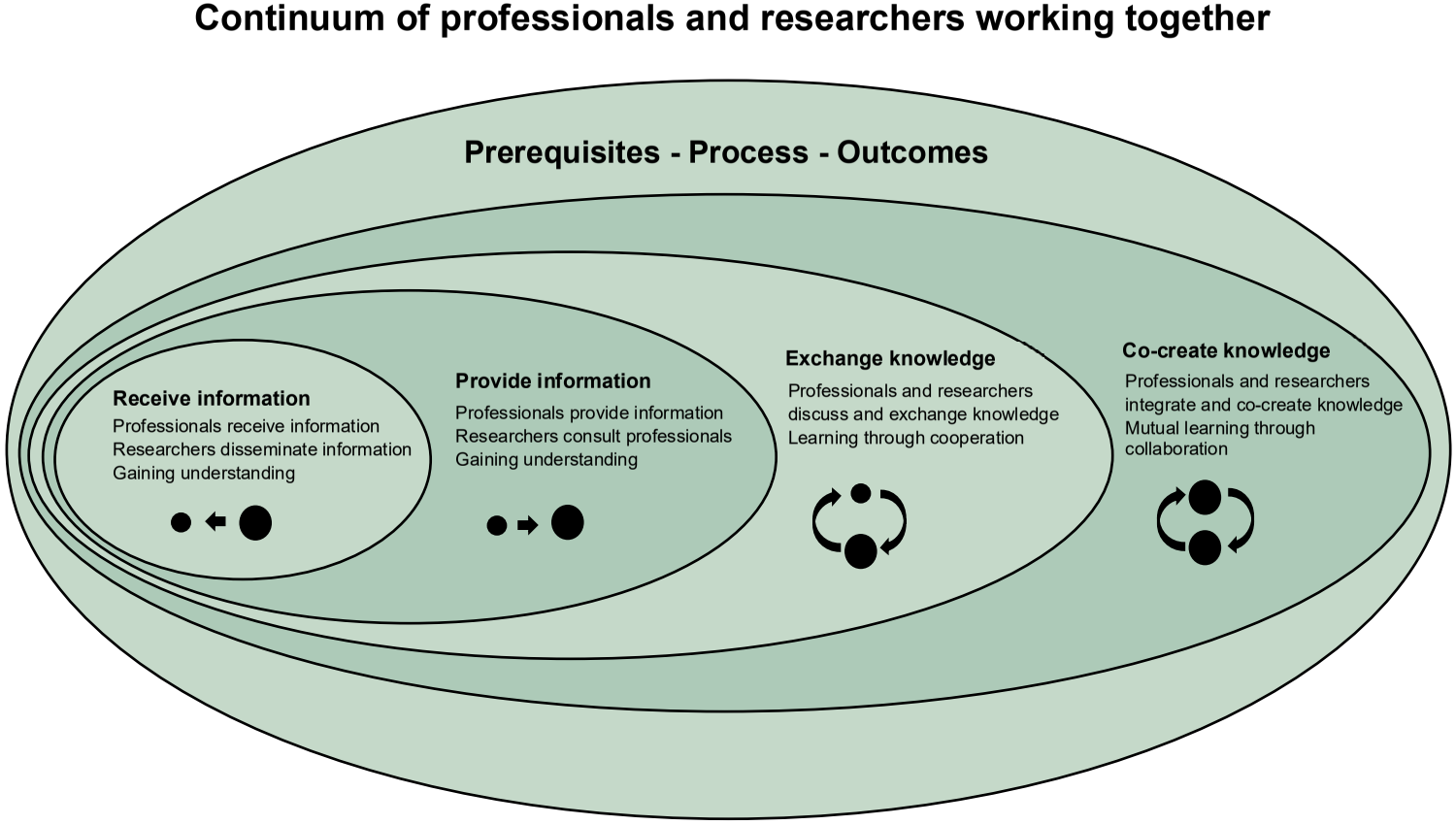

Figure 4. The continuum of professionals and researchers working together influenced by the prerequisites, the process and the outcomes.

Methodological considerations

Different methods were used to answer the research questions in the four studies included in this thesis. In two studies, a mixed method (GCM) was used for collecting and analysing qualitative and quantitative data (II, III). In the other two studies, qualitative data was collected and analysed by using GT (I) and content analysis (IV). In study IV, the professionals were involved in RCs, in order to collaborate with researchers in developing a guide. GCM and GT methods enabled new knowledge to be conceptualised. Reviewing the results of studies I-III using content analysis, and collaborating with the professionals through RCs, enabled the knowledge to be concretised.

Worldview and values

In conducting research, researchers need to consider their philosophical assumptions. Researcher aims to develop a better understanding of phenomena and reveal aspects which are not yet known. Thus, different perspectives and world views must be systematically and responsibly juxtaposed against each other (Kristensson Uggla, 2019). This requires approaching research questions in different ways, and investigating the area in question by using different methods, to acquire more comprehensive understanding and insight. Combining world views is complicated, especially when it comes to involving people in the research process. When researchers collaborate with people from outside academia, it is an unpredictable process which demands flexibility, responsiveness and equity from the researcher (McCormack, 2003). Hence, the interactions and relationships between the researchers and the professionals are important for successful collaboration (IV).

In the studies included in this thesis, it was considered valuable to involve the people who could contribute to the research or might be affected by it. For PhD students, conducting research is a learning process and a way of seeking insights into their own epistemological and ontological view. My learning process and worldview had been influenced by the paradigm in which I was schooled, beginning with my training as an occupational therapist through to my PhD studies in health sciences. As the learning process took place, and there was an increase in knowledge throughout the process from study I to study IV, the extent of the involvement also increased over time. A constructionist worldview influenced the choices made in the studies, such as the decision to involve professionals in the research process, and the use of a method which would enable this. Finally, a pragmatic worldview (Johansson & Lindhult, 2008) influenced the process, as methods and the extent to which the professionals were involved focused on what worked for the group of people in the research projects. In study I, where GT was used, a social constructionist approach was applied, where researchers recognise the role of their

own interpretation and the need for reflexivity in the process of analysis. The analysis also recognises and pays attention to the context and the actions (Charmaz, 2008; Charmaz, 2014). GCM which was used in studies II and III builds on a constructionist worldview by acknowledging the importance of involving people in the research process (Kane & Rosas, 2018). Furthermore, a mixed method like GCM involves applying a variety of world views (Creswell & Plano Clark, 2017), and a constructionist worldview is combined with a pragmatic worldview to focus on real-world issues (Kane & Rosas, 2018). Finally, RCs were used in study IV as a way of collaborating with the professionals, enabling a process of learning and co-creation between the professionals involved and the researchers. This process and the results were influenced by the professionals and the researchers, by their background, experiences, interests and views on knowledge (Härnsten, 1994).

Qualitative approach

A qualitative approach is useful for exploring people's experiences (Merriam & Tisdell, 2016). Equally, since knowledge within the area in question in this thesis was fragmented, an inductive approach was applied. However, the way studies I and IV were designed made it possible to go back and forth between the emerging findings and the raw data. In study I, in which GT was used, the constant comparative method enabled the researchers to go back and forth between the data and the emerging findings, and ultimately abstract data into higher level categories. The study sought to describe the process of involvement through theorisation. Theories can provide an explanation of the phenomena and relations between different categories, seeking to illustrate why and how some relationships lead to specific outcomes (Charmaz, 2014; Nilsen, 2015). However, theorisation for study I was built on limited data from a limited area, and this affected its scope and application. The limitations of both GT and inductive content analysis include their reliance on the available data and on the interpretations of the researchers. The use of GT to analyse the transcripts in study I meant that the focus was on the process. On the other hand, the use of content analysis in study IV involved focusing on similarities and dissimilarities to create categories. However, the professionals who took part in the research circles saw a relation between the main categories, where one permeated the other. Content analysis is a flexible research method which, although it is sometimes criticised for its simplicity, is well established in nursing research and useful for analysing different sorts of data (Elo & Kyngäs, 2008). The flexibility of this method made it suitable for use in combination with RCs in terms of involving the professionals in study IV.

Mixed-method approach

Mixed methods, which combine qualitative and quantitative data and analysis, can strengthen the approach, and provide a more comprehensive understanding of the research question. In studies II and III, a mixed-method design was considered relevant to provide both breadth and depth in the area explored. The complexity of the design involved in mixed methods requires the research process to be clearly structured, and to include steps to make it comprehensible (Creswell & Creswell, 2018). GCM provides this structure for both the researchers and the people involved, and can even be supported by software developed specifically to the method (Concept Systems Inc., Ithaca, NY). GCM enables researchers to involve the people who might be affected by the research, or who can contribute to it and a strength of the method is its flexibility. Depending on the sampling strategy and the logistics of a GCM study, it can allow for either the same people or different people to be involved in brainstorming sessions and the organising step (Trochim & McLinden, 2017). Another strength of GCM is that it can contribute to evaluation, the development of practice and decision-making by giving structure and order to rich and complex data, in turn enabling interpretation of the data (Hagell et al., 2016; Westergren et al., 2018). Also, a conceptual framework seeks to identify indicators and relationships which can be used for further exploration of the phenomena (Nilsen, 2015). Since the qualitative research phase precedes the quantitative research phase in GCM studies, the methods can be aligned with exploratory sequential designs (Creswell & Creswell, 2018; Hanson et al., 2005). However, the method is slightly different from an exploratory sequential design in that it intertwines both qualitative and quantitative data and analysis in a more complementary and additive manner at multiple points in the process (Rosas, 2013). An exploratory sequential design is often used to test quantitative features of qualitative results, such as when a qualitative phase results in themes that could be used as items for an instrument for testing the results quantitatively (Creswell & Creswell, 2018). Qualitative data (statements) is collected in a GCM study, and people are involved in sorting the statements. This involvement contributes to the qualitative analysis of the data. Furthermore, the sorting undertaken by all the people involved in this step is quantitatively analysed by using MDS and HCA. Both the qualitative data (the statements and content of the clusters) and the quantitative data (BVs) are taken into consideration in decisions on a cluster solution for the concept map (Kane & Rosas, 2018).

Trustworthiness

The methods used and the choices made when conducting the studies affected the strengths and limitations of the studies, and therefore their quality. According to Lincoln and Guba (1985) there are four areas that are important for enhancing or establishing the trustworthiness of a study, namely: the truth value of a study,

obtained by establishing the truth of the findings for the participants; the applicability of the study, obtained by determining the extent to which the findings can be applied in another context with different people; the consistency of the study, obtained by determining whether the findings can be repeated in a similar context with similar participants; and finally, the neutrality of the study, which shows whether the findings are biased. Trustworthiness in terms of the collection and analysis of qualitative data is discussed by reviewing the studies' credibility, dependability, confirmability, and transferability. Trustworthiness in terms of the collection and analysis of quantitative data is discussed by reviewing the studies' internal validity, external validity, reliability and objectivity. The content of these concepts relies on the worldview and values of the researchers, as well as the paradigm within which the studies were conducted (Lincoln & Guba, 1985). The worldviews and values on which the studies in the thesis were built have been described in a previous section.

Credibility

Credibility involves the ability to determine credible interpretations and credible findings. In other words, it means establishing confidence in the truth of the interpretations and findings, and that they reflect the reality of the participants' world (Lincoln & Guba, 1985). In study I group meetings were observed and previous reports of meetings were read to acquire an understanding of the context and establish a relationship with the participants (Shenton, 2004). This helped ensure the credibility of how the data were interpreted. The transcribed text was analysed by several researchers and the emerging findings were discussed, revised and verified by conducting member checks with the participants (Lincoln & Guba, 1985). Furthermore, since two of the researchers also were involved in the Pre-H project, this prolonged engagement had given them insights into the participants' experiences, and an understanding of their worldview. In study IV, the credibility of the findings was enhanced by the fact that they were co-created in collaboration with the professionals. The categories and the guide emerged gradually, and was verified on an ongoing basis during the RCs, which also helped the researchers understand the professionals' perspectives. Collaboration was facilitated by the fact that the professionals involved in study IV had also been involved in studies I or III, which had provided an opportunity to build trusting relationships. Building trust is a process, where the researcher demonstrates that the participants can have confidence in the researchers by ensuring confidentiality, ensuring that there is no hidden agenda, and ensuring that the study is in the participants' interests, and that they are given the chance to influence the study (Lincoln & Guba, 1985). Peer debriefing was carried out for all four studies, with both experienced researchers and PhD students, in the sense that manuscripts and preliminary results were presented and discussed at different seminars and meetings. Additionally, to enhance credibility in studies II and III when the statements were synthesised, the emphasis was on the participants' own formulations when creating a statement so

that it captured the meaning of all the statements it covered. Also, member checks were conducted to validate the labelling of the clusters. Furthermore, methods which enable involvement often entail demands on the researchers to ensure that the people involved in the research understand the aim of their involvement, and the instructions they are given. For example, in studies II and III, where the professionals and researchers took part in brainstorming and organising, there was an emphasis on clear instructions, repeated on several occasions both verbally and in writing.

Transferability

Transferability involves the ability of readers to judge how transferable the findings are (Lincoln & Guba, 1985). To make it easier for readers to assess the transferability of the findings in study I, a comprehensive description was given of the context, the participants and the approach taken by the researchers who conducted the Pre-H project. Studies II and III, give a description of the participants, but do not detail the research projects where they had gained their experience. The emphasis instead was on the range and extent of involvement the participants had had. The extent of their involvement differed, but they were not differentiated on this basis, this may affect how easy it is to assess the transferability of the results. The findings of studies I, II and III are presented on a theoretical or conceptual level, which increased the likelihood that they are transferable. Study IV builds on the findings from studies I-III, and concretises previous research results, so this study could, in itself, be said to enhance the transferability of the overall findings. In addition, the degree to which the results of the thesis are abstracted contributes to more general and theoretical knowledge. Hence, the results of this thesis are believed to be transferable and relevant to contexts other than research in the field of ageing and health.

Dependability

Dependability involves the likelihood of obtaining similar findings, in a similar study with similar participants in a similar context (Lincoln & Guba, 1985; Shenton, 2004). To enhance the dependability of the four studies, the methods were described clearly, such as the steps involved in data collection and analysis. This was particularly the case in studies II and III, where a relatively new method was used which may not be familiar to readers, and which was extensive and complex with a number of steps. The manuscripts also contained an illustration of the process to help understand the steps and procedures involved in GCM. In addition, study I included comprehensive descriptions of the participants, the study context, data collection and data analysis. The same applies to study IV, where the processes of analysing data and collaborating with professionals were described extensively in the manuscript.

Confirmability

Confirmability involves the likelihood of establishing whether the findings of a study originate in the participants and their context, rather than the researchers' own views (Lincoln & Guba, 1985; Shenton, 2004). To improve the confirmability of studies II and III, an audit trail was conducted during the process of synthesising the statements. This made it possible to check the synthesised statements against the raw data throughout the process. In study I, the software programme NVivo was used in the analysis when coding and sorting the data and supported the process of going back and forth between the data and emerging findings. Also, in study I, one of the researchers was not involved in the Pre-H project, and had not participated in the project meeting. Equally, two of the researchers did not participate in the RCs in study IV. They were therefore considered neutral in terms of interpreting the raw data, and this enhanced confirmability. Furthermore, in studies II and III, all researchers took part in synthesising the statements and in the latent qualitative analysis. All the researchers were also involved in conducting the qualitative analysis of studies I and IV. Several of the researchers involved in the studies were skilled in GCM, GT and content analysis, which ensured understanding of the data in the studies and of the processes of analysis (Polkinghorne, 2006). In qualitative research, researchers have an important role in interpreting the data, and must therefore reflect on their own preunderstanding of the area in question (Creswell & Creswell, 2018). The qualitative analysis of the studies therefore included discussion of preunderstanding and former experience within the group of researchers. Furthermore, memo-writing was used in study I, which also revealed whether preunderstanding had influenced the way in which the area had been approached. In study I, the constant comparative method enabled a process which ensured that the findings were grounded in the data. However, it is acknowledged that the qualitative interpretations in a constructionist grounded theory approach (Charmaz, 2014) are influenced by the context of the study and the view of both the researchers and the people involved. It is therefore important for the researchers to reflect on their analysis. Researchers' reflexivity in analysing (Berger, 2015) is especially important in projects using methods that enable involvement, and where the boundaries between the researcher and the people involved may be blurred. For example, in collaborating with professionals, researcher can use their insights as insiders (Löfman et al., 2004), which can enhance understanding. This was the case in study IV when developing the guide. However, it is important to reflect on the process and the results. Member checks and peer debriefing were therefore useful in studies I and IV to support the researcher's reflexivity.

Internal validity

Internal validity involves the extent to which the results genuinely reflect the participants' opinions and experiences (Lincoln & Guba, 1985). To ensure intern validity in the GCM studies, precautions were taken to ensure that the people involved understood the information provided about their involvement. Information

was given both orally and in writing, and when they had questions, they contacted the researchers by email or telephone, and the questions were discussed. In terms of the GCM method, Rosas and Kane (2012) reason that internal validity could be called internal representational validity, since it involves the degree to which the concept map reflects the thoughts of the people who have taken part in organising the statements. The internal validity can be strengthened by using quantitative analysis to create a final map which represents the best fit of the sorting, done by all the people who took part in the organising step. The relation between the final map and how each participant sorted the statements is central in GCM studies, to illustrate the extent of internal representational validity. This is measured by the stress value, which indicates the goodness-of-fit between how each participant sorted the statements and the final placement of the points on the point map (Rosas & Kane, 2012). The accepted stress value in GCM studies often lies between .10 to .35 (Kane & Rosas, 2018), but a low stress value is preferred. An acceptable stress value is estimated achievable with a sample of 20-30 participants (Rosas & Kane, 2012). Therefore, efforts were made in studies II and III to enhance internal representational validity by ensuring sufficient people took part in the sorting. The stress value in study II was 0.26, and the stress value in study III was 0.28, which both indicates an acceptable fit between the sorting by individual participants and the point map the analysis resulted in. An aspect which could influence internal validity is how robust the HCA is. Everitt et al. (2011) recommends conducting cluster analysis with different agglomerative methods, to measure the distance between the points, such as single linkage, complete linkage or average linkage. However, Ward's method is automatically used as part of the GCM system (Kane & Rosas, 2018), and this method is sensitive to outliers (Everitt et al., 2011) which can influence the cluster solution, depending on the raw data.

External validity

External validity involves the extent to which the sample in the study makes it possible to generalise the results to a wider population group (Lincoln & Guba, 1985). Rosas and Kane (2012) reason that external validity in relation to the GCM method could be called external representational validity, since it concerns the extent to which the concept map represents the reality of what it is intended to illustrate. Hence, to enhance external validity in studies II and III, researchers and professionals were asked to take part who had a wide range of experience in the area in question. For example, the inclusion criteria for study III enabled professionals to be selected who had been involved in research in relation to their work, but they also had diverse educational backgrounds, and worked at different levels in their respective organisations. In study III, 55% of the professionals invited to take part declined, and in study II 17% of the researchers declined to take part. However, this did not necessarily threaten the external validity of the studies, as there was a broad spectrum of experience with research within the samples in the studies. This was clear from the number of statements which were brainstormed and synthesised,

illustrating that the topic of inquiry was saturated. In study II were 512 statements synthesised resulting in a list of 94 statements and in study III were 432 statements synthesised resulting in a list of 80 statements.

Reliability

Reliability involves the extent of reliable measurements. It is assessed by its consistency, meaning the replicability of the measurements (Lincoln & Guba, 1985). Assessment of reliability in quantitative research focuses on the replicability of test items or total scores. However, in terms of assessing reliability in GCM studies, the focus is on determining the reliability of individual sorting, aggregated sorting and the rating (Rosas & Kane, 2012). Five estimates of reliability were used for the sorting process in the GCM studies (studies II and III). The estimates indicated strong consistency in the way the researchers in study II and the professionals in study III sorted and rated the statements. The estimates of reliability for both the sorting and the rating were compared with two meta-analyses of reliability estimations in GCM studies conducted by Rosas and Kane (2012) and Trochim (1993, November 6). This showed that the estimates of reliability were within the range, and close to the average estimate of results in the two meta-analyses (see table 2). The Spearman-Brown correction was applied to all the reliability estimates conducted. The first estimated the individual-to-individual sort reliability (r_{II}), estimating the consistency of how each individual sorted the statements in relation to each other. The second estimated individual-to-total-matrix reliability (r_{IT}), or the consistency with which each individual sorted the statements in relation to the total similarity matrix. This involved correlating each individual sort matrix with the total similarity matrix. The third estimated individual-to-map reliability (r_{IM}), or consistency between each individual's sort matrix and the Euclidian distance from the final point map. For the fourth and fifth reliability estimations, the sort data from each study (II & III) were divided into two random groups, so that the data were split in half, and the consistency between the matrices of each of the two groups was estimated (r_{SHT}). Finally, the distance between the points on the point maps was correlated for each group, giving the split-half reliability of distance on the map (r_{SHM}). The reliability of ratings was also estimated for studies II & III, both of which involved two ratings (strengthens research and strengthens practice). The internal consistency of ratings was calculated using Cronbach's alpha, and the average inter-rater agreement was calculated using the intraclass correlation coefficient (ICC). Both indicated that the ratings were reliable.

Table 2. Reliability estimates from studies II and III, compared to two meta-analyses

Reliability measurement	Studies in thesis		Meta-analysis (Rosas & Kane, 2012)		Meta-analysis (Trochim,1993)	
	Estimation Study II	Estimation Study III	Average	Range	Average	Range
Individual-to-individual sort reliability (r_{II})	.805	.759	.87	.69 - .96	.815	.67 - .93
Individual-to-total-matrix reliability (r_{IT})	.948	.942	.96	.90 - .99	.929	.88 – .97
Individual-to-map reliability (r_{IM})	.912	.903	.91	.80 - .98	.863	.74 - .95
Split-half-of-sort reliability (r_{SHT})	.775	.792	.86	.65 - .97	.833	.72 - .93
Split-half reliability of distance (r_{SHM})	.724	.687	.63	.26 - .95	.551	.26 - .9
Cronbach's alpha (rating 1)	.996	.995	.97	.91 - .99	N/A/	N/A
Intraclass Correlation Coefficient (ICC, rating 1)	.996	.995	.97	.69 - .99	N/A/	N/A
Cronbach's alpha (rating 2)	.996	.995	.89	.91 - .99	N/A	N/A
Intraclass Correlation Coefficient (ICC, rating 2)	.996	.995	.87	.69 - .99	N/A	N/A

N/A= not applicable

Objectivity

Objectivity can be defined as the extent to which the research is not biased by the researcher. It is strengthened by using a method which is value free and maintains a distance between the observer and the observed (Lincoln & Guba, 1985). Using a mixed method like GCM enables researchers to combine the objectivity of quantitative analysis with a qualitative interpretation when making decisions about a cluster solution in GCM studies.

Limitations

Several measures were taken to ensure and enhance the studies' trustworthiness; however, there are some limitations. The GCM and RCs enabled professionals and researchers to be involved in the studies. A disadvantage of methods which enables involvement is that they can also be very time-consuming for both the people involved and the researchers. Involving an acceptable number of people in the GCM studies was a demanding and time-consuming process. It involved sourcing people to include, informing them about the study, answering their questions and sending reminders about the invitations to take part. Further contact with the people who took part was required over the course of the studies, to remind them of the assignments or to answer questions about them. Several people declined to take part in studies II (17%), III (55%), and IV (59%), mainly due to time constraints, and some dropped out after brainstorming and during the organising phase (sorting and rating) in studies II and III. Furthermore, the thesis had a broad aim, which may have reduced its strength in terms of how applicable the results are to specific

contexts and different extents of involvement. A limitation of the studies in this thesis is that professionals were grouped into one category, and there was no differentiation between different subcategories, such as practitioners, managers and decision-makers or different groups of practitioners. Another limitation is that two of the studies (II, III), did not differentiate between the professionals' experiences of the extent of their involvement in research studies, which could limit the usability of the results. Moreover, the people who took part in the studies were assumed to be in a position to represent their peers. There was an assumption that professionals who have undergone the same education have acquired the same ethics and codes or that professionals who work in the same practice share a common understanding and work within the same standards (Brante, 2014). However, some limitations to representation must be considered since the results imply that the professionals were sometimes representing themselves or peers, and sometimes the older people with whom they worked. In some situations they even represented the researchers.

Implications for research and practice

A number of implications for research and practice have emerged from this thesis in terms of involving professionals in research in the field of ageing and health. The implications highlight all three areas, *prerequisites, process* and *outcome;* however, the interplay between these areas needs to be taken into consideration when professionals are involved in research.

- To ensure the successful involvement of the professionals, the intended outcome needs to be kept in mind when designing the process of involvement, and when considering what prerequisites are required.
- It is necessary to be clear about the roles of the professionals, through having clear descriptions of mutual expectations of their involvement in research.
- To enable the adaptation of research and practice, the interests and values of both parties must be discussed, and mutual goals must be established.
- To facilitate mutual learning and development, trusting relationships between researchers and professionals must be sought.
- To improve researchers' capability to involve professionals in research, they need knowledge of what is required to do so.
- To improve professionals' capability to be involved in research, they need further education about research.

- To reinforce the professionals' confidence in their ability to contribute to the research, researchers need to acknowledge professionals' expertise and knowledge.
- To raise awareness about factors that could hinder or facilitate the involvement of professionals in the research process, external and internal prerequisites must be discussed between the professionals and the researchers.
- To facilitate professionals' involvement in research, a dialogue within the organisation in which the professionals work is needed in order to establish required prerequisites.
- Practice benefits from professionals being involved in research, through the learning and development process which occur. Hence, organisations should support professionals' involvement in research.

Conclusion

This thesis has explored the involvement of professionals in research in the field of ageing and health, from the perspectives of both professionals and researchers. It has illustrated how involving professionals should be seen in terms of the prerequisites for involvement, the process of involvement, and the intended outcome of the involvement. In particular, it highlights the importance of ensuring that the process of involvement aligns with the intended outcome, and that the prerequisites align with the process of involvement. Professionals involved in research in the field of ageing and health often work within health systems, and this entails specific external prerequisites. They also have particular educational backgrounds with associated ontological models, and these are an example of specific internal prerequisites which need to be taken into consideration if their involvement is to be successful. Hence, this thesis provides useful insights into important considerations which are needed when designing and implementing research studies in which professionals are involved. A variety of methods can be used to involve professionals in research, and there is no one-size-fits-all method. This thesis contributes strategies for systematic consideration when selecting an approach where the process required to achieve the intended outcomes is taken into account, as well as the prerequisites required for the process.

Further research and development

This thesis has provided knowledge and insights about involvement of professionals in research. However, it has also uncovered where further research is needed.

- To optimise the involvement of professionals in research, and to investigate whether certain prerequisites and processes can achieve specific outcomes, there is a need for further exploration of the interplay between prerequisites, process and outcome. Additional studies in this area could, for example, further define the characteristics of prerequisites, process and outcome, and develop an instrument to assess the relationships between them. Equally, realist evaluation could be used to explore whether certain prerequisites facilitate specific processes, and whether specific processes lead to certain outcomes.

- To reveal variations between different groups of professionals in terms of their involvement in research, and to highlight different prerequisites, or the need for different processes, further exploration is required of the involvement of professionals from different organisational levels, using a system theoretical perspective.
- To add insights into the prerequisites for professionals' involvement, exploration of the managers' perspective on the involvement of their staff in research is needed.
- To evaluate and improve the usability of the guide developed in study IV, further research is needed.

Acknowledgements

This thesis would not have been completed without the contribution and support from a number of people, for which I am sincerely grateful.

First, I wish to thank all the professionals and researchers who took part in the studies included in this thesis, who contributed their thoughts, experiences and knowledge.

I wish to thank my supervisors, Maria Haak, Pia Petersson and Albert Westergren. During my journey as a PhD student, my supervisors have been important to me, not at least for my learning process, but they also helped me thrive over the years and cared about my well-being. I feel I was particularly lucky to have the three of you as my supervisors. You have each taught me a great deal. The collaboration between you, and the way you have shown me that you can learn from each other, has been a great inspiration. You have supported my learning process and challenged me to go outside my comfort zone, but still given me the support I needed to learn and develop. Thank you for supporting me through challenging times, not only in terms of my studies but also in life.

Maria Haak, my main supervisor. You are an inspiration to me. I am grateful to have had the opportunity to collaborate with you and learn from you. Thank you for all your wise words over the years, always calm and focused, and always having the time to listen to my frustrations. Thank you for your valuable guidance over the years, always keeping me on track, pushing me in the right direction when I needed it, and pulling me back when I ran too fast.

Albert Westergren my co-supervisor. You are creative, thoughtful and think one step ahead, which has been inspiring and a comfort to me over the years. Thanks for all your stories, both the inspirational ones and the funny ones, showing me that professors are also humans. Also, thank you for introducing me to GCM, a method I have become really fond of.

Pia Petersson, my co-supervisor. I have learned so much from you through our many conversations about involvement in research, philosophical reflections and ethical considerations. Many of these aspects cannot really be grasped or understood by reading alone. I really appreciate you taking the time to share your thoughts and experiences, and to support my own reflective process.

The studies were conducted within the UserAge programme, which provided a context for dialogue and learning. Thanks to all the researchers, PhD students and the user council within this programme, who gave critical feedback, and supported my learning process and the development of the studies. Thanks to the principal investigator of the programme, Susanne Iwarsson, for leading our group. Thanks to the user council within the UserAge programme, in particular Stig Ålund, Anne-Marie Storm and Ulf Selin, who have followed my journey and contributed perspectives and thoughts which were valuable for this thesis. Thanks to PhD students Camilla Malm, Isak Berge, Joakim Frögren and Roar Hermansen Østby for contributing to a group where we could support each other, and discuss and reflect together about our research projects and research in general. Special thanks to Camilla Malm for your great sense of humour, always looking on the bright side of life, and making me laugh so much that the tears ran.

This thesis would not have been possible without funding. The Swedish Research Council for Health, Working Life and Welfare (Forte) financed the UserAge programme and therefore this thesis. The Research Platform for Collaboration for Health at Kristianstad University also financed the research conducted within this thesis.

Thanks to all the PhD students I have met during this process. You are many. Thanks to current and former PhD students at the Research Platform for Collaboration for Health for the supportive and inspiring environment and giving constructive feedback at our seminars. Special thanks to Malin Sundström, my mentor when I first became a PhD student. Your support and care were important to me. Gita Hedin, life as a PhD student without you as my number one contact in Messenger would have been difficult. Thanks for your sense of humour, your caring mind and always reminding me of what is really important in life. Also, thanks go to all the current and former PhD students at CASE at Lund University for the inspiring conversations we have had.

I am also thankful I had the opportunity to be part of the Swedish Graduate School for Competitive Science on Ageing and Health (SWEAH), an interdisciplinary research establishment specialising in ageing and health. This involvement contributed to my learning process by giving me the opportunity to take courses in the field of ageing and health. It also gave me the chance to meet PhD students from other universities in Sweden, within different disciplines which also focused on ageing and health, and to discuss aspects of ageing and health from different perspectives.

Thanks to my family. My dear husband Jens Richard for your love, constant support and patience. I could never have accomplished this work without you. "*You were my strength when I was weak, you saw the best that was in me, lifted me up when I couldn't reach, you gave me faith because you believed"*. Thanks to my two loving

daughters Sarah and Lea for your patience and understanding. I am so proud of you both, and you are so loved.

To my dear mother and father Maria and Jens, thank you for all your support and love, and for taking care of the children when I had time constraints. To my parents-in-law Gerda and Børge, thanks for your help, especially for taking care of our home and pets during my research visit abroad.

Thanks to Louise, my friend and sister-in-law, for taking the time to proofread and give feedback on my use of the English language and for always having the time for a 'walk and talk', a cup of tea or coffee, and to discuss all my worries. Thanks to my dear friend Anja Zdyb Lillemæhlum for being such a great support. It felt like all my problems were easier after I talked to you.

To Fanny Sundquist and Therese Martinsson for technical and administrative support over the years.

To all reviewers who gave constructive feedback on the submitted manuscripts, and therefore contributed to the improvement of the papers included in this thesis.

Also, thanks to Concept Systems Incorporated for inspiration, assistance and technical support regarding the use of GCM and the concept system® groupwisdom™.

Thanks to Anchor English for excellent service in proofreading the English in the studies and in the thesis.

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Printed by Media-Tryck, Lund 2021 NORDIC SWAN ECOLABEL 3041 0903

Involving professionals in research
In the field of ageing and health

This thesis focuses on the involvement of professionals in research projects in the field of ageing and health, by exploring the area from both the professionals' and the researchers' perspectives. It provides knowledge about involvement of professionals and strategies for systematic consideration in order to create successful conditions for the involvement of professionals in the research process.

CHRISTINE E. LAUSTSEN is a registered occupational therapist with a Master's degree in Medical Science. She has worked as an occupational therapist in municipalities, focusing on everyday rehabilitation for older people, and has experience of research and development projects. The integration of research and practice has always been an interest in her work.

LUND UNIVERSITY

FACULTY OF MEDICINE

Department of Health Sciences

Lund University, Faculty of Medicine
Doctoral Dissertation Series 2022:37
ISBN 978-91-8021-198-7
ISSN 1652-8220