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THE PROCESS OF OCCUPATIONAL THERAPISTS IMPLEMENTING CLIENT- CENTRED ADL INTERVENTION IN CLINICAL PRACTICE

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**Karolinska
Institutet**

Stockholm 2016

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Published by Karolinska Institutet.

Printed by E-Print AB 2016

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ISBN 978-91-7676-508-1

The process of occupational therapists implementing client-centred ADL intervention in clinical practice

Akademisk avhandling

som för avläggande av medicine licentiatexamen vid Karolinska Institutet offentligen försvaras i hörsal H3, Zanderska huset, Alfred Nobels Allé 23, Huddinge

Fredagen den 16 december 2016 kl. 10.00

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I want to dedicate this thesis to my father Nils. I will thank him for his attitude to education and knowledge that had followed me during this challenge journey into the labyrinths of the academic world.

ABSTRACT

The overall aim: The overall aim of the thesis was to identify and describe the characteristics of the implementation process and what hinders and contributes to the implementation of complex interventions when occupational therapists interact with researchers. The long-term goal of the thesis is to contribute to the development of strategies for the implementation of complex interventions in health care.

Methods: The two studies in the thesis are based on occupational therapists' (OTs) experience of implementing a client-centred ADL intervention (CADL) in collaboration with researchers within a randomized control study (RCT). In Study I, 33 OTs participated in focus group interviews two, six and 12 months after completing a workshop before implementing the CADL intervention to persons with stroke. By using a grounded theory approach, it was possible to describe the OTs' implementation process according to their experiences of being involved in a research project. In Study II, two questionnaires with both closed- and open-ended questions were sent out one year after participating in the workshops and five years after the project was ended. Thirty-one of the 41 OTs responded to the first questionnaire and 19 of 39 responded to the second. This study was a cross-sectional study, and a convergent parallel design of mixed methods was used in order to get a broader understanding of the OTs' attitudes and experiences of being involved in a research project.

Findings: In the analysis of the interviews in Study I, one core category emerged: 'The implementation of a client-centred intervention enabled the fusion of science and practice' and three sub-categories followed: 1) Including in the scientific world, 2) Involving as an actor of science, and 3) Integrating in a partnership. The OTs' attitudes towards engaging in research were changed by support from the researchers, while the OTs acquired more and more experience in using the CADL intervention. The process comprised of being an outsider to the scientific world to being included and then becoming a part of the research as an implementer of science. The findings in Study II explored the OTs' experience after they ended the participation in the research project. Hindrances like access to clients limited the ability to feel safe in using the CADL in meeting with the client or when the OTs had to update the knowledge given in the workshop. Experience of the team's limited support was another factor. The majority of the OTs considered support from the researchers during the time that the project continued to be a factor that facilitated during the implementation of the intervention revealed both one year after participating in the workshop and five years after the project ended. The opportunity to discuss and reflect on the role and experience as implementers to participate in a research project contributed to changes in the meeting with the client. The OTs felt more professional with the support of the CADL. The availability of research-based knowledge, as relayed by the researchers, was a further factor when the CADL intervention became a bridge between practice and science.

Conclusions: To create a context built on a collaborative partnership between practitioners and researchers enabled the fusion of practice and science. Support from the organizations and teams, a sufficient interaction with the researchers, a satisfying self-image, and an accessible context were important and sustainable factors.

Key words: implementation process, clinical reasoning, reflective learning, collaborative research, rehabilitation, research-based knowledge, knowledge translation

LIST OF SCIENTIFIC PAPERS

- I. Eriksson C, Erikson A, Tham K, Guidetti S. Occupational therapists experiences of implementing a new complex intervention in collaboration with researchers: a qualitative longitudinal study. *Scandinavian Journal of Occupational Therapy*. 2016:1-10.
- II. Eriksson C., Eriksson G., Johansson U., & Guidetti S. Occupational therapists' perceptions of implementing a client-centred intervention in close collaboration with researchers: a mixed methods study. In manuscript

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LIST OF ABBREVIATIONS

ADL	Activities of Daily Living
CADL	Client-centred ADL intervention
COPM	Canadian Occupational Performance Measure
EBP	Evidence Based Practice
GT	Grounded Theory
KT	Knowledge Translation
LAS-II	Life after Stroke II
OT	Occupational therapist
RCT	Randomized Controlled Trial

1 INTRODUCTION

The overall aim with the thesis was to identify and describe what characterizes the implementation process (Study I) and what factors will hinder or contribute to the implementation (Study II) of a complex intervention (1) when occupational therapists (OTs) collaborate with researchers. The intention with the thesis is also to contribute to develop strategies for implementing complex interventions in healthcare. The two studies are a part of a larger project LAS II (Life After Stroke) in which persons with stroke participated in a randomized control study (RCT) evaluating client-centred activities of daily living (ADL) intervention (CADL) after stroke compared with usual ADL (UADL) (2-4). The intervention was implemented by experienced OTs invited to participate in a workshop before the implementation phase. Together with the researchers, the OTs gained access to the underlying theories by discussions and reflections during lectures, deepening the configuration of the intervention. Similar projects following the process when practitioners implement evidence-based interventions in practice are described in the literature (5-8)

The background of the thesis is a previous pilot study where OTs in collaboration with researchers developed and implemented a client-centred self-care intervention (CCSCI), which formed the basis for what became the CADL intervention (9). In this previous study the OTs described that the collaboration with the researcher was challenging during the process, where implementation of the intervention was facilitated by sharing experiences and responsibilities. Initially the OTs had expectations for access to a tool that could provide support in their meeting with the client based on the client-centered approach. Additional findings were that the OTs felt that previous clinical knowledge and experience were confirmed, but also the skepticism of the new knowledge would not be possible to integrate into the daily work (10).

There is an ongoing discussion concerning the importance of anchoring healthcare services in research. However, there is a gap between the research-based evidence and the healthcare services available for clients (11). Different frameworks can be used to frame and guide the implementation of the interventions and the complex process that is needed in order to implement interventions. The different factors interacting and collaborating will be further described in general, based on specific concepts but also on what is particular for a profession, e.g., occupational therapy.

The thesis is based on two different frameworks. The first model, Promoting Action on Research Implementation in Health Services (PARISH), describes evidence, context and facilitators as three basic factors important for changing and implementing the new knowledge in practice (12). The PARISH model has since its creation by Kitson et al. 1998 been revised, but the version from 2008 has been used in the thesis. Just recently, there is a new revised version, i-PARISH, where the 'i' stands for innovation. Harvey and Kitson (13) replace evidence with innovation and recipients. They argue that evidence must be generated from practice with initiatives of nursing and healthcare. Furthermore, they

believe that the evidence cannot be implemented in its original form such as clinical guidelines, which must be adapted to suit each situation. They explain that it is a process of ‘tinkering’ where explicit knowledge is interspersed with tacit practice-based knowledge.

The Medical Research Council (MRC) guidance describe the other framework, used since the evaluation process is an essential part when designing and testing complex interventions (14). The MRC guidance provides a framework for conducting evaluation studies where the relationship between various components such as implementation, mechanisms, and context are crucial for process evaluation. For example, implementation of a new intervention will be affected by its existing context, but a new intervention may also in turn change aspects of the context in which it is delivered

Evidence is described in the PARISH model (*Version 2008*) where knowledge is retrieved from different sources and includes four sub-elements integrated with each other (15). The first element is research-based knowledge, which ensures a sustainable level of research. The second is the opinion from the profession, the third is the consideration of the clients’ needs and possibility to be a part of the decision-making process, and the fourth means, among other things, knowledge of the local context, such as the organizational culture. Beyond evidence it is important that context, such as organization, supports the changing process when starting to use, e.g., a new intervention where management and existing culture are impact factors. Kitson et al. explain the three different sub-elements of context: culture, leadership named above, and evaluation (13). Culture is about what characterizes the organization. If it is a learning organization are the decisions decentralizing, and how is the relationship between manager and employee. Leadership contains clarity according to separation of roles, allowable teamwork, and existence of creativity. To evaluate the process of implementation implies comprehensive evaluation on individual and team levels, with the opportunity to achieve different interpretations (12). The third element in PARISH is the facilitators with knowledge and ability to support practitioners as individuals and/or a team (15). In the thesis, the researchers can be viewed as facilitators in relation to the OTs that are trained to deliver the new intervention.

According to Moore (14) and the MRC guidance for complex interventions, context is about: *‘factors external to the intervention which may influence its implementation, or whether its mechanisms of impact act as intended’* (p.8). The evaluation in the implementation process is to ask about what is implemented, and how? The mechanisms of impact are how does the delivered intervention produce change? The context is about how it affects implementation and outcomes. Context includes anything external to the intervention that may act as a barrier or facilitator to its implementation or its effects. As described above, implementation will often vary from one context to another.

The framework emphasized the relationship between the mechanism and context, see Fig 1, with permission from Moore 2016.

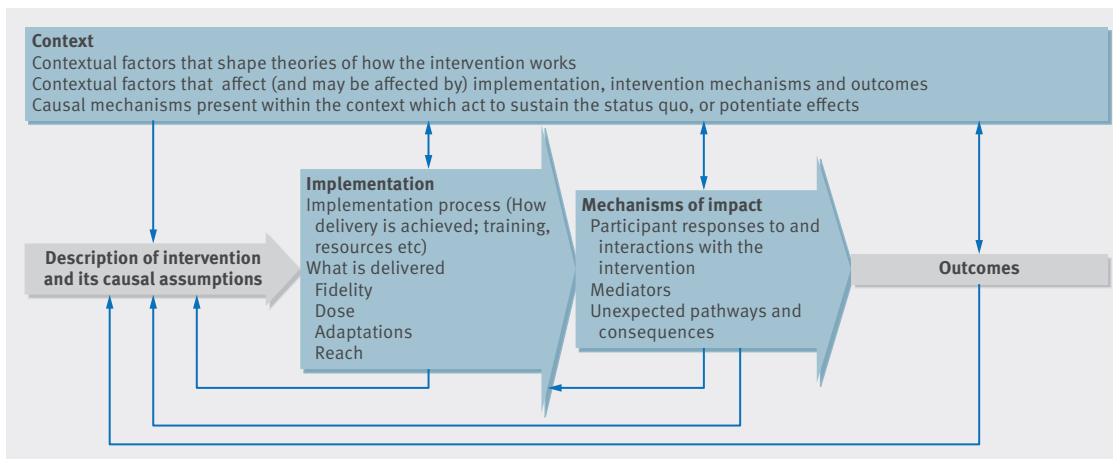


Fig 1. *Key functions of process evaluation and relations among them. (Blue boxes are the key components of a process evaluation. Investigation of these components is shaped by a clear intervention description and informs the interpretation of the outcomes) (1).*

One way to create necessary conditions for minimizing the gap between science and practice may be to involve health professions in research projects with sufficient space, including dialogue and reflections between researchers and practitioners (16) with respect to their experience-based knowledge (17). The opportunity to gain new knowledge is important for practitioners for supporting decisions in practice. Making meeting places and occasions where researchers and practitioners in collaboration study and explore methods, theoretical frameworks, and concepts with the opportunity to discuss and reflect about ‘*what’s in it for me*’. Access to researched-based knowledge and the opportunity in close collaboration to develop tools for daily practice (in this study the CADL) may bridge the gap between science and practice (17).

Being a part where academics and practice will collaborate, which is not a usual daily practice, implies challenges for the practitioners and working in a new way according to, e.g., a new intervention (15). It assumes that there is an interest in assimilating new knowledge and implements what is expected, combined with contextual factors, e.g., an organization with support to the practitioner from the manager (17).

1.1 IMPLEMENTATION

In the thesis the definition of implementation from the National Implementation Research Network has been used: “*a specified set of activities designed to put into practice an activity or program of known dimensions*”. According to this definition, the implementation process is purposeful and needs to be described in sufficient details such as an independent observer, e.g., a researcher, can detect the presence and strengths of the specific set of activities related to the implementation (18). According to the definition above, the observer must be aware of two sets of activities (the intervention-level activity and the implementation-level activity) and two sets of outcomes, the intervention outcomes and the implementation outcomes. The thesis has to identify and describe the implementation-level activity and will present what characterizes the implementation process and what factors will hinder or contribute to the

implementation. The intervention outcomes of this RCT project are described in several other studies (2-4).

Sackett et al. (19) underlined the importance to proceed from researched-based knowledge integrated with experience-based knowledge, when decisions are taken in healthcare, and entitled as evidence-based practice (EBP). The professional weighing of its own expertise must be made with the best available knowledge and the client's situation, experiences, and requests when deciding efforts. The Swedish National Board of Health and Welfare recommend that measures to be implemented are based on reliable bases where evidence from scientific research seems to be one source of knowledge (20). Implementation of science has been more widespread to areas outside medical science as a result of the discussions according to be evidence-based in healthcare (21). Fixsen et al. (22) highlights the different interacting components, which are mutually dependent on each other and influence the implementation in a nonlinear process. There is a need for access to necessary knowledge, time for training the intervention, available supervisors and support during the process, where the interaction with the client is crucial for the result. In occupational therapy the evidence is presented similarly but with even more focus on the clients' prerequisites. Taylor (23) refers to the definition of evidence-based occupational therapy formulated by the Canadian Association of Occupational Therapist as follows: '*client-centred enablement of occupation based on client information and a critical review of relevant research, expert consensus and past experience (p.3)*'.

Different professionals with different commitments, e.g., researchers, implementers and policy makers are involved in the process. The model knowledge-to-action (KTA) illuminates a complex and iterative process where knowledge will put into practice based on collaboration and common understanding between researchers and the users of the research (24). Among other things is it about the individuals' (practitioners as OTs) ability and capacity to translate and transform their own suggestions and attitudes to a new situation (25).

1.1.1 Complex interventions

The intervention itself is a part of the implementation process where the intervention may be more or less complicated according to different aspects. Craig et al. (26) highlights in a model different components included in a complex intervention. These components interact with each other, e.g., the implementers and their behaviours, the person's intervention aimed at, different levels of organization, including the results and variations. Furthermore, the flexibility of the intervention and the possibility of adaptation are key. All these components had to interact to establish a successful implementation.

To access and evaluate the implementation of complex interventions, Moore et al. (14) divided them into three steps, see Fig 1. By quoting Craig, Moore et al. mean that the process evaluation; '*can be used to assess fidelity and quality of implementation, clarify causal mechanisms and identify contextual factors associated with variation in outcomes*' (p.30). In the first step the design of the intervention will be tested and evaluated to estimate the

usefulness and the eventual need for revision. In the next step the results of the intervention will be evaluated according to trustworthiness, i.e., in what way and what has been delivered, in which mechanisms were affected, i.e., about the responses to and interactions with the intervention. Finally how the contextual factors affected the implementation and the results of the intervention. The evaluation continues by establishing routines and normalizing the intervention in a new context as a third step. In the frame of the RCT in the thesis, when the CADL intervention was implemented it was about in what way, by which quality and extent the intervention was carried out.

To follow the OTs involved in a research project, implementing a complex intervention over time, this thesis is unique. The intervention consisted of different parts where the assessment of the Canadian Occupational Performance Measure (COPM) (27) was the basis for the collaborative planning, performance and evaluation of the OTs and the clients. Further, the intervention was implemented in a complex context where both the researcher and the OTs were important actors in the context of the RCT design. Through the completed data collection by using focus interviews and questionnaires, the aim was to identify and describe what characterizes the implementation process and what factors will hinder or contribute to the implementation of a complex intervention.

1.1.2 Process of implementing a complex intervention

Many factors influence the results of an intervention, which implies challenges according to what extent the outcomes of the implementation will be successful or not. To evaluate an intervention may involve following the process at the implementation-level activity over time, to evaluate the manner in which the implementation has taken place, and the usefulness of the 'new way of working'. In '*Developing and evaluating complex interventions*', Craig et al. (26) describes how different factors influence the outcomes such as when an intervention will be developed and evaluated. One example is how the intervention is sensitive according to different contexts; there the interaction between one seemingly simple intervention, in a specific complex context, is perceived to be complex. Organization and logistics are another factors, which may influence a simple intervention to become more complex (26). Moore et al. (14) also underline how the dynamics between different interacting factors are crucial if the implementation processes are successful or not as well as the sustainability over time, see Figure 1. A clear description of the intervention is necessary, but also descriptions of previous experiences in order to be comfortable and to understand the ongoing process when implementing the intervention. Did the practitioners have enough training and support to be comfortable with the intervention? How are the planning and structures around supported communication in accordance with attitudes and preconditions? These factors and mechanisms of the implementation-level activity, described above, may together or separately influence the outcomes and their sustainability over time. Therefore, it is important to use both quantitative and qualitative methods when evaluating the implementation process of complex interventions. Using questionnaires with open-ended questions, rating scales, interviews and so on are important and give the opportunity for a brief and deepened

knowledge and understanding of how different factors influence the process where the practitioners represent an important part (14, 28).

1.1.3 Knowledge translation, knowledge integration

Practitioners in healthcare obtain knowledge from their own experiences and from research-based knowledge (12). Grimshaw et al. (29) highlight the difficulties for health professionals to transfer and implement knowledge from research into daily practice. In the last 10-15 years, several attempts have been carried out to describe, create systems and terms with the ambition to explain this complex process. Graham et al. (30) describe the complexity as follows: *'This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge user'*(p.46).

The concept knowledge translation (KT) defined by the Canadian Institutes of Health Research is one way to explain the process where KT means: *'as a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health, provide more effective health services and products and strengthen the health care system'*(31)(pp.6-7). Straus et al. (32) describe the procedure when the knowledge had to be translated and integrated and where they emphasized the importance of collaboration between the researchers and the knowledge users in formulating research questions, developing instruments, and participating in data collection. Further, the authors explain the process by formulating different questions related to the process; what, to who, by whom, how and with what effects should the research be transferred into practice to reduce the gap. Further, the Canadian Institutes of Health Research (33) defines KT as follows: *'ensuring that stakeholders are aware of and use research evidence to inform their health and healthcare decision-making (29)(p.2)'*, where practitioners are the target group and actors and knowledge users when knowledge had to be implemented into practice. Translation of knowledge is also based on the researchers' competence on the topic, by creating relationships with the people in order to acquire knowledge and to be respected. Additionally with reference to Grimshaw et al. (29), it is important that the target group requires the knowledge and access to supportive organizational structure as a guarantee to be sustainable over time

In a review of Jones et al. (34), according to extended KT, has been used in rehabilitation, describing different components that influence the KT process. Availability to educational opportunities, access to adaptive training materials, and particular emphasis on the feedback and support from researchers is important. Scott et al. (35) consider using KT strategies to enable a higher quality and a prerequisite for practitioners in a longer term by using methods that alter the way of working and approaching clients. Research, when studying the implementation process specifically, showed that the manner in which the practitioners acted when implementing an intervention had impact. Access to knowledge and training is important to maintain high quality when implementing interventions (1, 36).

1.2 CLINICAL PRACTICE AND REASONING

To be a practitioner implies to make researched-based and experience-based knowledge into action in a context with different prerequisites and challenges. In these situations, the guidelines drawn from different diagnostic groups as diabetes, dementia, palliative care, and stroke provide support (37). The National Board of Health and Welfare defines guidelines as follows: *‘National guidelines are a support for those who make decisions concerning the allocation of resources within Health and Medical Care and Social Services. The goal of these guidelines is to contribute towards patients and clients receiving a high standard of medical care and social services’* (<http://www.socialstyrelsen.se/publikationer2015/2015-6-6>). Furthermore, the quality register is established, in terms such as stroke care in Sweden, to measure the extent to which the guidelines are followed (38). Important factors for successful rehabilitation, described in the literature (37, 39), are coherent care process, early discharge, and rehabilitation in the home. In order to use the available guidelines there is need of developing strategies to facilitate how the guidelines should be implemented and efficiently followed.

1.2.1 Occupation, change process and identity

In the role as practitioners, including OTs in health care and rehabilitation, performance activities among others are based on ethical codes designed by the profession. For OTs it means that based on their values and specific assignments, they have the ability to assess, treat and prevent disease risk, and impaired activity capacity. In addition, these ethical codes assume taking support from research when evaluating and developing methods used in rehabilitation, as well as participating and contributing to research and development projects (40). These various tasks require the individual’s ability to act, change, and be embedded in their professional identity.

The term “occupation” used in occupational therapy is described in the Model of Human Occupation (MOHO) as the roles and habits of the human being from an activity perspective (41). “To be occupied” is a human behavior based on what motivates the activity, what and how it is done. Kielhofner (41) describes that people develop, change and become someone else caused by what they do. Individuals need to explore their capacity in terms of the need for new knowledge, new ways to perform the activity or changing habits and roles to finally achieve a change. The exploration according Kielhofner (42) is facilitated by a permissive environment and/or context that allows for an uncertainty of its capacity and ability to change with the opportunity to try new skills and change the past, and thus get an experience of increased competence.

In order to achieve sustainable change in behavior, reflection, feedback and application of work methods, routines and roles are necessary (43). In a previous study (10), the importance of reflection as part of the process was found while OTs were active in the implementation of the new intervention. When participating in a workshop with the researcher, the OTs could describe their experiences of intervention with others (colleagues and researchers), as well as

the OTs could describe expectations and reconnections to the previous experiences of interacting with clients. Mattingly (44) points out that as part of the OTs' identity there are specific ways of clinical reasoning. She argues that OTs in a process of interaction with the client must continuously react to the situation and what is unique to the individual. In the context of a research project, the practitioners (OTs) had the possibility to reflect on their experiences, and these might be one way to strengthen their clinical reasoning and identity to a sense of professionalism (45). It is about a process of change in which the identity is shaped by what individuals are doing and interprets what is being done in context in a relationship with others (46). In the thesis, the OT interacts with both researchers, colleagues and clients

1.3 CLIENT-CENTRED APPROACH

In healthcare today there are discussions about the client's opportunity for participation and responsibility for their care and rehabilitation. Concepts such as patient-, person- and client-centeredness exists in the literature and in everyday speech (47-49), where the client-centeredness has existed as a concept in occupational therapy since the 1980s. In the Canadian Model of Occupation Performance (CMOP), the starting point is to support the client's autonomy and not to focus primarily on how the activities are performed (27, 50). The model was based on Carl Rogers, a psychologist and researcher in psychotherapy, who formulated the concept already in the 1940s, focusing on understanding the client's lived experiences (51). Based on this concept of client-centeredness, it is today an established way of working in occupational therapy, but there are discussions on the extent to which and the manner in which it continues to be used (52). The concept of person-centeredness is considered by many to be more appropriate since it is now used by nursing and health professions more generally (53). However, the client-centred approach is an established concept within occupational therapy and today is widely used to describe the occupational therapists' response based on an activity-based perspective and approach in the encounter with the client. Sumsion and Law (54) summarize some different definitions and considers client-centered occupational therapy characterized by: *'collaborative approach or partnership, respect for the client, facilitating choice and involving the client in determining the occupational goals that emerge from his or her choices'* (pp.154-155).

1.3.1 Client-centered ADL-intervention

Within occupational therapy, the assessment and practice by everyday activities is a substantial part of the OTs work and where research shows evidence for this (55, 56). To eat, take care of personal hygiene, dressing, grooming and transfers are categorized as personal ADL (P-ADL); while instrumental ADL (I-ADL) may involve household activities, managing their finances, and getting out in the community (40). By starting from activities and a client-centered approach, various interventions are designed in occupational therapy, with the goal to get the clients more involved and to take responsibility for their own training and rehabilitation (57-59). The assessment COPM that has been developed is based on CMOP. By using COPM, the practitioners support the client in a problem-based approach to recapture or to try new activities. They do not work out underlying functions such as

impaired motor skills (27, 60). The CADL interventions that have been used in this RCT project evolved from previous phenomenological studies, which demonstrated the importance of study participants experiences. This earlier studies have for example shown that the persons wish to recapture their ability for self-care activities after stroke (60-62). This revealed a need to develop an ADL intervention from a more client-centered perspective. As a first step in the pilot study (9), the researcher held a training course for six OTs about how research-based knowledge is integrated into the CCSCI. After the course, the OTs applied the developed intervention after stroke evaluated in the feasibility study (9, 63). Based on the results of the pilot study (9, 61), the study design and methods were founded to be appropriate for a full-scale RCT (2, 3), with some further modifications to changing the name of the course to the workshop and to make the expectations from the participating OTs correct from the beginning in order to enable engagement and active learning (9, 10, 64). Also, the CADL takes the point of departure in the client-centred approach and the client's lived experiences, the intervention was modified to include all activities that the client needs and wants to perform in everyday life.

The CCSCI developed to be the CADL intervention comprised in turn different steps and strategies in which the OT's role initially was to create a relationship with the client to jointly work out how the training would be designed in the activities that were important for the client to perform. Using that problem-solving strategy, the clients had the opportunity in collaboration with an OT to designing goals, plan training, evaluating, and formulating new goals (65, 66). The group who received the CADL intervention was compared with people who received the UADL. With the UADL training meant that these people received training that was not specific, but the training they received varied in design and method based on the practices and procedures applicable to the participation of the OTs workplace. An evaluation of the extent to which persons with stroke improved their ADL ability was followed up at three months (2) and one year (3) in which the results are presented in various articles. In the results reported, trends were noted on the individual level in terms of change, but not at the group level. Reasons for this may be due to the OTs who performed either CADL or UADL interventions to some extent had worked with client-centeredness before the project.

The OTs who performed a CADL intervention differed from their colleagues in that their documentation in medical records contained more goal settings, together with the client, than those used in the UADL (67).

1.4 RATIONALE FOR THE THESIS

To study the OTs' experience, together with researchers when implementing an intervention, may contribute to reducing the gap between theory and practice in healthcare. Previous research shows the importance of collaboration taking place between practitioners and researchers when research-based knowledge should be implemented in clinical practice. However, there is little knowledge on how to enable implementation through collaboration. Furthermore, there is insufficient knowledge about what contributes and hinders the implementation process, a knowledge that is needed to enable implementation through

collaboration. In this regard, there is limited knowledge both on a general healthcare professional's level and a more specific level, for example, within the occupational therapist profession where the client-centeredness is an important starting point in the daily work. This project is based on how a research-based intervention is implemented within the framework of an RCT project. By taking the point of departure in the OTs' experiences of collaborating with researchers in the context of a RCT, new knowledge on how to implement complex interventions through collaboration between researchers and healthcare professionals is necessary.

2 AIMS

The aims are to identify and describe the characteristics of the implementation process and what hinders and contributes to implementation of complex interventions when occupational therapists interact with researchers. The long-term goal of the thesis is to contribute to the development of strategies for the implementation of complex interventions in healthcare.

The specific aims were:

- I to identify and describe the process of how OTs in collaboration with researchers implemented a client-centred ADL intervention for persons with stroke.
- II to identify factors that may have contributed to the implementation of a new complex intervention in the context of a randomized controlled trial.

Research Questions: What factors could contribute to the implementation process of the new intervention for the OTs? What facilitate and what hindrance could be identified? What kind of sustainable change could emerge over time according to the experiences of the process of integration and use of knowledge?

3 METHODS

3.1 STUDY DESIGN

The licentiate thesis is part of a larger project, LAS II, with the overall aim to build knowledge regarding client-centred rehabilitation after stroke and, specifically, regarding a CADL intervention (2, 3). The research questions in the thesis concern the characteristics of the implementation process. In both studies there were 44 OTs who participated in the development and implementation of the CADL (2) in collaboration with researchers in the context of a RCT. Before the implementation of the intervention, the OTs participated in workshops (five days spread over one month).

The first study is a qualitative, longitudinal study with a grounded theory approach (68) based on focus group interviews with OTs (69), where the implementation process was identified and described. The grounded theory approach was chosen as the method to capture the participants' perspectives and actions in order to describe and explore the process more thoroughly than the actual context. Grounded theory is based on symbolic interaction, where the existence is shaped and changed by people who interact with each other. The theory was conceived in the 1960s by Glaser and Strauss, based on the use of qualitative data collected when theoretical models were developed to describe human behavior (70). Charmaz (68) further developed the model and the method allows for flexibility; it does not put brackets on the researchers' own preconceptions. This means that the way the researcher is involved in or interacted with in relation to the people included in the research previously, acquired theoretical and practical knowledge, which affected the development of the theory (68).

Study II is a cross-sectional study (71) where the convergent parallel design of mixed method has been used in order to get a broader understanding of the OTs' attitudes and experiences of being involved in a research project. According to Creswell (72), the mixed method uses different collected data as interviews, observation protocols or texts. In Study II, open- and closed-ended questions from a questionnaire were used. By combining quantitative and qualitative data in the analysis, the results gave an opportunity to integrate and interpret the experiences from different points of view from the OTs' perspectives. The OTs could understate their own perceptions both quantitatively and qualitatively, as well as formulate their ideas to identify the different factors that may have contributed to the implementation of this new complex intervention (72).

An overview of the different studies concerning methods and data collection is described in Table 1.

Table 1: Study design, Aim, participants, data collection and data analysis in the two studies

Study	Study design	Aim	Participants	Data collection	Data analysis
I	Grounded theory	to identify and describe the process of how OTs in collaboration with researchers implemented a CADL intervention for persons with stroke.	33 OTs	15 Focus-groups interviews	Constant Comparative method
II	Mixed method	to identify factors that may have contributed to the implementation of a new complex intervention in the context of a RCT.	41 OTs 23 managers	Questionnaire (PARISH framework was used)	Descriptive Content Analysis

3.2 STUDY CONTEXT

The thesis Studies I and II were carried out from LAS II, which evaluated the effects of CADL intervention in comparison to UADL. UADL varied in extent and methods according to the knowledge and clinical experience of the individual OT and according to the routines and praxis of the participating rehabilitation units. Sixteen rehabilitation units participated and were randomly assigned to use either CADL or UADL. Before the persons who had a stroke were included into the LAS II, the OTs that worked on the participating units that would be responsible for delivering CADL participated in a workshop (five full days spread over one month). During the workshop, led by experienced researchers, lectures were given and articles distributed on previous research (60, 73), according to concepts and theories (63) as the lived experience commencing a phenomenological perspective in general (74). Even more specifically what does it mean and what are the consequences for persons who had a stroke (64, 75). As part of the intention to facilitate the integration of the research-based knowledge, there were discussions and reflections in a dialogue between the researchers and the OTs, where their previously own experiences of working with persons who had a stroke were raised. Data collection for Study I took place in connection with the follow-up sessions, which the OTs participated in during the time for the implementation.

3.2.1 Participants

The participants in both Studies I and II consisted of OTs who participated in the RCT project and who worked in three different counties in the eastern part of the middle of Sweden. The OT was responsible for informing clients who fulfilled the inclusion criteria about the study and for inviting them to participate in the study (e.g., informed consent). The OTs worked in in-patient geriatric rehabilitation, in-patient medical rehabilitation or home-based rehabilitation units, and had experienced many years rehabilitation (2-39 years) with persons with stroke.

In Study I there were 33 OTs who participated in the focus group interviews (five groups with five to nine participants, in addition to one interview), two, six and 12 months (between

2009 and 2011) after completing the workshops. Eleven OTs from the workshop refrained from participating in the focus groups, where someone stated lack of time as a reason.

In Study II there were 41 OTs and their 23 managers from the three different counties participating. Thirty-one OTs answered the questionnaires, see Table 2.

Table 2 Demographics of the Occupational Therapist (n=31)

	n	mean	%	range
Age		43.2		24-62
Education				
Undergraduate, no Bachelor of Science (BSc)	9		29	
BSc	22		71	
Master of science	3		9	
Specific education in stroke rehabilitation	21		70	
Working with stroke rehabilitation (years)	31	13		2-39

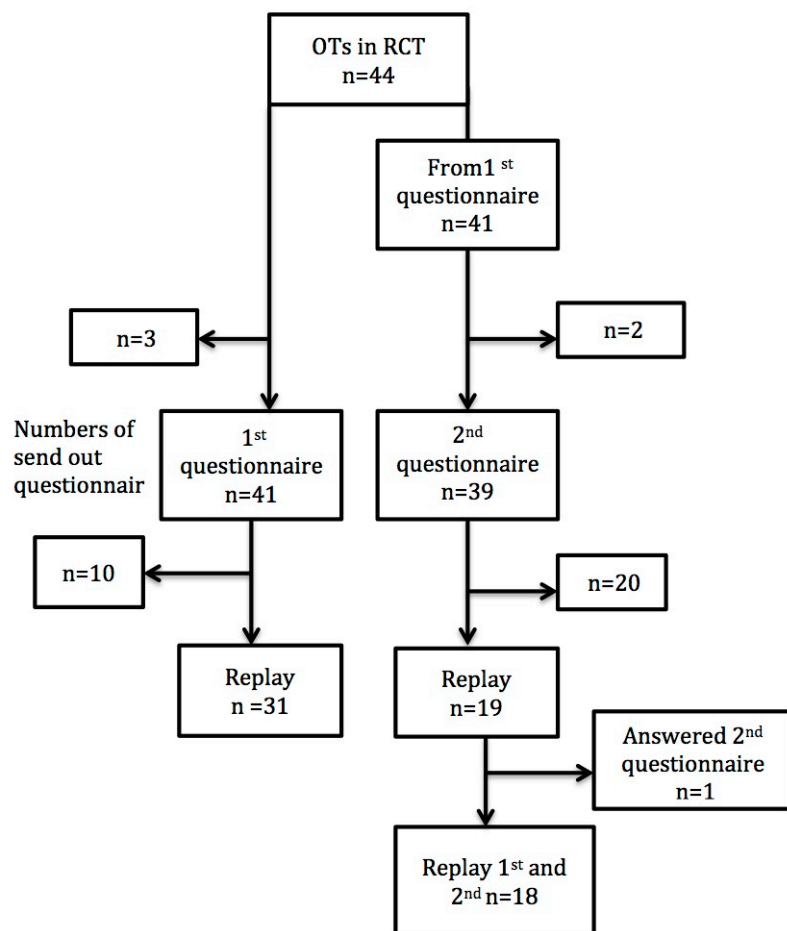
3.3 PROCEDURES AND DATA COLLECTION

In Study I the focus group interviews were conducted with the author as the moderator. The interviews took place two, six, and 12 months after the OTs completed their participation in the workshop. A total of 33 of the 41 OTs who completed the workshop participated in the interviews, distributed in 15 interview sessions. By using focus group interviews, these gave the opportunity for the OTs, in collaboration with the author, to react and reflect on how they constructed their views and actions during the implementation process (69).

Study II is based on two questionnaires with both closed- and open-ended questions that were sent out one year after the OTs had participated in the workshops and five years after completing their participation in the project see Figure 2. The researchers, responsible for the RCT project, designed the questionnaires, by issues taken from the PARIHS model (76). In the closed-ended questions the OTs answered to what extent they agreed or disagreed on issues relating to the participation in the workshop, comments on the intervention design, and views with respect to the extent of support from each workplace. By using Likert scales the answers from the closed-ended questions were recorded. The OTs estimated the extent to which the intervention was useful and the advantages of using it in vertical, visual, and analogue scales (VAS 1-10). To gain knowledge about why some responded to the first questionnaire but not to the second one, an inquiry was sent to the OTs. The closed-ended questions had four various answering alternatives constituting levels of agreement to different statements: from disagree (=0), partly agree (=1), agree to large extent (=2) to strongly agree (=3). The opened-questions tried to capture the experiences of participating in a workshop as a preparation within the framework of a research project in order to implement a new

intervention.

Figure 2 Flowchart the first and the second questionnaire



When the first questionnaire was sent to the OTs, the managers (n=23) also received a questionnaire with 12 open- and closed-ended questions about: time periods of care, number of stroke clients admitted to rehabilitation unit, and if there was some reorganization or other reasons that may have influenced the rehabilitation at the time of the CADL project.

The questions included in the closed- and open-ended questions are reported with the response rates and average values in Table 3

Table 3 Compilation of closed- and open-ended questions one year after participating in workshops and five years after completing participation in the project

Questionnaire	1st / 2nd		1st		2nd		Strongly agree=3		Agree to large extent=2		Partly agree=1		Disagree=0	
	n	m (SD)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Questions														
My role as an occupational therapist														
1	31/17	2.39 (0.61)	1.53 (0.53)	14 (45.2)	2 (11.1)	15 (48.4)	5 (27.8)	2 (6.5)	11 (61.1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
2	31/16	2.32 (0.76)	1.94 (0.77)	13 (41.9)	4 (23.5)	12 (38.7)	7 (41.2)	6 (19.4)	6 (35.3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
3	31/16	1.94 (0.68)	1.56 (1)	6 (19.4)	1 (5.9)	17 (54.8)	7 (41.2)	8 (25.8)	9 (52.9)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
4	30/18	1.70 (0.79)	1.41 (1)	5 (16.7)	4 (22.2)	12 (40.0)	1 (5.6)	12 (4.0)	11 (61.1)	1 (3.3)	2 (11.1)	1 (3.3)	2 (11.1)	1 (5.9)
5	30/17	0.90 (0.48)	1.06 (0.44)	0 (0)	0 (0)	2 (6.7)	2 (11.8)	23 (76.7)	14 (82.4)	5 (16.7)	1 (5.9)	0 (0)	2 (11.1)	1 (6.3)
6	30/18	1.87 (0.86)	1.78 (1.06)	9 (30.0)	6 (33.3)	8 (25.0)	3 (16.7)	13 (43.3)	7 (38.9)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
7	31/17	2.29 (0.69)	2.41 (0.51)	13 (41.9)	6 (37.5)	14 (45.2)	6 (37.5)	4 (12.9)	3 (18.8)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Conditions in the workplace														
8	30/16	2.53 (0.63)	2.07 (0.96)	18 (60.0)	6 (37.5)	10 (33.3)	6 (37.5)	2 (6.7)	3 (18.8)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
9	30/-	2.57 (0.63)		19 (63.3)		9 (30.0)		2 (6.7)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
10	29/18	2.38 (0.73)	1.59 (0.94)	15 (51.7)	3 (16.7)	10 (34.5)	7 (38.9)	4 (1.8)	6 (33.3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
11	31/-	2.42 (0.56)		14 (45.2)		16 (51.6)		1 (3.2)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
12	31/17	2.19 (0.75)	1.13 (1.02)	12 (38.7)	2 (11.8)	13 (41.9)	3 (17.6)	6 (19.4)	7 (41.2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
13	31/16	1.55 (0.85)	1 (1)	4 (12.9)	1 (6.3)	12 (38.7)	4 (25.0)	12 (38.7)	4 (25.0)	3 (9.7)	7 (43.8)	3 (9.7)	7 (43.8)	7 (43.8)
14	31/-	2.00 (0.45)		3 (9.7)		25 (80.6)		3 (9.7)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
15	31/-	2.26 (0.51)		1 (3.1)		21 (67.7)		9 (29.0)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
16	31/-	2.87 (0.34)		27 (87.1)		4 (12.7)		0 (0)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
17	21/-			9 (29.0)		18 (58.1)		4 (12.9)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
18	31/-	2.29 (0.69)		9 (29.0)		18 (58.1)		4 (12.9)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
19	16/-													

Table 3 (Continued)

Questionnaire	1st / 2nd	1st	2nd	m (SD)	Strongly agree=3		Agree to large extent=2		Partly agree=1		Disagree=0	
					1st	2nd	1st	2nd	1st	2nd	1st	2nd
Questions	n	n (%)		n (%)		n (%)		n (%)		n (%)		
CADL-intervention												
20 Understanding the theoretical basic idea	29/-	2.48 (0.57)	15 (51.7)	13 (44.8)	1 (3.4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
21 Utility of the articles from the workshop	31/17	1.87 (0.62)	4 (12.9)	19 (61.3)	6 (33.3)	8 (25.8)	10 (55.6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
22 Increased understanding of the client	30/17	1.53 (0.82)	4 (13.3)	3 (16.7)	7 (38.9)	14 (46.7)	7 (38.9)	2 (6.7)	1 (5.6)	0 (0)	0 (0)	0 (0)
23 The plastic-coated card supported the work	31/-	1.94 (0.81)	9 (29.0)	11 (35.5)	11 (35.5)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
24 Changed work because of CADL	30/16	1.30 (0.76)	3 (10.0)	2 (11.8)	3 (17.6)	18 (60.0)	12 (70.6)	2 (6.7)	0 (0)	0 (0)	0 (0)	0 (0)
Specify how changing way of working	19/9											
25 CADL increasing quality of rehabilitation	31/14	1.32 (0.79)	4 (12.9)	0 (0)	5 (33.3)	21 (67.7)	10 (66.7)	2 (6.5)	0 (0)	0 (0)	0 (0)	0 (0)
26 CADL facilitated planning and decision	31/15	1.35 (0.84)	3 (9.7)	1 (6.3)	5 (31.3)	15 (48.4)	10 (62.5)	4 (12.9)	0 (0)	0 (0)	0 (0)	0 (0)
27 Increased interest using evidence in praxis	31/15	1.52 (0.68)	2 (6.5)	1 (6.3)	8 (50.0)	15 (48.4)	7 (43.8)	1 (3.2)	0 (0)	0 (0)	0 (0)	0 (0)
28 The use of the various steps in the CADL	22/-											
How is it today												
29 Still using the CADL	29/15	2.1 (0.56)	3 (10.3)	3 (18.8)	4 (25.0)	6 (20.7)	4 (25.0)	6 (20.7)	4 (25.0)	0 (0)	0 (0)	0 (0)
30 Using CADL with other diagnosis	31/16	2.39 (0.56)	1 (3.2)	1 (5.9)	8 (47.1)	13 (41.9)	8 (47.1)	13 (41.9)	8 (47.1)	0 (0)	0 (0)	0 (0)
31 I'm working client centred in my daily work	31/16	2.1 (0.56)	6 (19.4)	2 (12.5)	2 (12.5)	21 (67.7)	2 (12.5)	4 (12.9)	4 (25)	0 (0)	0 (0)	1 (6.3)
32 What does it mean to work client-centered	20/14											
33 Good to participate in research project	18/14											
34 Less good participating in research project	14/8											
35 What made it easier using the intervention	14/7											
36 What barriers of using the intervention	19/10											
Scale												
37 Confidence utility of the CADL	30/15	7.50 (2.24)	18 (60)	9 (56.3)	6 (43.7)	2 (6.6)	0 (0)	2 (6.6)	0 (0)	0 (0)	0 (0)	0 (0)
38 Confidence in the usefulness of it	29/15	7.59 (2.22)	20 (68.9)	8 (50.1)	7 (43.6)	2 (7.1)	1 (6.3)	2 (7.1)	1 (6.3)	0 (0)	0 (0)	0 (0)

Note. Organized chronologically based on the structure of the questionnaire

3.4 DATA ANALYSIS

3.4.1 Grounded Theory (Study I)

According to Charmaz,(68) the analysis method is not a linear process when moving back and forth in the collected data (constant comparative method). The focus group interviews were recorded and memo writing was used during the data collection process and analysis. Between the various interview sessions, the researcher listened to the recording of the interview and went through field notes, which led to a revision of the questions before the next interview. All the interviews were transcribed verbally.

The author read all the focus group interviews and selected initially two from each workshop that had taken place at two, six, and 12 months. These selected interviews included rich-detailed data where the OTs interacted and actively communicated to each other according to their experiences. One of the interviews was deleted depending on too few participants when some OTs cancelled the same day. By following the guidelines in accordance with Charmaz (68) six focus group interviews in total were analyzed by using initial coding of each interview, where the author by staying close to the data that identified indications of various events that the participants described and expressed. The initial line-by-line coding identified meanings and actions related to empirical problems and processes (68). The objective was to identify and describe the OTs' experiences of being involved in research, their comments on the workshop, their relationship with the researchers, and how new knowledge influenced everyday clinical practice. The coding led to theoretical samplings where another interview from each time interval was added, which resulted in saturation of the data. In the next step the focused coding synthesized the codes into larger units to determine the extent to which these were adequate and complete. By going back and forth between the interviews, the data was compared with memos, previous categories and quotes, and created new categories. As the last step, by using the axial coding, the dimensions of the categories were refined by relating the sub-categories to the categories. Throughout the analysis process constantly compared methods were used, and the results were discussed between two of the researchers on the basis of coding and the different categories and sub-categories that emerged. The results were also discussed with the other researchers within the framework of the project where the study was included as a sub-study of the larger project, as well as other researchers and doctoral students who were in the institution that the study proceeded from.

3.4.2 Mixed Method (Study II)

In Study II a mixed method was used taking the analysis and integration of two different types of data (qualitative and quantitative) with the opportunity to see the context and the way these were connected to each other (77). When using a mixed method with a convergent parallel design, the analysis of the two types of data was made separately before being compared and related to each other in the final interpretation.

The responses of the closed-ended questions were compared and integrated with the open-ended questions, where the participants' perspectives and attitudes to the intervention itself

emerged and how the processes influenced the intervention more on a personal level in the daily work (78-80).

3.4.2.1 Descriptive data and analysis

In order to present and analyze the collected nominal and ordinal data, descriptive statistics from the two questionnaires were used. Frequency, median, and average were processed and ensured statistically, which required a certain amount of data regarding the selection. The participants' perception and response rates on the various issues are presented by using Statistical Package for the Social Sciences (SPSS) Version 22 (81).

3.4.2.2 Content analysis

The second analytical method used in Study II was the open-ended questions analyzed by a qualitative content analysis in order to interpret a text's meaning (i.e., that which is latent) in order to compare and gain a deeper understanding when the answers were consistent or shifted based on different issues (82, 83). The analysis was not a linear process but the meaningful units were used to further be coded and categorized. During the time when the analysis took place, it was important to go back and forth in the data to compare them as a whole and parts of the text. The first step was to compile and divide the material from the first questionnaire into meaningful units, which were then sorted and coded on the basis of content. A coding scheme was designed and discussed within the research group until consensus was reached leading to some codes being changed.

As the next step, the second questionnaire was analyzed and the OTs' perceptions on the questions included in both questionnaires were compared. During the analysis of the open-ended questions from the second questionnaire, statements were sorted, compiled and compared with analysis of the first questionnaire, finally summarized into three categories: *1) Interaction with others, 2) experiences that are personally related, and 3) factors of contextual impact* (84).

3.5 ETHICAL CONSIDERATIONS

Participation was voluntary in both studies. The OTs were given a guarantee that information regarding their personal identity would not be revealed. In Study I, the OTs had approved the possibility to participate in the evaluation and implementation of the CADL intervention. Study II was an extension of Study I, where the questionnaires were sent out after the OTs had finished their participation in the project. Afterwards, the OTs received clear repeated information about the questionnaire.

Ethical approval was obtained from the regional ethical review board in Stockholm (Dnr 2009/727-31/1).

4 FINDINGS

The findings in this thesis describe how research-based knowledge was implemented in practice, by identifying and describing the characteristics of the implementation process and what hinders and contribute to implementation of complex interventions when OTs interact with researchers. The OTs described their experiences and what characterizes the implementation of CADL over time (*study I*) and after project completion, which stated what was sustainable over time (*study II*). The OTs also described a change in the daily practice of awareness where they have started to listen to the client, and the research-based knowledge contributed to that the OTs became more professional in the meeting with the client (*both study I and study II*)

4.1 STUDY I

Study I was aiming to identify and describe the process of how OTs in collaboration with researchers implemented the CADL intervention for persons with stroke. Findings from the study indicated the importance in incorporating practitioners when implementing research. One core category emerge as *'The implementation of client-centred intervention enabled the fusion of science and practice'* as well as three interrelated subcategories, were defined as follow; 1) *Including in the scientific world*, 2) *Involving as an actor of science* and 3) *Integrating in a partnership*. See Figure 3

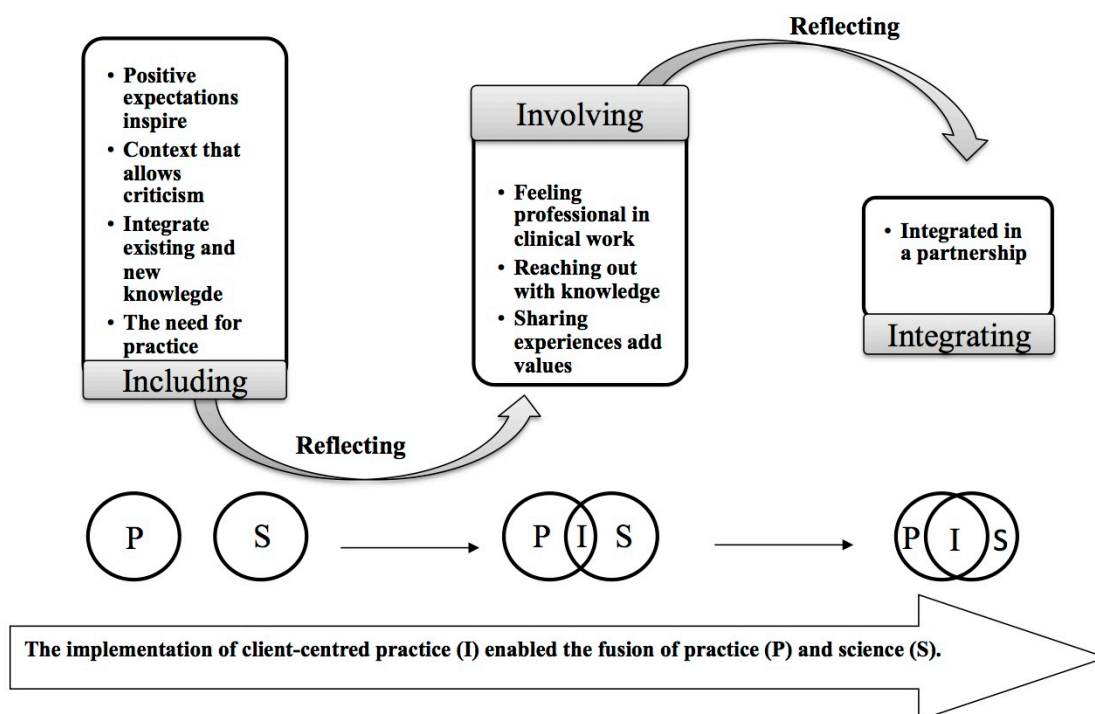


Figure 3. The process of enabling the fusion of practice and science (85)

Being part of the research project seems to have different meanings for the OTs in the implementation process. To create new relations to each other and to the researchers were one

part of to be included, initially. Others examples identified was the possibility to receive and discuss actual research-based knowledge with colleagues and the researchers. In the beginning of the project, during the workshop the OTs found out their needs of new knowledge but also that their own experience-based knowledge become integrated. Participating in the research project implied positive expectations: *‘Yes, but I’m proud to be a part of this, since I believe this will lead to something real, when it will be possible to identify the truth in no uncertain way’*. Despite these expectations, they still had concerns when in the including phase about that the participating in the project would be time-consuming. Some the OT themselves had not chosen to participate then the manager had decided that the clinic would attend, which meant an expected participation from the OTs. This OTs did not feel adequately prepared for delivering the intervention and knowledgeable as implementers, which had an impact on the implementation process in the beginning. The OTs appreciated the researchers’ attitude where the workshop took place as a permissive context with space for critical challenge of certain parts of the CADL. In addition to comments on the researchers it also identified that the OTs reflected of their own activities in the project, described as follow; *‘I am really trying to think of myself in more critical terms and asking myself: did I perform well here’*.

To be involved in research was another phase of the implementation process that gradually were increasing when taking more responsibility for the implementation of the intervention, which also resulted in enhanced sense of professionalism. With experience in implementation the opportunity for the OTs were identified and more initiated discussions and reflections on how research-based knowledge had an impact on their self-esteem, described as follow; *‘[I] have been strengthened by reflecting on what we’re doing and our experiences’*. One of the OTs pointed out that by a change in attitude by *‘moving back a bit’*, increased the clients possibility to be more involved in its own process. Furthermore, the structure of the intervention had brought new insights for the OTs and facilitated them to explain the meaning of the actions undertaken in cooperation with the client. Besides the impact on the relationship with the client it was identified that the knowledge had given *‘ripples on the water’* in terms of support from engaged colleagues at their workplaces. The OTs described the possibility to inspire colleagues by a successful way of working but also a win-win situation to the researchers by on equally sharing experiences. The feeling from the OTs about the researchers attitude were described as; *‘We are not looked down upon from up above; they are like us’*. The involvement had gradually created a ‘we’ between the OTs and researchers.

As the last phase of the implementation process the OTs experienced a partnership identified according to the need to resolve issues and problems that arose during the implementation process. With starting from this, the OTs underlined the importance ‘to meet face to face’ were they had enriched each other and saw themselves as invaluable partners in the research project. On the other side they also reflected about the partnership as a contribution to the availability of the researchers’ knowledge, time and engagement. When the OTs

summarized their commitment in the research project the OTs commented their value of the participation as; *'[I] wouldn't have been without it'* and *'[It's been an] advantage'*.

4.2 STUDY II

In study II factors that contributes to the implementation process of a new complex intervention in the context of a RCT are identified. The qualitative and quantitative results were compiled and synthesized thematically starting from a structure based on qualitative categories see Table 2. The results of Study II showed that both a year after ended the workshop and five years after completing their participation in the project, the importance of the availability of research-based knowledge and its need in daily practice were important factors. In addition researched-based knowledge and the clinical use of evidence, evidence related to the clients' perspective, the impact of context such as the workplace, leadership and organization and finally the role of the facilitator were other factors both as barriers and facilities contribute to the implementation process. These themes including the findings from both the qualitative and quantitative analysis will be described as followed.

The importance of researched-based knowledge. The OTs valued and considered the availability of research-based knowledge in terms of workshops had contributed to the deepening and the opportunity to try a new approach. One of the participants expressed it as follows; *'You had time to reflect and the opportunity to try a new way of working and thinking in practice'*.

To be a part of the research project contribute to **"the clinical use of evidence"**. The importance of clinical use of evidence was a framing of a question were the OTs associated to the CADL intervention as an inspired example. To be a part of the research project and learn to use a new intervention had facilitated the contact with the client and contributed to another focus in their meetings with their clients. The sustainability of this was also mirroring by one OT describing the importance of being involved in the project also after five years as; *'been strengthened by starting from the patient's wishes'*.

In the workshop the OTs had got access to new research evidence and as an extension of the clinical use of evidence the OTs shared very concretely how the client-centred approach had resulted in that the client were more involved in the dialogue and reflection. The **evidence related to the clients' perspective** has contributed to a change approach in the OTs when implementing this new intervention. By giving space for the client's own ideas of solving problems the OTs argued that it created an opportunity for the client to be more involved. The following quote by Kierkegaard was used by an OT; *'If I shall be successful in directing the patient in a certain direction I have to meet her where she is and start from there'*.

The results confirmed **different environments and conditions as part of the context** and condition as the own workplace and lack of clients for the OTs in the project could be a barrier for the implementation process. These conditions could affect the OTs perception of their role as 'implementers'. The lack of clients to include in the project affected their sense

in their professional roles and contributed to frustration not being able to deliver what was a condition for the project. An OTs expressed this as follow; *'I feel I am unable to contribute much since I was given just two patients included in the ADL study....and I have not taken the time to perform all the steps'*.

The culture in the workplace as a part of the context had a significance contribution to the implementation since the extent to which their colleagues in the team and their managers supported the OTs. Some of them had support during the whole research project while others described the opposite where some colleagues indicated lack of interest initially and the implementation of the intervention had has an impact of the teamwork. One OT wrote; *Teamwork [has] been helped by this new way of working, it [the intervention] has been incorporated into the clinic.*

The managers were important facilities for the OTs when they contributed to the possibility to participate in the project. **Leadership and organization as part of the context** where some of the OTs experienced that they got support from their leaders when using the CADL linked to their participation in the project. In the questionnaire to the managers to answer what is going on in the organization during the period of the project there where factors specified as; information about coming reorganization, completed reorganization, recruitment freeze, difficulties in recruiting stuff and Calici (winter vomiting disease) contributed as barriers in the implementation process.

In addition to the researchers development of the intervention it was not possible to implement the new intervention without their participation as facilitators. **The role of facilitators** seems to be very important and is a factor contributing to the process of implementation when working in near collaboration with the practitioners'. Although several participants admitted that they initially when the project started they felt unsafe on the researchers' intentions and that was unclear how to use the research presented within the intervention. However after five years there was a belief in the project and the role of researchers. The project's significance itself but also the role of researchers as conveying knowledge was described by an OT as follows; *'New knowledge was presented. Now, time to reflect, discuss, reasoning with the course leaders and the participants'*.

Finally, the results of study II illustrated the importance of access to and the opportunity to reflect and discuss research-based knowledge with colleagues and researchers for changing daily practice over time. With the support of the CADL intervention the OTs described how the meeting and interaction with the client was facilitated and contributed to the implementation process.

5 DISCUSSION

The aim of the thesis was to identify and describe the characteristics of the implementation process, what was hindering as barriers, and what was contributing to the implementation of a complex intervention when OTs interacted with the researchers. The long-term goal of the

thesis is to contribute to the development of strategies to be used in order to implement complex interventions in health care and rehabilitation. By following the OTs over time, a deeper understanding of how practitioners' reasoning about researched-knowledge and the processes in accordance with how to implement their reasoning into clinical practice was given. The implementation process needed time and access to the "right" conditions. The intervention should be grounded in recent research (86) as the CADL intervention in the thesis (5, 9). The uniqueness of the thesis is that the findings are based on the individual practitioner's experience to participate and be a part of this process when delivering the CADL intervention. The practitioner in the thesis had an important role to play, when the research was to be translated. The results in Studies I and II indicated that being a part of a research project may contribute to and strengthen one's professional identity, when it was confirmed by the research community. Other important factors influencing the process were the possibility of training and experience of using the intervention as well as space for discussions and reflections within the workshops, but also during the time when the OTs were practicing the intervention (43). Another factor that needed to be taken in consideration, when the research-based knowledge needed to be implemented into practice, was the fact that is not possible to isolate the phenomenon from the context when that implementation takes place, thereby affecting the process itself. The contextual effects are described in the models like the PARIHS model (13) and the process evaluation of a complex intervention (14).

5.1 IMPLEMENTATION PROCESS

The contribution of the thesis can provide a piece in a puzzle in the implementation process, which was an increasingly complex process and where different models as, for example, the PARIHS model (13) and the process evaluation of a complex intervention were used. Moore et al. (1) and knowledge translation (32) have been developed over the past twenty years. Models used to describe the process of research were to be implemented in clinical practice. These models are not static; instead they are revalued as the basis of the aggregate empirical data that emerged when they were used and evaluated clinically. During the work of the thesis, a revision took place of the PARIHS model, where the concept of evidence was replaced by the letter 'i'-PARIHS, which stood for innovation and recipients, which could be individuals as clients, practitioners or managers but also some sort of team (13). This was an example of how the complexity had changed also over time, and the importance of taking into account other factors than those that previously were used in the implementation research. There was also a need for revision of the 'old' concepts such as evidence, context, and implementation. The thesis tried to describe one part of the "big puzzle" when the CADL intervention was evaluated, focusing on the OTs' experiences on how and what was delivered, and how the intervention was received by different contextual conditions. The role of the OTs can be compared to the new concept of recipients in i-PARIHS. Kitson and Harvey (13) explain that the recipients were meant an individual or team that was involved in implementing the attitude, knowledge, ability, and motivation, which affected the ease of the implementation

5.2 PROFESSIONAL IDENTITY

The OTs in Studies I and II described how their peers changed over time. One part of the changing process was how they acted in the meeting with their clients, where they felt more responsive. As part of the process, the OTs described having a greater understanding and knowledge of the client's perspective. By reflecting together with colleagues and researchers and applying the client-centered intervention, they were given voice to new knowledge but also, according to Mattingly (44), gained access to the "tacit knowledge" that was based on past experience. This was in line with another study in the framework of LAS II, where six of the OTs individually were interviewed during the time for the implementation of the intervention (45). One of the results of that study was that the OTs emanated from the client-centred approach in collaboration with the client-shared responsibility and together formulated goals, which impacted on their professional roles (45).

5.2.1 Practice make skills

A prerequisite for changes in the OTs' profession may be to achieve skills in using an intervention that was already known but was limited in the ability to translate (10) the intervention. In both Studies I and II, the OTs returned to their experiences of limitation, regarding their own convenience to use the intervention, because of a lack of clients who met the criteria, which were set for the RCT. Access to clients with the opportunity to practice on may or seemed to help the OTs to feel more confidence in their role as OTs and to carry out the intervention, where the OTs who had clients in the RCT had also used the intervention with other clients. They reported a perceived professional security because of this. Horne et al. (87) underlined in a study, where health professionals delivered a rehabilitation intervention to stroke clients', the importance of time to develop the skills to increase their confidence for it to be implemented. For the OTs in Studies I and II, they adapted to their ideal expectations, but where the reality was another factor which included the lack of clients. In order not to lose the motivation to be part of the research, even though expectations were not fulfilled, it was necessary for reflection and adaptation to the context in which it was translated. According to Chambers et al. (88), which described an intervention as sustainable over time, dependent on the factors that constituted the context in this case, the lack of clients.

5.2.2 Need for change

A need for change was supported by the OTs' motivation when there was a desire from them to work in a new way, and the client-centred approach provided this opportunity. They described not previously have taken the time to initiate this change, but it was worthwhile to participate in the research project. This willingness to change was based on the OTs' own experience and insight. Thus, they felt motivated by the hope that it also was beneficial for the clients. Luker et al.(8) described in their study changes in the professional role when physiotherapists and nurses, in collaboration, participated in the implementation of a complex intervention. The study was based on a team collaboration that may have contributed to the

changes, which the OTs in Studies I and II did not find. Despite this, however, as a result of being implementers in the project they experienced a positive change.

5.2.3 Challenge contributes to development

The OTs perceived that they were challenged in different ways, both positively and negatively, towards the researchers and their colleagues, but also by their clients. To interact with the researchers initially created an uncertainty, where the OTs asked, to wondering if this would mean an increased workload where time constraints could pose a challenge. Another challenge by the researchers was the inclusion of clients in the project that might have contributed to the OTs feeling unsatisfied in the role of the partners of researchers and thus unable to contribute to research as they wished. Furthermore, there were skeptical colleagues in the workplace, and to include clients for practicing the usability of the intervention was a challenge for the OTs. The intervention described by Bertilsson et al. (65) was based on an interaction between the OT and the client, where the role of the OT was to create a relationship to give the client a sense of agency and participation. The OTs in Studies I and II described that, based on the way they interacted with the clients, they had changed over time in their daily practice. In their actions they became more responsive and listened more to their clients. This experience of being more professional in the meeting with the client was a positive challenge in the implementation process.

The OTs described the opposite, where the health professionals participating in the study of Horne et al. (87) were frustrated to lose control when the client performed the workouts more independently, which was not consistent with the therapist's perception. Therefore, practitioners' needed to change their attitudes to feel comfortable when clients are expected to take greater responsibility for their training. Despite the experiences of challenges, the OTs in the thesis considered that '*it was worth it*' to be included in the project, as one OT expressed. This is in line with a study by Luker et al. (8), where health professionals' described the similar manner to the challenges they faced when a complex rehabilitation intervention was implemented, when it came to getting all 'on board', and learned how to work in a different way.

5.2.4 Confirmation of previous experiences

The research resulted in occasions where the OTs reflected and discussed the design of the CADL intervention, as in connection with the workshops, as well as during the follow-ups made during the time the intervention was implemented. On these occasions, the OTs communicated and compared their past experiences with each other as colleagues, even with the researchers. They reflected on their role and the importance of being involved in the project. The researchers stated that without the OTs and their experiences per se, the project would not have been possible to implement. In the dialogue with each other and the researchers, the OTs put into words the "tacit knowledge" by talking about situations where they are more or less successfully interacting with the clients, which was described as important and valuable. According to Mattingly (44), it was only when others are asking

questions such as colleagues that the “tacit knowledge” emerged and the person in this case, the OTs, became aware of why and how decisions were made and therefore acted upon. Johansson et al. (89) described in a study how the group leader who participated in a fall-prevention program felt that there was access to knowledge that was not used. Only in dialogue with others and their experiences, the knowledge became transformed and over time made a difference in the daily lives of the group leaders as well as for older adults to prevent the risk of falls. The experience of being team leaders created a common experience of all in striving towards the same goal in the project. There was a need for confirming the previous experiences, which were important to know when working for implementing a new intervention.

5.3 CONTEXTUAL FACTORS

There is a broad consensus in the literature that the context was extremely important when trying to bring something new as research into practice (12). Factors which influence may occur at different levels: at the individual level (micro), the inter-professional (meso) or the whole organization (macro). Examples of different factors may be how the organization was organized, access to data bases, limited time and resources, limited knowledge and skills of the individual, or of economic and political decisions (5, 12, 22, 90-92).

5.3.1 The structure of the intervention and research-based anchoring

The OTs participating in these studies were already aware of the different parts of the structure of the intervention before the research project started. They were familiar with the client-centred approach and the COPM and could see the value of using them in their clinical practice, which may have influenced their motivation and commitment to be a part of the project: *‘it was for real’*.

Study I showed that the OTs’ idea of participating in the project was that they would get something out of the project and the participation would eventually make differences and changes in their clinical work. There was a strong desire to follow the structure of the intervention even though it did not always match the individual client’s circumstances. This seemed to be one of the barriers when implementing complex interventions. There was not always a match with the local context and the conditions that were there. Moore et al.(1, 90) explained this as a challenge in the implementation process. Furthermore, the complex intervention needed to be implemented by persons with sufficient skills and experience. Moreover, the new intervention should be received by a person who will understand and experience that the intervention makes a difference.

5.3.2 Supporting the organization

As part of the results in the thesis, it revealed that some of the participants did not always have the desired support from their organizations when participating in the research project. Some of the OTs were told by the manager to participate in the project, but they also had colleagues who were not involved in the project because they did not show any particular

interest. However, others felt that they were supported by colleagues and managers who gave them feedback. The colleagues' involvement in the research project generated changes in the common teamwork. This research, together with others, showed that the culture in the organization was an example of context, which influenced how both an individual and a group were taught how to use research-based knowledge in clinical practice (5). Factors as the support from the managers, access to training, teamwork, and a good working environment were important factors contributing to the extent to which the clinicians changed their attitudes, confirmed also by Hamilton (93) in another study.

5.3.3 The role of the researchers

In both the data collections (Study I and Study II), the OTs returned to the researchers' approach and to the collaboration that took place between them. Despite some skepticism initially, when the OTs described some difficulties to understand what the researchers were "doing", they emphasized how the researchers with serious interest and provided support when problems arose, and they were available to the OTs. The OTs considered that this attitude contributed to a partnership of equals. A success factor may be that the researchers early invited the OTs to share their experiences in dialogue with researchers to contribute and influence the design of the intervention. Additionally describes the OTs a permissive culture that allowed critical thinking and questioning where everyone's opinion was valuable. These factors can be critical to the way in which the intervention was reacted and thus affect the final result of the implementation. To get a clearer idea of the role of researchers, while not jeopardizing the relationship with the OTs who participated in the project, perhaps it would have been useful if the researchers had been more structured in how the method could be used.. Different forms of collaboration are presented in the literature where researchers actively inviting clinicians to collaboration on research on specific issues on the basis of clinical practice. Participatory Action Research (PAR) (94, 95) and the Research Utilization (RU) (96-98) are some examples.

5.4 THE TRANSLATION OF KNOWLEDGE

The major challenges in health care for the past 20 years are how the knowledge generated by the research was disseminated to clinics and to ultimately benefit the clients (22). As described above, the various factors affected both the research side that produced and disseminate knowledge and the consumer side which transformed the "new" knowledge when it was implemented. One difficulty for the practitioners was the difficulties in understanding what was written in the research articles, where people who did not have English as their mother tongue could raise a resistance against this research knowledge (99-101). The use of "knowledge brokers" can be one way to solve the problem. This person can be a researcher as in these studies, who had no credibility among the target group and did not have the skills and experience needed to transfer this new knowledge (29). The thesis highlighted the gap between research and action, and how this gap could be reduced when knowledge was conveyed, transferred, and translated in collaboration between researchers and knowledge users (in the thesis the OTs). This is in line with what was also described in the model

Knowledge Translation (KT) (32). In order to create a better quality in health care and rehabilitation, it was necessary to translate knowledge into action by synthesization and dissemination. According to KT, the exchange takes place between the actors who should manage it.

5.4.1 Access to knowledge mediated by researchers

In the thesis, the researchers were influenced by being a support when the intervention was implemented and mediated the research-based knowledge as the basis for the intervention in connection with the workshop. The researchers had themselves delved deeply into the theories that formed the basis for the intervention. They also designed the intervention predecessor in a pilot study (9), which meant credibility towards the OTs who described that the knowledge was consistent with their own knowledge and preconceptions (29). The difficulty of generating research findings into reality is a known phenomenon in health care. To be able to implement new researched-based interventions, there was a need for people to be able to convey it, i.e., someone who '*served it on a silver platter*', which in this study was perhaps one of the key success factors in the implementation process. This was a win-win situation for both researchers and the OTs when collaboration took place side by side. Some of the researchers' role can be described as knowledge brokers who interpreted and adapted knowledge to the local context (34).

5.4.2 Sustainable knowledge in a longer perspective

The statements in Study II confirmed the participants' perceptions of Study I that had on the importance of new knowledge. But also in order to be able to translate the knowledge, there needed to be facilitators to facilitate this process, which are needed and not to be forgotten. The OTs described how they felt a resistance to reclaiming the knowledge if it was not translated within a reasonable time. If knowledge can be put into practice and be sustainable over time, the practitioners, which are going to use it, needed training to achieve a routine skill as described by Doyle (102) in a sustainability model. It might be as simple in the thesis as the proverb says; 'Practice makes perfect'.

5.5 METHODOLOGICAL CONSIDERATIONS

The thesis included two studies where two different approaches were carried out by analyzing qualitative and quantitative data from the focus groups' interviews and questionnaires. By using focus group interviews in Study I, the OTs were given the opportunity in collaboration with each other and the researcher to react and reflect on their views and actions during the implementation process. In Study II, it was possible to get the opinions from the OTs individually about their experiences after the participation in the project, both in the short and long term. Triangulation took place when different research approaches and data collection methods were combined to increase the validity due to the small sample (71).

5.5.1 Methodological considerations in Studies I and II

According to Charmaz (68) in Study I, the data collection and analysis used a qualitative approach. The author was aware of the pre-understanding, when the interaction with the OTs took place and where the past and present experiences were involved. To minimize bias, the analysis of all the data was taken in consultation with other experienced researchers and discussed with researchers not involved in the RCT project (103). The analysis was mainly conducted after the data collection was achieved, and the researcher analysed several interviews (theoretical sampling) in order to reach saturation. However, the memos were drafted during the time of data collection for getting modification and designing new issues, which strengthened the categories that emerged in the analysis.

The strength of Study II used a mixed method of both qualitative and quantitative data that complemented each other. There was also limited text in the written responses from the open-ended questions in the questionnaire, and therefore the answers might be not thorough enough; exhaustion could be another limitation (82). Under these circumstances, these might not be hindrances, but it was important to provide sufficient descriptions so the readers are able to easily evaluate their trustworthiness (84, 104). Since the researchers in the project designed the questionnaire, they were also responsible for the intervention, and their ideas could have influenced and limited the answers. But by using the PARIHS model's perception (76) of the implementation process, the researchers strove to guarantee the quality. The suitability of the questionnaires was also first tested clinically by active OTs and then revised, which validated and thereby increased the credibility of the questions.

5.5.2 Sample

The number of participants has been limited in the number of OTs, which participated from the beginning. The participants have had changed jobs or change schedules of work, and so on has also affected the response rate of the follow-up in this study. Despite this, 33 OTs participated in Study I, 31 in the first questionnaire and 19 in the second questionnaire in Study II. The collected data reproduced a specific group's view, which could not be compared with any other group. However, there was a possibility to take part of the participants' perceptions and response rates on the various issues presented in the questionnaires by using the SPSS.

5.5.3 Generalization of the findings

The aim of this thesis was not to seek to provide generalizable findings from these two studies to a larger group. Then the participants themselves are the experts on their experiences it was rather to given a deeper understanding of how the OTs reasoning about researched-knowledge and their process according implement a complex intervention in clinical practice. This statement may supported the implementation process of research-based knowledge in occupational therapy specifically and are potentially transferable to other areas of practice in healthcare such as rehabilitation. The long-term goal of the thesis is to

contribute to the development of strategies for the implementation of complex interventions in health care

5.5.4 Ethical considerations

In the thesis the participants were informed that it was voluntary to participate in the intervention, and that they could end their participation whenever they wanted. Some of the OTs could have felt compelled to participate in the focus group interviews, since the participation in the research project was a decision from their managers. This was taken up during the focus group interviews. For example, some OTs voluntarily participated at the first interview but later withdrew themselves because of reasons such as a heavy workload. The researcher's opinion, however, was that the OTs who participated returned from all three focus group sessions felt that these times fulfilled a need for the OTs as well. Without the researchers' impact the OTs could, together with colleagues, reflect upon and discuss the hindrances and opportunities that meant that they were practitioners participating in a research project. Regarding Study II, the low response rate may be because it was voluntary, and the OTs did not feel compelled to respond where not all answered the first questionnaire, and even fewer in the second.

6 CONCLUSIONS

The findings in the thesis confirmed the importance of equal partnership between academia and practice that currently does not exist very much. There had to be different roles of the researchers and the practitioners, where the researchers in some form need to package the knowledge to be implemented in clinical practice, and this process needs to take time. The results may give a clue to the creation of new posts, which cover both these two areas of activity in order to reduce the gap between science and clinical practice.

7 FUTURE STUDIES

The aim of the thesis was to identify and describe the characteristics of the implementation process and what hindered and contributed to the implementation of complex interventions when OTs interacted with researchers. The long-term goal of the thesis was to contribute to the development of strategies for the implementation of complex interventions in health care and rehabilitation. However, increased knowledge is needed in accordance with how to strengthen the practitioners' participation in research projects when implementing research-based interventions. By using a client-centred approach not only was there a professional group involved but multidisciplinary team with different professions included is an approach that may eventually improve the outcomes of rehabilitation for the individual client. Additional knowledge is needed on the role of researchers and how to strengthen their role as knowledge brokers for the clinical work.

8 ACKNOWLEDGEMENTS

My journey into the academic world began nearly twenty years ago when I wrote my bachelor thesis. It was an awakening that after twenty years of working as an occupational therapist I began to search for a deeper knowledge of the theoretical frameworks that formed the basis of my clinical work. It made me curious to learn more, which, however, has taken some time but some maturing slowly. My interest in working in neurological rehabilitation started and developed during my years at Erstagårdskliniken, where I had the privilege to work with enthusiastic colleagues in my meeting with people in life after a stroke. Thank you, all dear former colleagues, for the years that we worked together! I would also like to thank the Ersta Diakoni that made it possible for me during my former job to begin my academic journey.

Especially I would like to thank all of the occupational therapists that contributed to the LAS II project and shared your experiences in the focus group interviews and answered the questionnaires.

Associate Professor, *Susanne Guidetti*, my main supervisor. Without you I would not be able to be where I am today. Susanne, your enthusiasm and confidence in my ability that I have at times questioned has been crucial. I would like to thank you for your generosity both in terms of sharing your knowledge, time, and opening your home early as last weekend, as well as everyday at work.

Professor, *Kerstin Tham*, my co-supervisor. Kerstin, you've been around in various ways throughout my "career" as an occupational therapist, where we met as colleagues, data collectors, and now for the last few years in the role of engaged supervisor, I want to thank you.

Many thanks go to my unalienable co-authors in my two studies, *Anette Erikson*, *Gunilla Eriksson*, and *Ulla Johansson*. All of your knowledge, experience, ability to explain and supervise the methodological perspectives, both literally and figuratively, have been necessary. I also would like to thank the other *members of the HELD* research group with *Lena von Koch* as the head and the groups' 'skrivardagar' where Lena and Susanne opened their homes and country houses. I have experienced how insight and knowledge were raised to a higher level because of a culture where different views have been allowed in our meetings and enriched discussions have taken place

Thanks to all my *colleagues*, *friends* and, not least, *the doctoral students* at the Division of Occupational Therapy at the Karolinska Institutet. The division has been my second home during my studies with many interesting discussions both at coffee breaks and the more planned activities such as 'kreativa konditoriet'. Thank you *Louise Nygård* for the inspiration you passed on as responsible for 'konditoriet' and the doctoral students' week, which has not always been easy for you to plan.

A thank you to my mentor *Gunilla Gunner*, whose knowledge that she possesses, in the background, has been a safety net in itself.

Peter Schéle, friend of the family. Thank you for assisting me in the translation of all quotes so they became correctly reproduced in English.

To my lovely husband *Peter*, *David* our son with his wife *Lina* and their wonderful daughter *Elsa*, and our daughters *Karin* and *Anna*; I want to thank you for giving me the time and patience in order to be able to make this journey. Now I want to travel forward in life and with you all!

The Swedish Research Council and funds at Karolinska Institutet has provided the grant and financial support of this research. The work on my dissertation was not possible without support from the Karolinska University Hospital. Special thanks to my former managers, *Malin Curlo* and *Karolina Bernsten*, at the Karolinska University Hospital, which partly financed my studies

The cover illustration designed by *Karin Olsson*, who helped me to understand that fewer details make the picture clearer when a message should be conveyed. Thank you!

Finally, I want to say a big thanks to *Lynn Stevenson* who patiently and tirelessly assisted me in reviewing my “kappa” for the dissertation.

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