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Training interactions in local teams:

Using critical participatory action research to explore context based learning

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TABLE OF CONTENT

- Acknowledgements....4
- Summary in English and Norwegian…….… 6

1 Introduction 6

1.1 Structure of the thesis.... 7

1.2 The personal starting point.... 8

2 Background.... 10

2.1 Teamwork 10

2.2 Simulation in team training.... 11

2.3 Team training in Alta and elsewhere in Norway.... 16

2.4 Team work in Norwegian general practice 17

2.5 Out-of-hours services (OOH) in Norway.... 18

2.6 Collaboration in Norwegian health care.... 21

2.7 Rural context 22

3 Aims of the study.... 24

4 Ethical foundation.... 24

4.1 Formal approvals.... 25

5 Theoretical perspectives and methodology 26

5.1 Process of choosing the design 26

5.2 Basic theories 27

5.3 Methodology 29

6 Methods and results 32

6.1 Local context.... 32

6.2 Selection and participation of the interprofessional research group 33

6.3 A year as a participating observer.... 34

6.4 Focus groups 35

6.5 First article: Participation of the patient.... 36

6.6 Second article: Leadership processes as interaction.... 39

6.7 Third article: Learning processes 42

7 Discussion.... 44

7.1 The ethical ground.... 45

7.2 Methodological and ethical considerations.... 46

7.3 Patient safety and patient participation 55

7.4 Learning processes 61

7.5 Leadership and interaction 68

7.6 Participation beyond the local context ... 73
8 Wider implications ... 75
8.1 Suggestions for improving the in situ team training model ... 75
8.2 Future research in the field of patient safety ... 76
8.3 Implementation of team training ... 78
8.4 Team work in education ... 81
9 Possible limitations ... 83
9.1 Participation ... 83
9.2 Criteria for good AR ... 84
10 Conclusions ... 84
11 References ... 85
Paper 1
Paper 2
Paper 3
Appendices

List of figures

Table 1 ... 63
Table 2 ... 66

Acknowledgements

The butterfly effect is a popular name on the phenomenon explaining that a tiny, isolated initiative, like the wing strokes of a butterfly, might have a surprisingly large effect somewhere else in the world – like that of a great storm. We cannot with certainty know how our modest, individual efforts it will spread and impact because we are interconnected in so many complex ways -- to others with a free will.

Throughout this doctoral thesis I am emphasising the critical importance and impact of personal agency. I will, thus, acknowledge all the persons I recall having made an important professional impact on its making.

As a fresh medical student, the examples of two older students made a lasting impact regarding my professional development. Eivind Damsgaard showed me the importance of personal engagement, by arranging emergency medicine courses to younger students. Atle Ulvik surprised me by sincerely listening to my somewhat hesitant and shy reflections about why I thought 'Circulation' was more important than 'Respiration'. Later, my close friend and co-student Anne Kvalheim encouraged me to raise my hand and show interest for the role as 'Physician in command' in the large catastrophe rehearsal towards the end of medical school. During this remarkable event, I meet and learned to know emergency medicine specialist Guttorm Brattebø, an inspiratory source ever since.

As an intern at the Odda hospital, and later when employed by Dovre municipality, local health personnel educated me in the art of working with other health professionals -- and about the distinct and designated responsibility of the doctor. In my first assignment as a regular GP, some 18 years ago, the local doctors Sigrun Winterfeldt, Aino Snellmann and Marie Tveit were all excellent as diverse role models, supported by health care professionals in both Deanu gielda /Tana kommune and Unjárgga gielda/Nesseby kommune. Engaging with health care workers in increasingly larger circles made my professional life in a small and remote municipality richer and far from lonely. The most distant one was Maaret Castrén in Helsinki University hospital and Karolinska institutet, Stockholm. She showed me what trusting instincts could look like, the value of clear messages, and importance of extracting the essence, efficienly cutting through 'crap and chat'.

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But my dream team is the one with Tore. My hero.

Summary in English

During emergencies, patients often have challenging and complex needs that local, interprofessional health care teams must address. Norwegian regulations mandate training in emergency primary care. We aimed thus to explore and improve in situ team training.

In Alta, local personnel has continually since 2007 arranged such trainings once a month, anchored in their own competence and context. During 3.5 years, we explored patient participation, leadership as interaction, and local learning processes. We conducted one year of participatory observation, analyses by an interprofessional group and then local, follow-up focus group discussions on each theme.

Analyses revealed a dominance of language that objectified the simulated patients and participating professionals. The teams practiced both designated and distributed leadership with shifts in leadership modes coinciding with situational changes requiring specific competencies. Additional guiding principles included: a commitment to the task at hand; taking responsibility for patients and colleagues; and, a perception of calmness as an indicator of good teamwork.

The participants discussed a wide range of topics constitutive for learning and for a patient safety culture and made social and structural improvements. The flexible structure of the training model mirrors the complexity of medicine and provides space for the participants' own sense of responsibility.

Sammendrag på norsk

Akuttmedisinske pasienter har ofte krevende og komplekse medisinske behov som lokale, tverrfaglige team må bidra til å møte. Akuttmedisinforskriften pålegger trening i samhandling for tjenesten utenfor sykehus. Vi ønsket derfor å utforske og forbedre in situ team trening.

I Alta har lokalt helsepersonell systematisk arrangert slike treninger hver måned siden 2007, forankret i egen kompetanse og kontekst. Vår studie har utforsket pasientdeltagelse, lederskap som samhandling og lokal læring gjennom 3,5 år. Vi var deltagende observatør i ett år, analyserte funn i en tverrfaglig forskergruppe og arrangerte så lokale fokusgrupper om hvert tema.

Analysene avslørte et dominerende språkbruk som objektiverte både de simulerte pasientene og de lokale deltagerne. Teamene hadde både utpekte ledere og praktiserte delt lederskap. Lederskapet endret seg gjerne i det situasjonen krevde en spesiell kompetanse. I tillegg var følgende prinsipper styrende: dedikasjon til oppgaven man stod i, å ta ansvar for pasient og kolleger, en oppfatning av at ro var en indikator for godt teamarbeid.

Deltagerne diskuterte en rekke forhold om tilsammen inngår i læring og i bygging av pasientsikkerhetskultur, og de gjorde både sosiale og strukturelle endringer. Den fleksible strukturen til treningsmodellen speiler kompleksiteten i medisinen og gir rom for deltagernes egen ansvarlighet.

1 Introduction

There is a widely held belief that the challenges of patients with complex needs are best addressed when health care professionals work in interprofessional teams (Institute of Medicine Committee on Quality of Health Care in America, 2001). Researchers of interprofessional education in the US, claim that an interprofessional approach may "…allow sharing of expertise and perspectives to form a common goal of restoring or maintaining an individual's health and improving outcomes while combining resources" (Bridges, et al., 2011. p.1).

Patients experiencing severe emergencies may often have challenging and complex needs. However, such emergencies are infrequent in Norway compared to less time-critical events (Zakariassen, Hansen and Hunskår, 2009). This is one of the reasons why Norwegian GPs rarely take part in teamwork in real emergency situations, and team training is needed. In addition, emergency care often involves collaboration between patients and different medical services that might cooperate in a different manner than in non-emergency situations (Hesselink, et al., 2016). Certain predictable aspects of emergencies make team communications more challenging, such as incomplete or ambiguous information; multiple and competing goals; intense time pressures; and, the potentially serious consequences of errors (Roscoe, Eisenberg and Forde, 2016). A proper patient participation is also a subject that is high on the agenda in health care. Recent Official reports point at the positive effects of GPs taking part in such settings together with other local health personnel. These are from The Norwegian Ministry of Health and Care's white paper *Future primary health care* (2015) and 'The Emergency Committee's' public report on emergency medicine outside hospitals (2015) , and the Norwegian Medical Association report on out-of-hours services (2015), supported by research (see for instance the thesis of Erik Zakariassen, 2010). Thus, more inquiry is needed focusing on how to train local emergency health care personnel to work in teams in a beneficial way.

The point of departure of the present project was one model for local team training, the C-BEST model (Utsi et al., 2008). Developed in Northern Norway since 2003, this model has been disseminated during recent years and is the only approach to be implemented in both Southern and Northern Norway (Dalland, 2013). The model´s characteristics are as follows: Simulation training takes place in situ, i.e. at the participants' own place of work. The training day starts with presentations by local instructors/facilitators reviewing essential concepts and guidelines for trauma treatment. Then, a realistic simulation-training session is carried out in real time, followed by a debriefing session. Immediately after that, a second simulation training and debriefing session are held.

In order to both explore and improve local team training, we chose action research. For one year (2010-11), we studied monthly training sessions of emergency medicine teams in the municipality of Alta in Northern Norway, using this participatory strategy as our overarching research design.

Through participatory observations, we investigated settings involving nurses, paramedics and general practitioners (GPs). An interdisciplinary research group then analysed the transcripts of the team training debriefing sessions applying a variety of theoretical frameworks. Subsequently, we organised volunteer participants to hold focus group discussions based on topics arising from the analyses of our preliminary results. Finally, the research group analysed the transcripts of these discussions as well. The results have been presented in three articles (Brandstorp et al. 2012, 2015, 2016).

1.1 Structure of the thesis

In this thesis, my aim has been to describe the process of a participatory action research project by exploring local team training in Alta, Northern Norway. I will commence by describing my personal starting point, and then continue with a comprehensive background chapter to give a broad based outline both of team training in general and of the professional context in which this study was performed. When describing this context, participants' names will be used because the actions of certain people has been important.

After noting that the study is explicitly based on the significance of democratic values, I describe our theoretical and methodological perspectives. I will then detail, step-by-step, the development of the research process, which methods we applied and how. Because of the evolving nature of this study, results and lessons learned belong to different levels, such as research paradigm, axiology (values), methodology, and naturally, in regard of new knowledge concerning the phenomenon explored: local team training. I explore that in Chapter 7. Discussion. In the final section, I will consider various potential implications for the future.

In *Return to Reason*, the British philosopher Stephen E. Toulmin (1922-2009) writes that one of the strengths of the ancient Greeks as warriors was that they adapted the military camps they established to the actual site, e.g. taking advantage of the shelter a rock might provide. The Romans, in contrast, adhered strictly to standardised camp plans, following detailed instructions about the distance between the tents and so on (Toulmin, 2003).

While not rejecting the value of firmly established research traditions, many details of our study design that evolved during the course of the project resembled that "Greek tradition", a more flexible framework.

1.2 The personal starting point

1.2.1 From alone and afraid to training in a team

When I was a medical student in the 90's, I dreaded emergencies – chaotic settings in which I bore the responsibility for making the right decisions under pressure, in time-critical situations. It is not uncommon to experience uncertainty and stress during medical school; the fear of making bad decisions is a theme that has attracted researchers' interest (Nevalainen et al., 2012; Sarikaya, Civaner and Kalaca, 2006). During my internship at a small hospital on the southern coast of Western Norway (Odda in 1997), I had the opportunity to participate in one of the first team training sessions to utilise the BEST model (BEtter and Systematic Trauma care). Then, in the rural mountain municipality of Dovre (1998) during the final stage of my internship, a fruitful collaboration with the local ambulance service – which even included ambulance helicopter personnel – made me realise that I had been wrong to presume I would be all alone when called to do out-of-hours work. These important learning experiences sparked my interest in teamwork (Utposten, 2002).

1.2.2 Local interprofessional developing work

As a GP-trainee in the remote, northern municipality of Deatnu/Tana in Finnmark (1998-2004), I participated in the planning of a systematic professional exploration aimed specifically at improving working out-of-hours. The development project, called "Emergency medicine where you can cope, or, Bush medicine on the tundra" (2000-2002) included three interprofessional courses in emergency medicine; systematised local, interprofessional team training in cardiac arrest and myocardial infarction; and monthly collaboration meetings with representatives of the ambulance service, the nurses, and the local GPs (Brandstorp, 2002). In 2000, we were one of the first municipalities in Norway to introduce pre-hospital thrombolysis into our local services, some years after Nordkapp in Finnmark had done so (Brattebø, 1998; Bjøru et al., 1998). Additionally, we cooperated with the local hospitals and Regional Health authorities to make this salient treatment available throughout the entire county (Brandstorp, 2011).

1.2.3 Developing knowledge by sharing

From 2003 on, I took part in establishing the new team training project, Community-BEST (C-BEST) (Utsi. et al., 2008) – an adaptation of the BEST-model already implemented in hospitals all over Norway. From 2003-2008, I participated in and managed interprofessional teams with visiting instructors, training approximately 850 health professionals comprising 100-120 interprofessional *ad hoc* teams in 48 of the 87 northern Norwegian municipalities. We visited the 19 municipalities in Finnmark up to three times, and taught the C-BEST model in all the municipalities to local health personnel in their own out-of-hours clinics or primary care health centres. I will elaborate on this in the next chapter. Three non-scientific articles presented the core of this work: The first dealt with local general practitioners (GPs) in leading roles in a large scale, international catastrophe rehearsal in Finnmark (Utposten, 2005). The second, "The GP as a leader - with an overview and insight"

(Utposten, 2006), delineated the new role of the GP as an emergency team leader, 'one step to the side'. The third provided descriptions of how the C-BEST model was being used to train emergency medicine teams (Utposten, 2007). In 2008/09, after serving one year as a consultant to the emergency medical service of the Northern Norway Hospital Trust (2007-8), I began planning the present study, at the National Centre of Rural Medicine, UiT, The Arctic University of Norway. This has been my primary workplace ever since.

2 Background

The purpose of this chapter is to familiarise the reader with the concepts of teamwork and team training in general, and the nature of such training in Norway in particular. In addition, it describes Norwegian general practice and the GPs' collaboration with other professions in emergency settings outside hospitals. The chapter concludes with a section about rural medicine. Using descriptions that trace the developments over more than a decade, I hope to clarify why this study was necessary.

2.1 Teamwork

Oxforddictionaries.com defines teamwork as, “The combined action of a group, especially when effective and efficient.”(viewed 05.08.16). As few as two can comprise a team and there is no upper limit to size. According to Wikipedia "Teams normally have members with complementary skills and generate synergy through a coordinated effort, which allows each member to maximize their strengths and minimize their weaknesses." (viewed 19.12.2015): Training is a common means for maximising the efficiency of any given team.

2.1.1 Different teams

Furthermore, Riley et al. (2008) identify two types of critical health care teams. Core teams are groups of health personnel who work independently to manage a set of patients. Contingency teams consist of health personnel from various other teams, cooperating for a limited time and during a specific event. The local emergency teams we have been investigating are thus contingency teams. As they are constituted *ad hoc*, we prefer the more common term, '*ad hoc* teams'.

2.1.2 Team interaction competencies

Eppich, Brannen and Hunt (2008) point out that distinct hierarchies of power and training add additional layers of complexity to *ad hoc* teams. The team members cooperate to perform urgent, highly consequential tasks while simultaneously coping with shifts in team membership. Implicit in such changes of team composition is the challenge of attempting to anticipate each other's skills, knowledge, strengths and habits.

> Team members must possess team interaction competencies to function effectively, namely teamwork-related knowledge, skills and attitudes. Representative examples of each type of competency include knowledge (shared understanding of the situation, familiarity with teammates' abilities); skills (how to communicate effectively, such as ‘closing the loop’, how to monitor teammates' performance); and attitudes (team cohesion and mutual trust) (Eppich, Brannen and Hunt, 2008, p.257).

In our study, we closely and explicitly explored leadership as interaction. Issues of situational awareness, closed-loop communication and shared mental models did, however, arise in the training sessions, and are discussed in our articles.

Riley et al. (2008) describe how a trained team differs from a group of individual experts: “Although inter-professional teams consist of individuals who are expert in their respective disciplines, they do not always bring effective inter-professional skills to the team.” According to the well-known adage of University of Florida’s Eduardo Salas, "A team of experts is not necessarily an expert team.

"Salas is part of the leading research milieu exploring general teamwork. Located at the University of Central Florida since the 90’s, their work sprang – at least in part – from their connections to military organisations (see e.g. Sala, et al., 2001). In an interview, Eduardo claims that the most important "team killer" is, "the lack of clarity in roles and responsibilities – who does what, when, why and with whom" (Laudby, 2013).

Issues of roles and responsibilities emerged as the most difficult challenges during my work as a GP and in my own cooperation with the ambulance services. The role of the physician in emergencies outside hospitals has been debated for a long time. This has also rendered the roles of collaborators difficult to define. This will be elaborated later in this chapter and in the Discussion, section 7.5.

2.2 Simulation in team training

For many decades, simulation has been used for training purposes in various fields, such as in military training and the aviation industry (Rosen, 2008). David M. Gaba (Stanford, USA), an influential researcher in the field, has defined simulation used in health care as, “a technique—not a technology—to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner” (Gaba, 2004). Simulation is a tool for exposing learners to the complexity of clinical settings without putting real patients at any risk (Miller et al., 2008).

2.2.1 Manikins

The resuscitation manikin (dummy), Anne, "born" in 1960 and produced by the Norwegian company Lærdal, has been described by Rosen (2008) as "one of the first significant events in the history of medical simulation" (p. 160). Anne was initially designed as an aid for teaching how to practice mouth-to-mouth breathing, but has been equipped with new technology over the years. One differentiates, roughly, between high and low fidelity manikins according to the degree to which the simulator or simulation is realistic (Miller, et al., 2008). Low fidelity manikins contain no devices that depend on electricity. High fidelity manikins, on the other hand, have several functions controlled and facilitated by electronic devices and computer systems (e.g. a detectable chest heart rhythm, a palpable

pulse in the neck, audible speech, cough, and more).

2.2.2 Standardised patients

Parallel to the introduction of manikins, the use of simulated patients (patient actors) was described in medical education in California, USA, in 1963. The term 'Standardized patients' is used interchangeably (Wallace, 1997). Evaluations have not documented better performance amongst students trained with real patients (RP) as compared to those trained with simulated patients (SP) in educational doctor/patient encounters. When studying comparable encounters with RPs and SPs, Bokken et al. found that, while SPs provided more specific feedback and had better communication skills, medical students perceived RPs as more authentic (Bokken et al., 2010). The model explored in the present study employs SPs.

2.2.3 Know-how not enough

There has been an increase in both the number of simulation trainings held and the number of articles published showing that simulation training improves health care education, practice, and patient safety (Aggarwal et al., 2010). In Norway, however, a recent survey of ambulance helicopter crews showed that a large proportion of each of the professional groups involved lacked simulation-based training as well as assessment of their non-technical skills (Abrahamsen et al., 2015). This is somewhat surprising given that the knowledge of the benefits of such training ought to be well known to helicopter personnel managers. Perhaps 'know-how' is not enough. Have other prerequisites for the systematic training of non-technical skills of personnel not been met?

2.2.4 CRM

The concept of Crew (or 'Cockpit') Resource Management (CRM) in aviation training was developed in the 1970's. In a review of aviation accidents, investigators linked 70% of accidents to teams in which the pilot and co-pilot were flying together for the first time (Board, 1994). CRM was introduced in order to reduce such accidents (Shappell and Wiegmann, 2002). According to Westli et al., that same estimate could be applied to medical settings: "Fatal errors due to 'human factors' can occur in 70-80% of medical mishaps" (Westli et al., 2010). The oft-cited report from Institute of Medicine, *To Err is Human*, highlights that 60–80% of medical errors are primarily the result of human errors, such as ineffective communication and teamwork (Kohn et al., 2000).

David M. Gaba summarises the CRM paradigm as, "the articulation of principles of individual and crew behaviour in ordinary and crisis situations that focuses on skills of dynamic decision-making, interpersonal behaviour, and team management" (Gaba, 2010). CRM's first appearance within medicine was in the field of anaesthesiology. Gaba launched the first Anaesthesia Crisis Resource Management course in 1990. Later, apparently, the acronym CRM was said to stand for either *Crew or Crisis* Resource Management. The development spread, slowly, from the USA to Europe. As late as in

2004, a group based in Aberdeen, Scotland, published an article stating that aviation CRM training was suitable for health care trainings and that some acute teams resembled certain flight teams (Flin and Maran, 2004). Research into CRM is part of the foundation of the team training model we have explored (Brinchmann-Hansen, Wisborg and Brattebø, 2004).

2.2.5 In situ team training

Until 2005, reports on team training schemes came from two main areas: simulation centres and classrooms (Baker et al., 2005). Lately, however, interest in *in situ* training has been increasing (Klipfel et al., 2014; Rubio-Gurung, 2014). In situ training denotes training activities taking place in the participants' everyday settings, such as hospital wards or out-of-hours clinics. The model explored in the present study is an in situ model.

2.2.6 Team training in Norway

'Local emergency teams' first appeared as a concept in a 1998 Official Norwegian Report (Norwegian Ministry of Health, 1998). The report stated that collaboration between physicians and other groups of health care professionals would increase the patient treatment competence of all concerned. This would safeguard the quality of service and increase the safety of both the patients and the health care personnel. The report further claimed that to collocate the out-of-hours clinic and the ambulance services would increase the opportunities for collaboration, support, training, and a shared understanding of actual challenges. Daniel Haga, the municipal medical officer in Alta at the time, chaired the writing of this report. Anaesthesiologist Torben Wisborg, also from Finnmark, took part in the work group.

2.2.7 The BEST team training scheme

In 1996/7, Torben Wisborg, Guttorm and Johannes Brattebø designed a team training scheme for hospitals called BEST. The acronym BEST originally stood for BEtter and Systematic Trauma care, but was later revised to stand for BEtter and Systematic Team training. These physicians were acquainted with training from their work with rescue helicopters. They developed the BEST model after a tragic accident in Finnmark had revealed the need for training of that sort. In the following years, they implemented the model in hospitals and disseminated it all across Norway (Sundar, 1999). After a few years, they had established a Scandinavian collaboration for simulation (Wisborg, 2002). The model has also been spread internationally, non-profit, to countries in Africa and Europe (www.Bestnet.org).

After eight years of disseminating the model through holding in situ introductory courses, they analysed the results of the surveys their participants had filled out at the start and close of each team training day (Wisborg et al., 2008). Eighty-eight percent of the trauma hospitals in Norway took part, with 4,203 participants involved (28% physicians and 55% nurses). Six months after their final

training course, 1,368 trauma team members from 26 of the hospitals also responded to a follow-up survey. The authors wrote:

> There was a significant increase in self-reported knowledge and confidence amongst all participants. Community hospitals and participants without recent trauma experience had the lowest pre-intervention scores, but reached levels comparable to participants at the other hospitals after training. The effects increased after 6 months, with trauma team performance evaluated as having improved, even by team members who had not participated in the training (Wisborg et al., 2008, p. 1613).

2.2.8 Community-BEST

In 2001, Wisborg organised the first team training based on the BEST model in a municipality setting (Sundar, 2001). In 2003, he was amongst the initiators of a project for active implementation of BEST outside of hospitals, the previously mentioned Community BEST project. He invited three GPs in training in Finnmark to join: Kenneth Johansen, Risten Anne Utsi, to whom he offered the challenge of chairing the project, and me. She had also participated in 2001. For two years, we used our spare time to spread the model, organising in situ team trainings in every municipality in the county of Finnmark (an area the size of Denmark). We and our GP peers organised and prepared for these training days without the involvement of any higher-level administrators from within the municipalities. Beginning with the summer of 2005, we chose to include one emergency medicine technician (EMT) regularly in the instructor group, and we later added a nurse. We invited them in order to improve the quality of feedback we could give to the local EMTs and nurses whom we trained; as GPs, we realised, we were focused more on the local GPs than on the other professionals.

The model evolved continuously, changing according to what we considered would be best for the participants. During these first years, we debriefed the participants after the simulation sessions with the aid of simulation video clips. We discontinued that practice when we saw that it added little of value to the session. We thought that the participants might utilise the time allocated for debriefing better by sharing their reflections with the group, facilitated by one of the instructors. In the second phase of the project period (2006-8), we also replaced manikins with simulated patients in order to increase the realism of the simulation sessions. During a car trip between municipalities in Northern Norway, one EMT suggested that it would be more facilitative to change our question in the debriefing session from, “What did you do wrong?” to, “What could have been done differently?” The impact changing that question allowed me to grasp how large a difference small nuances in wording could make.

I was the project manager of this second period. In the company of one of the three EMTs, I made several trips to municipalities in the counties of Troms and Nordland, as well as re-visiting to

Finnmark. In total, we visited 48 municipalities, each at least once, during 2004-08. Thanks to the long travel distances, we had plenty of time to discuss team training.

2.2.9 Implementation of the BEST model

In 2008, Wisborg and Brattebø described some factors promoting success when implementing the BEST-model:

> Committed health professionals planning to implement new methods for training and preparedness in hospitals should have one or more enthusiasts, secure support at the administrative level, and plan the implementation taking all stakeholders into consideration (Wisborg and Brattebø, 2008, p.437).

We certainly were a committed, though self-administrated, group of professionals those five years, receiving both the funding and advisory support of Wisborg and the BEST Foundation. We were dependent, however, on interest from health personnel in the municipalities in order to be granted the opportunity to visit. Most contacts responded positively.

In 2008, The National Centre for Emergency Primary Health Care (Bergen, Norway) published a report on how to train GPs in emergency medicine. A note referring to a researcher who had been a participant observer in a local C-BEST training in Finnmark during these first years was included in the report:

> The observer's evaluation is quite positive. He is surprised at how natural and useful it seemed to hold trainings in well-known surroundings with the usual group of health personnel (….) Another obvious conclusion is that a single, obligatory two-day emergency medicine course every fifth year is not enough. To collaborate, they need to train together, locally, in the roles they usually have, in the places they are accustomed to working, and with the equipment they usually use (Blinkenberg, Nieber and Thesen, 2008, p. 12). [Translation mine.]

One year later, the same centre published a report about emergency primary health care in the future (Hunskår, 2009). In this report, the centre recommend that a national "Breakthrough Project" be established to implement emergency medicine training based on the principles of BEST training, among other approaches.

2.3 Team training in Alta and elsewhere in Norway

As mentioned initially, the C-BEST model in Alta includes presentations by local instructors/facilitators to review essential concepts and guidelines for trauma treatment, a realistic simulation training session carried out in real time with real participants, followed by a debriefing session. A second simulation training and debriefing session follows later the same day.

2.3.1 Initial review

Under the leadership of a local GP instructor, an EMT instructor (sometimes a nurse), an initial review covers the basic principles of treating traumatised patients. This is followed by short collaborative exercises and the opportunity to reflect on prior experience. The team also receives instruction in the essential elements of teamwork, for example closed-loop communication wherein received information is clearly confirmed by using each other's names. The role of team leader is rarely assigned explicitly but rather simply assumed by one of the participating GPs.

2.3.2 Simulation sessions

The teams organise themselves for the simulation sessions. The local instructors have chosen and organised two challenging simulation scenarios in advance. An instructor may simulate a severely injured or ill patient (SP), or, at times, an acquaintance, or the parent of an injured or ill baby (manikin). The SP communicates his or her experience during the subsequent debriefing session. Almost all scenarios are time-critical, challenging, run in real time, and enacted as realistically as possible. For example, a team might drive out to a person lying by the side of a road, provide breathing assistance, place the patient in the ambulance, insert IV-lines, and "report" to the hospital and primary care clinic. In other simulations, the SP might be located indoors – in a waiting room or on a staircase. In most sessions, the ambulance drives to the primary care emergency clinic (open both out-of-hours and during the day) where the nurses prepare for the SP's arrival, sometimes along with a GP. One physician joins the EMTs in the ambulance in order to examine the SP as soon as possible. The instructors conclude the simulation session once the health personnel consider the SP ready to be transported to the hospital, typically after a simulation lasting approximately 30 minutes.

2.3.3 Debriefing sessions

In the debriefing sessions following each simulation, the proxy for (either patient or parent) participates in a combined role of SP, instructor and colleague. All members are asked to reflect upon different questions in three subsequent turns: 1) "How did you experience the simulation session?"; 2) "What went well?"; and, 3) "What could have been handled differently?" Each debriefing session lasts from 30 to 60 minutes. Within this framework, the local participants are free to elaborate on their own topics of interest.

2.3.4 Training elsewhere

In 2011, another local emergency medicine training initiative, called the 'Bjarkøy model', was described in Norwegian journals (Hilpusch, Parschat and Fenes, 2011a; Hofstad, 2011, Hilpusch, Parschat and Fenes 2011b). This approach to interprofessional training in emergency medicine involves gathering all local health personnel on the small island, for two hours every sixth week. The training sessions are described as having a flexible design, including scenario and skill training, lectures and reflection sessions, but apparently not in any given order. The model thus differs from the C-BEST model with its defined structure (initial review, first simulation and debriefing, second simulation and debriefing). Also, the C-BEST model has been developed in order to train smaller teams, establishing themselves *ad hoc* as occurs during real emergencies.

The initiators in Bjarkøy performed a survey in 2008 concerning on-going training activities in the 44 municipalities of Troms and Finnmark, two of the three counties where the C-BEST model had been introduced previously. The survey, published in 2011, showed that in 34 of the 41 responding municipalities both nurses and social care workers had taken part in training in emergency medicine procedures (Hilpusch, Parschat and Fenes, 2011b). As already mentioned, the C-BEST model is also in use in Southern Norway (Dallan, 2013).

2.4 Team work in Norwegian general practice

In Norway, each municipality has responsibility for providing primary health care services. The majority of the GPs work within a nationwide patient list system, based on contracts both with the municipalities and with the State. In 2014, GPs had an average of 1150 patients on their list. Their income consists of a capitation (i.e. per patient) fee, paid by the municipalities, plus a fee for service, paid by the State (Abelsen and Olsen, 2015). Autonomy seems to be the key when GPs' prefer private practice (Holte et al.; 2015), but GPs normally work in practices with other GPs and medical secretaries. A report based on a large international survey from Commonwealth Fund in 2009, found that Norway excelled in that 90% of the GPs said they were satisfied or very satisfied with their work, as compared to 72% for the GPs from the other countries questioned; USA, Italia, Canada, New Zealand, Australia, Great Britain, Germany, the Netherlands, France, Sweden (Holmboe et al., 2009). The high number of satisfied GPs was also found in the Commonwealth Fund's next survey in 2015 (Steiro et al., 2015). However, in the white paper 'Future primary health care' (Norwegian Ministry of Health, 2015) there is expressed an aim for the GPs to become more integrated as team members alongside other skilled public health care professionals in the municipalities.

The daily work of a GP goes on in settings where the professional roles are well defined in small teams that include the patients, the secretaries, and sometimes a nurse. Teamwork in larger teams can

happen, for example, in follow-up meetings for patients in need of the help of a variety of professionals (patients with complex problems) – or during the rare emergencies. In this thesis about continuity, collaboration and equity in general practice, Norwegian GP and PhD Øystein Hetlevik, emphasised that improvement was necessary, "especially regarding collaboration in teams", although referring only to teams built around patients with chronic diseases in his thesis (Hetlevik, 2013).

Perhaps lessons may be learned about teamwork in general through training in the specific and more stressful settings of emergencies – settings where leadership, communication, and a working knowledge of roles are obviously needed.

2.5 Out-of-hours services (OOH) in Norway

The Norwegian GPs are mandated to serve their own patients and others when in need of emergency health care (Emergency medicine regulation, 2015). The GPs are also obliged to participate in the out-of-hours (OOH) service, though the municipality is responsible for delivering OOH care for which a physician is required (Norwegian Ministry of Health, 2011). As mentioned above, most GPs are on contract to a municipality; collaboration between municipalities in to delivery of OOH service is common (Morken, Midtbø and Zachariassen, 2014).

The typical staffing of an OOH service today involves one on-call physician and one nurse. No nurse-only OOH clinic exists in Norway. Smaller municipalities may run OOH services without any nurses being present, while larger cities might have several physicians and nurses. In 2014, other physicians than GPs responded to more than 50% of all OOH calls in Norway, for example: fulltime OOH doctors, locums, interns, physicians working primarily in hospitals, and PhD students. Specialists in general practice responded to only 20.2% of the calls (Sandvik and Hunskår, 2015). However, the newly revised regulation concerning emergency care outside hospitals (Norwegian Ministry of Heath, 2015), requires improved competence in OOH service, a change that is intended to raise the number of GPs taking part in out-of-hours services and to improve the quality of the physicians' work.

2.5.1 Nurses in OOH services

The municipalities are also obliged to insure that OOH phone calls are responded to by professionals. Typical responders are nurses at the OOH clinic or in a connected nursing home. There are other arrangements as well, such as a joint call centre at the dispatch centre of the local hospital or a call centre elsewhere in the country. Nurses handle about one fourth of the phone calls alone, and the quality of their performance varies (Hansen and Hunskår, 2008). The authors contend that patient safety programs would benefit from including quality assessments (Hansen and Hunskår, 2011). Nurses assist physicians in OOH in many ways, depending on local tradition. The nurses participating

in the simulations in Alta were all accustomed to encountering OOH clinic patients face-to face, as well as on the phone.

2.5.2 Ambulance services

The ambulance services runs a parallel to OOH services. Most municipalities have ambulances and EMTs (emergency medicine technicians) on call, organised by the local, state-owned health trusts. Due to varying levels of formal training, EMTs in Norway are a more heterogeneous group than nurses. There are considerable regional differences in educational level; in Northern Norway, for example, no formal education for paramedics is offered.

The dominant group, 'ambulance personnel' (EMTs), have completed secondary school and also a certified two-year apprenticeship in ambulance work (Førland, Zakariassen and Hunskår, 2009). In urban areas, meanwhile, an increasing proportion of EMTs have also received such supplementary training as paramedic courses at the college or university level. A Bachelor's degree program in ambulance medicine was established in Oslo in 2014. Thus, there are considerable regional differences in educational level.

In a survey, Førland and colleagues asked Norwegian ambulance personnel about their collaboration with other health personnel. Their central findings were:

> 1. Ambulance workers consider the cooperation with doctors in the out-of-hours services to be especially challenging, and the feeling of professional acknowledgement correlates with their perception of this cooperation. 2. Ambulance workers feel they are highly competent in practical handling of patients. 3. Strengthening of formal competence and an expanded area of authority require a new awareness of roles in the cooperation between ambulance workers and doctors (Førland, Zakariassen and Hunskår, 2009, p.1).

The authors' interpretations of this is as follows:

> Strengthened formal competence combined with increased possibilities for medical treatment in ambulances, may have contributed to an expanded role for ambulance personnel within pre-hospital emergency care. Smooth cooperation between doctors in the out-of-hours services and ambulance workers requires more knowledge of each other's procedures and increased awareness of the other party's role, something that could be partly achieved by training together in the local setting (p.1).

2.5.3 General practice differs from emergency medicine

The everyday work of the GP differs greatly from that of emergency medicine, which typically is unplanned and unpredictable, occurring anywhere and at any time and concerning patients most often unknown to the helpers. Familiar equipment and standardised algorisms, however, provide structure that increases efficiency and reduces the risk of failure. The everyday work of GPs, in contrast, takes

place in their own office where patients are scheduled to be treated singly within a given time frame, typically over time. Consequently, each patient has the possibility of presenting her/himself as a person with individual preferences, a unique body and lived life. Such aspects as patient issues and the frequency and duration of their encounters with their GP, amongst others, differ from the conditions in ambulance medicine. In 2005, a Norwegian GP performed on average 23 consultations per day (SSB). The number of different patients an EMT encounters on a daily basis is – and ought to be – much lower due to the mandate given to an emergency unit of being on standby

2.5.4 Emergency Medicine Communication Centres (EMCCs)

Emergency Medicine Communication Centres (EMCC) in Norway are all, with one exception, located in hospitals and served by clinically experienced nurses and EMTs. Emergency calls go out from such centres to local health personnel. In addition, EMCC staff may give advice to the public and connect health personnel with each other. Despite Norwegian guidelines as to when to mobilise on-call GPs (Norsk index for medisinsk nødhjelp), we know that the GPs in cities are called upon less frequently than those in rural areas (Vaardal et al., 2005). A Norwegian study from 2008 (Blinkenberg and Jensen, 2008), based on data from 14 EMCCs, showed that the operators called the on-call GP via the emergency radio network to attend to only 49% of the cases while the ambulance services were called in to 95% of them. Evidently, the health care a patient receives depends on who is informed about the patient's needs -- and when. In a small Norwegian study, the time between receiving an emergency call and the actual mobilisation of the EMTs and the on-call GP (EMCC response time) was more than eight minutes, favouring those who call from within the city hosting the EMCC above those calling from more remote locations (Folkestad, Gilbert and Steen-Hansen, 2004). Norwegian professor in Sociology Aksel Tjora writes that:

> Observation studies in AMK centres (Tjora, 1997; 2002) have shown however, that local knowledge is not only knowledge about local geography, but knowledge about people's local health-related habits, about local social problems and special considerations, about local professional practice, and experience regarding how to handle specific, demanding returning callers (Tjora, 2009, p.96).

Professor Halvor Nordby claims that the likelihood of good communication increases if the EMTs have the opportunity to sit in with the EMCC and the personnel at the EMCC to sit in with the ambulance service (Nordby, 2014). When the local team is in contact with the EMCC, they comprise a virtual team (van der Kleij, 2007).

2.6 Collaboration in Norwegian health care

In a Norwegian Official Report of 2005, the so-called 'Collaboration Committee' introduced the concept of interaction into Norwegian health care (Norwegian Ministry of Health, 2005). Although both the patients' perspective and role as active participants were elaborated upon in the report, collaboration between health care services received the most attention. Team collaboration in emergency settings was not mentioned, however, despite the fact that the concept of "local emergency teams" was well known to at least one of the ten members of the Collaboration Committee. He had chaired the Official Committee when it first described local emergency medicine teams in the NOU of 1998:76 concerning pre-hospital emergency medicine (Norwegian Ministry of Health, 1998). That report recommended:

> The cooperation between the ambulance service and the municipal health services should be formalised through the constituting of local emergency medicine teams. EMTs, primary care physicians and nurses in the municipal health services must receive training in collaboration and sufficient time should be allocated to exercises and practical training." (p.99). [My translation.]

A 2007 Norwegian qualitative study based on focus group interviews with physicians in both hospitals and municipalities, showed that the primary meaning physicians attributed to the term 'collaboration' regarded how to distribute tasks amongst professionals to assure smooth cooperation. For them, collaboration with the patients was not a topic at all (Pettersen and Johnsen, 2007).

In 2012, the Norwegian government started to implement the Collaboration Reform (Norwegian Ministry of Health, 2008). All health trusts and municipalities have consequently signed agreements about how to collaborate. Team training was mentioned as a theme in the national guidelines for these agreements (Norwegian Ministry of Health, 2012).

As mentioned, the white paper *Future primary health care* (Norwegian Ministry of Health, 2015), identifies interprofessional teams as a central structure in future general practice. Likewise, the report underlines the importance of leadership and collaboration in emergency settings. However, while these documents affirm a need for team training, no overarching structures for implementing these changes are delineated. Since the municipalities are autonomous, and since the large national programs for quality improvement and research are predominantly designed for secondary care, the options for local changes of practice have thus far been almost left to chance.

In November 2015, the Norwegian Official Report concerning emergency medicine outside hospitals was published (Norwegian Ministry of Health, 2015). In this, collaboration within the municipalities and amongst the services has finally received significant attention. The report questions whether the

agreements of 2012 have been adhered to and how the health agencies and municipalities organise their services. Results from the present team training study are also included in the report.

2.7 Rural context

Both the action learning phase and the subsequent action research part of this project took place in rural settings. Thus, the wider professional framework of the study is 'Rural Health', a term first coined by Australian rural GPs and educators. They realised that securing qualified health personnel for the health services outside the large cities, distant from both larger hospitals and universities, required them to explore and design specially adapted approaches (Strasser et al., 2016).

2.7.1 Lack of resources

Recruiting and retaining GPs has been a main task in 'Rural Health'. Continuity in the patient /GP relationships is one of the aims of the Norwegian regular GP scheme. A recent study shows that the mean duration of a GP-to-municipality agreement triples from municipalities with fewer than 2.000 inhabitants is a third of that of municipalities with more than 50 000 inhabitants (Abelsen, Gaski and Brandstorp, 2015). Hence, the GP turnover is much greater in rural areas. In addition, patient lists without designated GP also seem to be a problem in the municipalities with fewer than 20.000 inhabitants (Abelsen, Gaski, Brandstorp, 2016). Locums fill the gaps in Norway when the number of permanent health personnel is insufficient.

Locum-based services within primary care will obviously pose challenges for patients in need of continuous care, such as the elderly and people with chronic diseases. During emergencies, when time pressures make local collaboration crucial, familiarity and good patient-physician relationships are also important, though in a different way. Such personnel would have an overview of the resources of local collaborators, the local ways of doing things and, preferably, already have established sound relationships with other collaborating partners. In addition, familiarity with the patients could help team members provide individualised care, particularly when elderly and chronically ill people need emergency care, or when their condition deteriorates abruptly.

From an organisational perspective, wide-spread use of locums would impair the continuity of work toward developing and maintaining adequate health systems. A system does not exist separate from the individuals who maintain it – continuously.

2.7.2 Local learning

Decentralised medical education developed from the idea that students who were offered the opportunity for sound medical experience outside the university clinic would be more likely to apply to work there later. Longitudinal Integrated Clerkship (LIC) provides health students several weeks or

months of education away from the university hospitals, during which time they relate to a tutor on-site and can learn from meeting patients closer to where they live their lives. This approach to learning is based in part on what is often called 'a curriculum that walks in the door'. In addition, the model contains an online curriculum and group discussions and lectures facilitated as videoconferences. Decentralised specialisation, or postgraduate training, is also implemented to retain physicians in the rural and remote areas. In situ team training is such a local learning effort, suitable for students, interns and specialised personnel -- preferably as an integrated part of quality work and an attitude of lifelong learning.

2.7.3 Rural risk for emergencies

Close examination of health care services in rural settings is also a major part of research within Rural Health (Douglas, 2015). Both access to care and how to deal with distance to hospitals are obviously challenging in rural areas. In many emergencies, the time between the onset of an acute incident and when proper treatment begins may be critical, e.g. with bleeding after an injury, impaired heart or brain circulation (infarction), acute severe psychiatric episodes, compromised respiration, and impaired consciousness. Injury-related mortality is higher in rural than in urban areas. Norwegian researchers Bakke et al. mention risk factors such as high-risk occupations (e.g. farming, mining, and fishing), excessive alcohol consumption, attitudes towards risk reducing behaviour, and lower socio-economic status. The fact that a larger proportion of rural trauma victims die at the site of the accident as compared to urban victims, is associated with the increased time before their discovery, response and transportation (Bakke et al., 2013).

For decades, Finnmark, the northernmost county in Norway, has had death rates above the national average. Building up new units can help reduce the distance to health care, though that is not easily accomplished in today’s rural areas. Faster transportation helps as well. Recruiting and retaining sufficient, competent local health care personnel are, however, are the main issues in primary health care. We know that physicians have ranked the possibility to provide proper health care to their patients as the most important factor for their work satisfaction (Friedberg et al., 2013). Recruiting and retaining physicians and other health professionals in rural areas is central to municipalities' efforts to provide good health care services. Local team training could facilitate this. We believe our study can contribute by exploring why and how to train teams locally.

3 Aims of the study

The purpose of the study was to explore local in situ team training and to improve such training in primary care with a focus on interaction, in a participatory research design, founded on the principle of democracy, and guided by participatory analyses of three themes -- participation of the patient, leadership practice as interaction, and learning processes.

4 Ethical foundation

From its earliest phase, when local health personnel worked together to develop the model, the ethical principle of democratic participation has been the study's constant guide. Ethical considerations aid us in making good choices by helping us to see what is at stake in any given relationship or situation (Henriksen and Vetlesen, 2006). Since relationships have both explicit and implicit aspects, we make both conscious and unconscious choices regarding them. The study has thus required maintaining an ethical awareness throughout the entire research process.

Basing interactions on democracy is a complex matter; democracy as a concept has many connotations. In research, the principle of democracy implies interplay between the participants involved. The researcher thus has the responsibility to provide the leadership to create an appropriate and facilitative framework within which the basic premises for an adequate inquiry into the participants' interactions are assured. Democratic principles safeguard a diversity of opinion (Dewey, 1916) and are a prerequisite for interaction without suppression. Democratic participation is also a means for increasing local ownership of and involvement in the process, which in turn increases the likelihood that fruitful improvements will be made.

Knowing and applying the laws, norms, rules and guidelines is the responsibility of the researcher – not of the society or of the study participants, according to the 'Helsinki Declaration' (Ethical Principles for Medical Research Involving Human Subjects, by the World Medical association). Yet, some kinds of research engender specific challenges, which may not be addressed adequately in formal institutional rules for ethical conduct in research. This is the case with action/participatory research, where the boundaries between the researchers and their 'research subjects' may be somewhat blurred; in many such projects, the term 'co-researcher' is thus being used for both groups. In our study, we decided to draw a distinction between local participants and research group members to show that there was a clear difference in their contributions to the study.

The Centre for Social Justice and Community Action, Durham University, and the National Co-ordinating Centre for Public Engagement (both in UK) have formulated a special guide to ethical

principles and practice in community-based participatory research (Centre for Social Justice and Community Action, 2012). Community in this context means 'groups of people who share something in common'. The guide differentiates the core principle of democracy into seven aspects: 1) mutual respect within research relationships; 2) equality and inclusion of all kinds of people; 3) democratic participation regarding decision-making and other aspects; 4) actively learning from each other; 5) making a difference as regards positive change; 6) collective action; and, 7) personal integrity.

Our study accords with most of these aspects, with the exception of the third. Our researcher group did not involve the other participants in making the basic choices and decisions regarding the study´s design. Nonetheless, all the professionals who chose to take part in the training sessions were free to address these issues in the debriefing sessions and in later focus groups. Consequently, their choice of topics on which to reflect had considerable impact on the study, as which will be demonstrated in the following chapters.

Reflections on this core issue also appear in later chapters, in relation to theory, methods, and discussions.

4.1 Formal approvals

We approached both the Regional Ethic Committee (REC) in Northern Norway and the Data Protection Official of Norway for approvals. Both stated that their approval was necessary. Please see appendix for the official letter from REC.

5 Theoretical perspectives and methodology

In this chapter, I will describe the process of choosing our research design, the 'basic theories' upon which this thesis is based, and the methodologies derived from these theories.

Professor in General Practice Kirsti Malterud condenses a definition of scientific theory found in Oxford English Dictionary as follows: "*Theory* is a consistent and soundly based set of assumptions about a specific aspect of the world, predicting or explaining a phenomenon. A *model* is a simplified representation or image of a theory" (Malterud, 2016).

The present thesis originates from clinical practice and experiences, not a theoretical model. Theoretical reflections proved to be crucial, however, during the course of the study for challenging our own prejudices, assumptions and concepts, and those of the other participants.

5.1 Process of choosing the design

The background for the decisions that led to the actual design include previous quantitative explorations of various effects of the C-BEST model. During the dissemination of the model (2004-08), as described in the background chapter, the instructors distributed simple, structured questionnaires to the participants at the opening and the close of all completed training sessions, inquiring into local challenges as well as relevant personal experiences the participants might have had prior to the training. No space was provided for comments. The responses were ranked on a Likert scale (from 1 to 10). Nine out of ten of the 145 participants who completed the questionnaires during the first year (2004-5) responded that they would recommend the team training model to a colleague (Utsi et.al, 2008). However, Sitzmann et al. (2008) reflect critically on evaluations by participants directly after a course. The answers on a ‘smiley sheet’ could partly reflect the participants’ relief at having completed the training. The connection between such an immediate ‘rating’ and the individual respondent’s learning benefits is weak.

The results from the roughly 700 participant in 46 municipalities visited during 2005-08 remain unpublished. When asked before a day with C-BEST, they seemed to indicate that the participating professionals in remote municipalities in Finnmark considered communication and leadership presented greater challenges than did a lack of equipment and personnel. This clue was encouraging because the participants often said they didn´t know that C-BEST focused on the non-technical skills such as communication and leadership rather than on technical skills.

An external evaluation was commissioned in 2006 from the research institute Norut/NIBR to explore the impact of team training on retaining health personnel. While all municipalities that had been visited by instructor teams received a questionnaire, the response rate was too low for any sound

conclusion to be drawn; this material also remains unpublished. Another potential measure of the impact of the early phase of C-BEST could have been the mortality rates linked to emergencies in the municipalities where team training had been performed as compared to those not having taken part. Due to the heterogeneity of the incidences and their low frequency (Rørtveit and Hunskår, 2009a; Zakariassen, Hansen and Hunskår, 2009), such a comparison was not deemed feasible.

During my transition from being mainly a facilitator and organiser toward preparing my own research, I realised that the most fruitful experience derived from the first phase had come through the participatory work. Developing the team training model in interprofessional settings, making small adjustments, and then discussing both the model and emergency medicine seemed to be what moved the project forward. I realised then that it was possible to safeguard the core participatory principle while performing action research, at which point the decision was made to structure the project in that way.

In their book, *Interprofessional Teamwork for Health and Social Care*, Reeves et al. (2010) stress how challenging it is to improve the work of interprofessional teams. One needs to understand the complexity of teamwork, including the effects of an array of factors such as relationships, processes, organisation and context. The authors also underline the role which stakeholders play. These insights support our choice to perform an action research study based on qualitative methods and involving the participants' own experiences and interpretations.

5.2 Basic theories

In our study, we seeked to participate in and explore local processes from a phenomenological perspective, basing our results on local health personnel's interpretations and actions as well as on our own, in a hermeneutic tradition.

5.2.1 Phenomenology

We aimed for a close exploration of a participatory process emphasising the world of the local health personnel - their 'lifeworld'. Edmund Husserl (1899-1959) wrote that science may function as an instrument to *rule/control* the world rather than to *understand* it, and this might lead to alienation (Thornquist, 2003). His contribution to understanding the world was phenomenology, – a philosophy and a theory emphasising the knowledge found in rich, experience-based and contextualised descriptions of people's lives and based on the presumption that their actions are intentional. The researcher applying this theory remains open-minded and refrains from simply adjusting his or her own presuppositions about the experience so that they fit into predetermined categories, assumptions or models. Explorations of people's ordinary lifeworld are a major focus within phenomenology. In

our study, we explore the lifeworld of health personnel as they participate in team training, that is, as they act as professionals while also living their own everyday life.

According to S. Kay Toombs (1987), Husserl claimed that we take the 'objectivity' in the world for granted without considering that we always experience the world through the filter of our own consciousness. Toombs describes how social scientist Alfred Schutz (1899-1959) developed this insight when bridging the social sciences and phenomenology, claiming that what a person focuses on is dependent on his biographical situation and a complex blend of choices, decisions and projects that, taken together, shape a person's plan for life. People interpret their own experiences in light of their specific interest, motives, wishes, and hopes, as well as religious and ideological commitments. Within the 'hermeneutic tradition', the sum of all of these may be termed their 'horizon'.

5.2.2 Hermeneutics

Hans-Georg Gadamer (1900-2002), the famous philosopher in the hermeneutic tradition, emphasised time and space as a precondition for knowledge individuals construct: their pre-understanding ('horizon') will influence their interpretation of the world and what they know. In short: What a person knows is *situated*. "Reason exists for us only in concrete, historical terms – i.e., it is not its own master, but remains constantly dependent on the given circumstances in which it operates" (Gadamer, 1979, p.277).

Knowledge, according to the hermeneutic tradition, is comprised of the situated interpretations of what we experience. Whether from the perspective of exploring local practice in action in Alta from close up or from a distance, our interpretations of the local participants' talk and performance are coloured by our own understanding of their context as well as by the theories and models for thinking we bring with us.

Gadamer found that a constant widening of the 'horizon' of the individual was essential, a central concept which he termed the 'Hermeneutic Circle'. There is a circular movement from a person viewing *the parts* of the world as they are perceived by that individual, to interpretations within the larger frame of what the person knows about the world, *the whole*. Viewing a the part against the backdrop of the person's horizon will lead to interpreting the next perception of the world in a slightly different way, because the understanding of the part impacts the understanding of the whole. According to Fuglseth (Fulgeseth, 2006), Gadamer followed the thinking of Helmut Kuhn. Fugleseth writes that Kuhn describes horizons as having three basic features (my translation):

> 1. The horizon is the circle around what we perceive in the world (real and unreal). To expand the horizon is to move our focus from one object to see it in an increasingly larger context.

2. The horizon frames everything we perceive and helps us comprehend an object as a whole (even if, for example, we only see the front of an object) and makes us see how the context shapes perception.

3. The horizon is always open. When we move from the centre to the periphery of the large circle, new horizons unfold. The limits of the circle expand and we cross the limits of our horizon (transcendence) (p. 146-7). [My translation.]

5.3 Methodology

5.3.1 Action Research

Action Research (AR) is our overarching methodological framework. The newly revised *the SAGE Handbook of Action Research* (Bradbury, 2015) gives this definition:

> Action research is a democratic and participative orientation to knowledge creation. It brings together action and reflection, theory and practice, in the pursuit of practical solutions to issues of pressing concern. Action research is a pragmatic co-creation of knowing with, not about, people" (p.1).

AR is oriented toward documenting and exploring processes of improvement, and, as the researchers explicitly participate in the process, emphasises reflexivity.

Janet Masters (1995) draws on McKernan when she claims that AR has its roots in the 'Science in Education' movement of the late nineteenth century. From amongst the people using the research principles in the first half of the 20th century, she has focused on psychologist Kurt Lewin (1890-1947). He constructed a theory of AR depicting AR as a repeating spiral of steps consisting of planning, acting, and then evaluating the result of action. Lewin claimed that in order to understand and improve social practices, researchers should include practitioners from relevant fields in all phases of the study (Masters, 1995). Lewin and others were strongly influenced by the pragmatic tradition and by education experts like e.g. John Dewey, who were honouring plural subjectivity (Bradbury, 2015, p. 7), as already mentioned.

The Handbook of Action Research states in its introductory chapter that the first principle in contemporary AR is that "the self is relational". Editor Hilary Bradbury claims further that AR takes its place within a diverse ecology of inquiry (epistemologies), acknowledging the practical contributions to self and other that they offer. "Ecologists warn us against monocultures because resilience and sustainability are a product of diversity." (Bradbury, 2015, p.4).

Bradbury named Ignaz Semmelweis (1818-1865, washing of hands) and Donald Henderson (eradication of smallpox) as proto-action researchers that have inspired her. However, it seems the interest for AR amongst physicians has been sparse, but gaining in interest within the medical filed. A large author group based in global health policy research recently claimed that participatory AR could contribute, amongst other things, to knowledge "about the roles and social relationships contributing to effective prevention and care" (Daniels et al., 2016). The author of a book about indigenous research methodologies, the author claim that, "Action research aims at demystifying the research process so that it does not remain solely in the hands of experts" (Chilisa, 2012). How several aspects of AR emerged and served this study is a theme within the discussion chapter.

5.3.2 Ethnomethodology

We chose ethnomethodology as described in the textbooks of Silverman as our approach to the phenomenon of team training (Silverman, 2004; Silverman, 2013a; Silverman, 2013b). We were interested in understanding why people do the things they do in their everyday life. By documenting everyday actions, one may explore what facilitates and/or constrains these actions – such as resources, goals, habits, possibilities, tasks, processes – i.e. how they are constructed. Participatory observation in the ethnomethodological tradition would, according to Kathrine Fangen (2010), emphasise not only on what people say but also their actions, how their statements are enacted. Alvesson and Skölberg (2009) underline the tradition's roots in phenomenology: "It focuses on exploring how the lifeworld emerges because of microprocesses in the form of social interactions, which generate the common-sense knowledge of the participants" (p.78).

According to the founder of ethnomethodology, Harold Garfinkel (1967), reflections simultaneously describe and constitute realities, but the action of reflexivity is constrained by discourses. These discourses guide what might be said in specific social settings. Since language is the main means for defining the prevailing discourse, language is also a means for changing it. The person who speaks immediately acquires the power to define realities.

As a participating researcher, my own spoken contributions became part of the transcribed material analysed by the research group. In my role as a moderator for the debriefing sessions and later focus groups, I sought to keep my spoken contributions subdued and facilitative in order to accentuate the local participants' thinking, group process and power.

5.3.3 Abduction

We considered abduction to be an appropriate methodology for our analytic processes. Originally described by Aristotle, abduction represents a methodological middle-ground between deduction and induction. It affords the possibility to transgress the traditional polarity between these two positions as well as the subsequent perceived dichotomy between explaining and understanding. According to Alvesson and Skölberg (2009), abduction is characterised by the way "a single case is interpreted from

a hypothetic overarching pattern, which, if it were true, explains the case in question. The interpretation should then be strengthened by new observations (new cases), and the repeated process provides the basis for empirical validity" (p.4). They claim that it facilitates refining theoretical assumptions since it allows the basic patterns or in-depth structures in the material at hand to be identified. It resembles the hermeneutics involved in the clinical process of establishing a diagnosis. This would imply that abduction is guided by an aesthetic orientation or intention. As abduction may depart from empirical data and yet reflect theoretical presuppositions, the methodology contributes to both new explanations and a deeper understanding.

In his book, Jo Reichertz states that: "Abductive efforts seek some (new) order, but they do not aim at the construction of any order, but at the discovery of an order that fits the surprising facts; or, more precisely, one that solves the practical problems that arise from these" (Reichertz, 2004, p. 308). He explains that abduction looks for meaning-creating rules, a process that begins with puzzling empirical findings that demand theoretical frameworks in order to become understandable, whereupon the researcher may return to the research field for more facts in order to build a useful mental construct. Consequently, abduction as a methodological, systematic activity is a salient premise for allowing what is new to come forth. Knowledge brought forth by means of such an approach is always in flux, and continuously being integrated into, braided into and saturated with social activity and social life. It allows for a kind of research that is sensitive to patterns and deep structures and for interpretations that transgress the empirical data.

By means of reflections-on-action (Schön, 1984), new ideas and knowledge emerge from the analyses provided by participants both near to and at a distance from practice, with the empirical field as the starting point. Such a setting or condition applies to the three central constellations in the present project, namely the teams, the research group, and the local focus groups, which, in a converging manner. This both allows for and facilitates the identification and the in-depth exploration of patterns and structures

6 Methods and results

In this chapter, I will describe how we carried out our study, beginning with the local context, the study's participants, and my year as a participating observer. Descriptions of how the three central themes were explored in a participatory way follow next as well as the results. 'I', the principal researcher, will be more present in the text, as will the local participants and the research group. The form of this chapter is intended to document the local conditions and the choices we made, in chronological order, by giving voice to the human beings involved. Such step-by-step documentation is intended to afford the readers insight into our research and learning processes as well as an understanding of how the results emerged and how to evaluate them.

We used 'thematic theories' as 'lenses' or 'can openers', in the words of Høyer (2012), in order to introduce new perspectives to our material and participants. They will be presented in connection to the article in which they are introduced. These thematic theories are developed in other professional traditions and a theoretical critique of them is beyond the scope of this thesis. In our study, a critique of these theoretical perspectives is instead, embedded in the participatory design: both the research group and the local health personnel participating in the focus groups became familiar with them through the analytic work and through their practices and thus could provide feedback about their usefulness.

6.1 Local context

6.1.1 One site for one year

Since health personnel in Alta had already implemented the C-BEST model, practiced it systematically, and welcomed the research project, theirs were the training practices we chose to explore in depth. To our knowledge, no other municipalities in Northern Norway were practicing monthly then, nor are they now.

The interprofessional group of local health personnel had initiated, implemented, and maintained the training scheme from as early as 2007. Local nurses and GPs staffed, and still staff, the OOH clinic along with the EMTs stationed next door. These professionals were included in local *ad hoc* emergency teams when needed, and these formed similar *ad hoc* teams during training days. All participated voluntarily in these realistic trainings, the GPs, on average, once a year. The activity seemed well established and the people highly motivated. In addition, though I had never facilitated team training in Alta before studying it, I presumed that the personal connections I had to all the local instructors at the time, and also to other key physicians, nurses and EMTs, would facilitate the acceptance of my project. Professor in General Practice Peder A. Halvorsen, in Alta, joined as a co-supervisor once the decision was made to begin.

6.1.2 Local health service resources

Alta, with its approximately 20,000 inhabitants, has the largest population of any municipality in Finnmark. The hospital, however, had been established in Hammerfest, 140 farther north, in what used to be the only city in the region,; today, its population is approximately 10,000. The well-developed Alta Health Centre is designed to offer comprehensive primary health care and outpatient specialist health care to help compensate for the long distance to the hospital. Services collocated here include the OOH clinic (primary care emergency clinic open also during the day), an advanced nursing home, a rehabilitation centre, and facilities for ambulatory secondary care. Two ambulance planes stationed at the airport provide important compensatory emergency service. The airport has a high degree of regularity -- above 98% the first six months of 2016 (retrieved at www.avinor.com august 2016). The flight time to the University hospital in Tromsø is about 30 minutes. There is a third plane in Finnmark, stationed in Kirkenes, and a fourth one, stationed in Tromsø, which can bring an anaesthesiologist to Alta. There are only six other ambulance planes in all the rest of Norway.

6.1.3 Local participants

The participants in the team training sessions were recruited through the local health services' customary team training procedures. The facilitators compiled lists so that the mix of personnel training on any given day would closely resemble an actual emergency *ad hoc* team.

A leading person from within the nursing group, the EMT group, and from amongst the GPs distributed information about the research project approximately three months before the project started. They were all people with whom I had developed a good relationship through previous professional activities. I had the impression when the participants arrived for a training session, that they had been well informed of the project and of my participation in it. Each participant signed a consent from on the morning before the initial review session (please, see appendix).

The 10 teams that carried out 19 team training sessions were comprised of a total of 54 professionals – 6 medical students, 13 nurses, 18 emergency medical personnel and 17 GPs (a majority of the GPs in Alta). One of these teams carried out only of one simulation and debriefing due because of insufficient time. As technical problems left one of the recordings incomplete, the total of 19 recorded debriefings yielded 18 complete transcripts.

6.2 Selection and participation of the interprofessional research group

Professor in General Practice Anna Luise Kirkengen (ALK) has served as is the primary study supervisor. Although she had no prior experience with the team training model, nor with working as a GP in rural Northern Norway, she had extensive experience as a GP in Oslo and with doing qualitative

research. Co-supervisor Professor in General Practice Peder A. Halvorsen, a local Alta GP, has a quantitative research background as well as experience as a local team training participant. Brigitte Sterud is an anaesthesiologist experienced in working with car and air ambulance services, quality improvement projects and some research applying quantitative methods. She is a trained instructor for BEST hospital team training. Bjørgun Haugland, a paramedic in the rural north, is a trained emergency medicine instructor who is familiar with the present team training model.

During the planning and application phase, ALK and I worked out the main design. When expanding the research group, we chose the above named participants because of their differing backgrounds and their familiarity both with the model and with working with me.

When the research group first convened in 2011, much of the material from the team training sessions had already been transcribed for the group to work on. By this point, other important decisions had already been made: The three themes – the participation of the patient, leadership as interaction, and learning processes – had been outlined, although not yet thoroughly detailed or fixed. The same was true for the plan to invite the local participants to discuss and evaluate the results of our preliminary analyses.

How we would analyse the material had not yet been determined; through a participatory process, the research group discovered how we would analyse the texts. Everyone participated in doing so, as will be explained below in connection with each article. During our discussions, individual participants were never made the topic of conversation.

According to Malterud (2011), a research group may bring new perspectives to the analyses that may help assure relevance. Different people will, or course, influence the project and the subsequent local actions in different ways. The variety of professional backgrounds the members of the research group represented contributed a useful and broad spectrum of perspectives and competencies to the analysis, the writing of the articles, and in relationship to aspects of dissemination (section 7.6). In addition, English language consultant, Susan Schwartz Senstad, contributed in an engaged way to all the articles as well as to this thesis.

6.3 A year as a participating observer

I was a participating observer during ten team training days in Alta (May 2010-2011). An assisting facilitator (EMT) was with me during the first three of these (May, June and August 2010). For personal reasons, the EMT withdrew. We decided to go ahead with only one facilitator to keep the performance of the debriefing sessions consistent.

The overarching purpose of participatory observation, according to Fangen (2010), is, “to describe what people say and do in settings that are not structured by the researcher” (p.12). One advantage of this method is that the researcher gains personal experience with the actual field; this enables her/him to integrate both tacit and explicit knowledge into the analyses. Since the method includes observation over time, the researcher has the opportunity to explore the variations in the phenomena characterising the different settings. The researcher may also ask participants for their comments on previous observations or statements as a kind of *ad hoc* validation. We made use of all of these options in our research program.

Modes of participation varied during team training days. My main role during both the initial review and the simulation sessions was to be a supportive observer. I acted as a facilitator, however, during the debriefing sessions. I took field notes during the initial reviews and simulation sessions. Audio recordings were made of the debriefing sessions. I transcribed them, verbatim, a few days after the training sessions to serve as a reminder of what had transpired. The participants were anonymised by means of code numbers indicating the sequence in which they participated and letters indicating their professional status. In order to improve my skills and awareness as a facilitator, we used the transcripts of the debriefing sessions as material for ALK’s supervision and commentary. The sparse field notes were not included as research materials in the research group, but functioned as notes to myself.

To ensure a consistent and fair group process, I was present at all 19 sessions and acted as the facilitator in 16 of them. All members were asked to reflect on a different question in each of three rounds: 1) “How did you experience the simulation session?”; 2) “What went well?”; and, 3) “What could have been handled differently?” Within this framework, the local participants were free to elaborate on their own topics of interest. Each debriefing session lasted 45-60 minutes. The resulting transcripts were analysed in sequence in order to gain an overview of developments in how the debriefings were conducted.

6.4 Focus groups

The structure of the debriefing sessions resembled that of focus groups. The later local focus groups in which preliminary results were discussed were facilitated without presenting questions for everyone to answer. This left the interactions more open and more in the hands of the group participants. Malterud (2014) describes focus group interviews as a way to gather information about issues related to interaction. The setting is appropriate for interaction and for the sharing of common issues; it is less suited to the sharing of individuals’ more intimate reflections. The perceived level of trust and safety

in the group will influence the degree to which participants choose to disclose information about themselves or others that might render them vulnerable.

In his book *Field work in one's own context* (1991), Anthropologist Cato Wadel (1936-2011) coined the term 'Relational Competence' to underline that there exists knowledge that groups know together, and share, which is important to the actions of that specific group. In our study, it is this 'Relational Competence' that we are aiming to explore, more than individual competence isolated from the group.

6.5 First article: Participation of the patient

6.5.1 Preparations

One of the reasons for investigating patient participation more closely was my former experience with simulated patients (SPs) participating in earlier team training sessions. Their perspectives had often added new and valuable insights to the team. In addition, severely injured patients I experienced in real accidents, with their distinctive, pale skin and erratic state of consciousness and ability to move, seemed like a cross between a person and the manikins I was used to from my student days. This mixture of appearance was confusing and might have had an influence on my approach GP trying to help them.

The researcher group´s preparations for the first paper started in July 2011, two months after the last participatory observation in Alta. The group members were asked to read the complete set of transcripts preparatory to analysing these transcriptions of the debriefing sessions. I had marked the texts in advance highlighting statements depicting the SP either as an anatomic or physiologic object or as a subject. The rest of the research group evaluated whether these categorisations were appropriate and whether they agreed or disagreed with my selection of statements. They also marked their own selection of statements that they interpreted as either an example of this object/subject pattern or a divergence from it, arguing for their views through their written comments and corrections.

6.5.2 Becoming a research group through "learning by doing"

The group met face-to-face in September 2011, to familiarise ourselves with each other and with the research process we were to enter. As AKL had experience with qualitative research, she introduced us to core issues such as the concept of 'discourse', the power of words, the basic elements of qualitative research in general and of ethnomethodology in particular. Later, we found that bridging three methodologies would be useful for the first article: ethnomethodology combined with conversation analysis and discourse analysis.

In order to work out the *details* of how to analyse the texts, ALK selected three debriefing sessions from different training days, material already known to the group. Everyone then commented on these texts with regards to this question: "In this debriefing, what impression does the SP make when he or she speaks or when the team members mention him or her?" We were also to mark the text passages that were relevant to our comments. The process was thus open and creative, and it yielded five slightly different perspectives, reflecting personal interpretations of statements related to patient involvement on a continuum from patient-subject to patient-object. Our separate readings were compatible, with only a few exceptions that we discussed by e-mail after I had condensed the results.

We ended up classifying the statements from or about the SP in terms of: I, you, he/she/it, this, or that-statements, indicating talk about the SP as a subject (I, the patient, or you); about an objectified person (he/she); or as a part of the patient or a function (this head, that respiration). Then we counted the statements and organised them in tables. In other words, we de-contextualised the agreed-upon content of statements in our search for patterns. We used quantification in order to identify how often the different categories of patient presence were in use as a measure of the degree of objectifying language used about the SP in each training session. We also read the transcripts for statements indicating interaction patterns. Finally, we performed a discourse analysis in order to explore the relationships between language and power in our material.

6.5.3 Theoretical perspective

As a theoretical perspective, we introduced Person Centred Medicine (Miles and Mezzich, 2011). This concept had developed from the more widely known Patient Centred Medicine that places the patient rather than the physician at the centre of the consultation. With the patients' own understanding in the foreground, the patients' values become decisive, because it is the patient who 'owns' the problem. In Person Centred Medicine, the concept is developed further to include a focus on both the patient and the professional, not restricted to their roles but rather emphasising their interactions as persons. This better reflects the fact that every medical encounter involves two persons, the one in the role of patient, the other in the role of doctor/health care professional.

6.5.4 Preliminary results discussed in a local focus group

In Alta at the end of November 2011, a local focus group discussion was held so that local participants could review the preliminary results. The participants had been informed in a preparatory e-mail that I wanted to discuss some of our findings concerning the participation of the patients. In my introduction, I described these as a) that the SP was talked about more often as an object than as a subject in the debriefing sessions; b) that the team members rarely addressed the SP in those settings; and, c) that whenever the SP spoke, he or she engaged the interest of the team.

The focus group consisted of two nurses, two EMTs and three GPs. Some of them were also instructors and might have felt a certain pressure to attend, although they did not mentioned this. The session lasted approximately 180 minutes and took place in the meeting room where the team training sessions had usually started -- in other words, a place familiar to all of us.

6.5.5 New research group analyses

I transcribed the audio recordings from this focus group session immediately, and sent it out to the research group for comments. We again focused on our themes and on our own reflections on them. In the second process, in January 2012, the way five people highlighted different statements and explained their interpretations of the text facilitated our common understanding of what the local health personnel actually had said regarding patient participation. We revisited this material several times, along with our analyses of the debriefing sessions, and compared it to the literature.

6.5.6 Focus groups results

The focus group did not consider our finding that the local participants spoke about the SP in an objectifying language to be a problem. In line with ethnomethodology, talking about the patient and one self as persons could serve as an 'eye-opener' for the participants (a methodological tool meant to reveal new sides of one's own everyday life). This first focus group session, however, was more about the local health personnel trying to explain to me how things were and should be than me informing them. Unprepared for this dynamic, I persisted, though with far less success than I had expected, in attempting to convince the local health personnel of the importance of our findings. Although it was not discussed in the article, this experience provided an important lesson – it was an eye-opener as to just how unpredictable the process of change may be.

6.5.7 Results described in the article

Our analysis indicated that reflections on simulation training in primary care emergency teams are predominantly framed in a language that objectifies both the SP and the professionals. Even those professionals who lend their bodies as SPs contribute more to language *about* the patient than to actually providing the SP a voice. The local participants were ambivalent regarding the SP as a person unless it seemed of unambiguous benefit to the SP, and even then, only when there seemed to be no risk of it impacting negatively on 'assessments and management' during the most critical phases.

The experience of being surprised by what I learned motivated me to search for interesting and potentially eye-opening theories regarding the next theme: leadership.

6.6 Second article: Leadership processes as interaction

6.6.1 First workshop

During the work with the second article, we continued to explore the same transcripts from the 2010-11 debriefing sessions, but from a different thematic perspective. The idea of viewing leadership as interaction was influenced by the focus on interaction in the first article.

The research group (except PAH) gathered in June 2012, for a workshop that resembled a brainstorming process. In August 2012, I sent the whole group a summary of this. I also sent some reflections about leadership as interaction and about shared decision-making, underlining how crucial it is to involve all the participants when exploring leadership practice – not only the designated leader.

6.6.2 Theoretical perspectives

When applying a team training model to develop interaction skills, approaching leadership as *interaction* in this more inclusive way seemed appropriate. Jan Ketil Arnulf, a Norwegian psychologist with an academic interest in leadership, underlines that we live in a 'post-heroic time', and suggests that the role of leader in terms of decision-making and influence falls to the person having the most competence *at any time* (Arnulf, 2012). He also points to the concept of ‘distributed leadership’ as well as Cecil A. Gibbs’ early works (Gibb, 1954). Gibb (1913-94) was an Australian psychologist. Both Gibb and Arnulf suggest that, under some circumstances, the tasks of leadership might be carried out adequately by the collective as a whole.

J.P. Spillane has described 'distributed leadership in practice' as the interactions between people in a particular context, underlining how this differs from a predetermined, organisationally structured sharing of tasks or responsibilities. The way leadership is distributed in practice in situated interaction is unique to each given context (Spillane, 2005). Wang, Waldmann and Zhang (2013) equate the terms ‘shared leadership’, ‘collective leadership’, and ‘distributed leadership’, and they find “substantial empirical support for a positive relationship between shared leadership and team effectiveness” (p.12). Nonetheless, a collaborative approach to leadership practice seems to represent a challenge within traditional healthcare (Lingard et al., 2012). Barbara Kellerman of the Harvard Kennedy School, showed how leadership is based on interaction between leaders and followers whose roles are interdependent, and yet the followers’ part is often forgotten or at least downplayed. (Kellerman, 2008).

6.6.3 Process in the research group

The work with the empirical material in the research group began with dividing the debriefing session transcripts into five sets that I distributed to the members along with instructions asking everyone to look for themes that dealt with leadership. Each member was to mark the words and passages where the local participants talked about leadership in a broad sense, and also to write out the reasoning

behind their selections. This diversity of perspectives revealed that 'leadership as interaction' is an ambiguous concept. We then identified words associated with leadership and searched the texts for the use of them; focusing on leadership in this initial part of the process proved useful in the later analyses of the variety of aspects of leadership (domination, control, creating engagement or followers) that had been revealed in the way participants talked about leadership during the debriefing sessions. We not only analysed the participants' reflections regarding leadership as interaction, but also their actions – how leadership as interaction actually happened, during the debriefing sessions as well as the rest of the Alta team training days.

6.6.4 Local focus groups

The local focus group sessions in Alta were held in late autumn, 2012. Here, as before, health personnel from the three different professional groups (GPs, EMTs, nurses) distributed invitations to participate in focus group interviews and gave out the first article, which by then had been published.

As the nurses had been the quietest participants during the interviews the previous year, they were invited this time to form a group of their own. The two nurses who met spoke primarily about their interactions with the on-call GP, the various ways they related to the physician. They focused less, however, on how they themselves performed leadership roles. What they described as their own role was closer to a facilitator. Though the concepts of designated and distributed leadership were neither accepted nor readily understood initially, they emerged within the group.

The group of three EMTs and three GPs were more aware of their own experiences as leaders than with the sharing or distribution of leadership, or with how leadership is interaction. Each focus group interviews lasted 90 minutes.

I made audio recordings of the focus groups and then transcribed them. The transcriptions were distributed within the research group and served as background information for the analyses we were working on. Issues of theory were more prominent during our work with this article and the reflections from the focus groups proved useful to correct and/or support our interpretations.

6.6.5 Theory as a participant

During this part of the study, we found ourselves leaning more toward the critical than the pragmatic AR orientation (Johansson and Lindhult, 2008). In the critical orientation, the researchers introduce theory in order to challenge their own and the participants' assumptions about practice. In the pragmatic tradition, new theory is not introduced;. the knowledge amongst the participants is regarded as sufficient. A more pragmatic design might have suited our project had we had more time with the local participants. The critical tradition of learning from theory, as well as from the local participants, suited however, the design of a research group working at a distance.

This insight was important to our reflections on the changes being made locally as a result of our project. It had never been our aim to create certain specific changes. Byt this point, we had realised how unrealistic it would be to presume that explicit changes of practice would result from our sharing of our findings. Change happened in more sophisticated and complex ways.

6.6.6 Complex Adaptive Systems

The complex adaptive systems (CAS) model also provided a useful perspective on leadership practice during this analytic phase. In the AR tradition, CAS has evolved into a key model in the literature regarding change, improvement and implementation in social settings (Bradbury, 2015; Ham, Berwick and Dixon, 2016). This perspective helped us get a handle on non-linear processes – processes in which simple causation cannot be identified.

CAS applies both to teams and persons – complex units that are constantly adapting to the given context according to certain patterns (Greenhalgh et al., 2010; Kernick 2004; Plsek, 2001; Plsek and Wilson, 2001; Plsek and Greenhalgh, 2001; The Health Foundation, 2010). CAS offered us a model for our qualitative study of persons participating in dynamic, non-linear, non-mechanical processes while maintaining sustainable groups (Mennin, 2007). Constant changing of the system (adaptation) is a prerequisite in CAS. The driving force of a social CAS is the free will of the participants, their continual changing as individuals and the changes in the environment and networks influencing them and influenced by them. Changes in one element of the process alter, unpredictably, the context for all other elements (Campbell, 2003). According to Juarrero (2000), positive feedback processes and a circular type of causality are essential to the process as a whole. In addition, all interactions are focused around the system's "shared vision" or rules, termed "attractors". Adaptation occurs regularly, but when the conditions in a CAS become chaotic, the attractors may "bifurcate", transforming into new patterns of attractors as the system reorganises itself (Campbell, Flynn and Hay, 2003; Eidelson, 1997; Sturmberg, O'Halloran and Martin, 2012). We found this useful in our work with leadership practice as interaction; such attractors played a central role in the training sessions and could be recognised as part of the leadership process. We never experienced chaotic conditions, however; the attractors seemed stable.

We submitted the first draft in May 2013, for the Action Research Journal announced thematic issue about Health. During the 19 months before publication, two reviewers in this journal made significant contributions to our work with the article. Their two peer reviews (both in 2014) guided us to new insights, primarily into theory-driven work regarding action research, CAS and leadership.

6.6.7 Results described in the article

The participating primary care physicians and nurses manifested both designated and distributed leadership throughout the days. Shifts in modes of leadership practice coincided with situational shifts that demanded different competencies. During the simulation sessions, the teams remained aware of

the GPs' formal responsibility for decisions concerning diagnosis and medication. The eventual distribution of leadership and the overall teamwork was guided by simple, yet fundamental principles, i.e. the system's 'attractors', in the terminology of CAS, that were relevant in each setting; strong commitment to the task at hand, despite its 'unreality'; responsibility for patient life and health; responsibility for colleagues' functioning and well-being; and, a perception of calmness as an indicator of good teamwork. The critical use of theory and the participation of local health personnel in several analytic phases facilitated a new awareness of leadership practice.

6.7 Third article: Learning processes

6.7.1 Research group process

The research group's work with the third article proceeded much the same as the previous two. We started in June 2013, with a workshop on learning processes. This time, we included our English language consultant, Susan Schwartz Senstad. The material from 2010-11 was then sent out to the research group for the third time – transcribed debriefing sessions of to two different teams went out to each person. In addition, everyone received a copy of a small book in Norwegian about learning in organisations by Cato Wadel (2008), short texts (also in Norwegian) about learning as social interaction by Line Wittek (Wittek, 2012), and, later, a selection of pages from Étienne Wenger's Communities of Practice (Wenger, 1998).

Now, too, the analyses were a flexible process in which the research group members underlined passages and words in the transcriptions that they felt were related to learning. All wrote brief comments to explain what the sections they had highlighted implied about learning. This time the analyses concerned primarily how we as a research group could understand learning processes by using theory as a perspective from which to read the transcripts, as well as how the local participants articulated what the team training initiative meant to them.

6.7.2 Learning theories

The theoretical perspectives of Wittek and Wadel functioned as introductory backdrops for our analyses, whereas those of Wenger were studied more in depth. His 'Social Theory of Learning' opens with the assumption that, "Engagement in social practice is the fundamental process by which we learn and so become who we are" (Front Free Endpaper). The theory's core notion relates to a "Community of Practice", i.e. people who are mutually related through practice, such as a project group or, as in our setting, a medical team. The 'Social Theory of Learning' also gathers eight theoretical frameworks taken from a wide range of disciplines, of which 'practice' is only one. The others are 'social structure', 'situated experience', 'identity', 'collectivity','subjectivity', 'power' and 'meaning'. According to Wenger, all these dimensions impact on and inform learning processes.

Sissel Tveitens book about supervision was included as theoretical material because of its standing in the curricula of both EMTs, nurses, and post-graduate physicians (Tveiten, 1998). She emphasised the involvement of bodily responses in professional reflections, a theme we had picked up when working with the first article.

6.7.3 Local focus groups

This round of focus group sessions, in the late autumn of 2013, were held during the hours before an evening session on emergency care that the local personnel had organised. Many more people (14) attended this session than the previous focus group sessions. A good distribution of nurses, GPs and EMTs were present in the two subsequent groups. After I introduced perspectives on the team training model and gave a short résumé of the research process, my role became that of facilitator. The preliminary analyses of these debriefing sessions did not detail the specific improvements that had been made throughout that year of participatory observation. Instead, they broadened our insight into what learning is as a phenomenon. In this last phase of the study, the overall purpose of team training as a learning process was at the centre of our research. Thus, the participants were asked what they realised they had learned from the team training sessions. They were also asked about why they rarely if ever made mention of their own bodily reactions. The conversation was engaged and open and all expressed positive feelings about the team training scheme. There were no negative comments.

I transcribed these focus group sessions and sent them to the rest of the research group. Much as with the first article, we identified various themes within the text and, as a contribution to the analyses and the writing of the article, added our independent comments and reflections. This allowed us to develop a deeper understanding of the issues embedded within the basic material. As the last analytical step in the process, AKL, PH, and HB applied the framework of Wenger´s Social Theory of Learning to interpreting the material in its entirety.

6.7.4 Results as described in the article

Our study indicated that challenging, monthly emergency *in situ* team trainings, organised by local health personnel and including an introductory review, realistic simulations and debriefings, facilitate many types of learning. In the training sessions and later in the focus groups, the participants discussed a wide range of topics constitutive for learning from a sociocultural perspective as well as topics constitutive of a culture of patient safety. The flexible structure of the present training model mirrors the complexity of emergency medicine and the realism of the team training sessions, and it provides space for the participants' own sense of responsibility, their priorities and capacity for bringing about change – socially and structurally. Through maintaining these team trainings, the participants evinced a consistent and continuous motivation to strengthen the patients’ safety as well as their own as professionals within the community to which they all belong.

7 Discussion

While not rejecting the value of firmly established research traditions, many details of our study design evolved during the course of the project so that it resembles more closely that "Greek tradition", that is, it exists within a flexible framework.

The team training we explored is a bottom-up intervention, implemented and sustained by local health professionals, as opposed to a top-down initiative, one that has been mandated by management. This allowed for interactions amongst local health personnel who are used to making decisions regarding their own professional development. Based on a participatory design, we increased our knowledge about three themes: 1) patient participation; 2) leadership practice as interaction; and, 3) local learning processes. A fourth professional issue, that of patient safety, caught our attention towards the end of the study and proved to be a meta-theme. We found that local training and a patient safety culture (references!) have features in common. Local team training may thus contribute to the patient safety culture at the study´s location, in this case, the municipality of Alta. This meta-theme will be elaborated later in the chapter.

The first results presented in the three ensuing articles included the way participants' reflections were dominated by a use of language that objectified all the participants. The local personnel, however, objected to the proposal to widen the focus to include the patient as a person in circumstances where, though clearly of potential benefit to the patient, it might have impacted adversely on fulfilling required "assessments and management" tasks. New perspectives on patient participation will be discussed in a later section, 7.3 Patient safety and patient participation.

Secondly, we found that the teams practiced both designated and distributed leadership in different ways during the team training days. Although the teams remained aware of the physicians' having ultimate responsibility for decisions concerning diagnosis and treatment, shifts in leadership occurred whenever specific competencies were needed. The teamwork dynamics were also informed by deeply grounded principles referred to as 'attractors'. An awareness of leadership practice as interaction grew, although some of participants of the local focus group expressed ambivalence about viewing leadership as both distributed and designated. The topic of leadership in emergency teams will be elaborated in a wider context in section 7.5 Leadership and interaction

Thirdly, we found that participants experienced in situ team training as challenging, engaging, and enabling, allowing for a wide range of topics essential to learning from a sociocultural perspective. The participants suggested new types of training sites and themes, refined the structures for participation, improved their understanding of communication and developed local procedures. Due to its centrality within the thesis as a whole, section 7.4 Learning processes, precedes the section on leadership and interaction.

One of our explicit aims was to improve team training. As mentioned above, various improvements were made in Alta during the study. The research groups' experience of having our own suggestions for specific change be met with both opposition and ambivalence led to new insights into the concepts of change and improvement and influenced our research process. These concepts will be discussed in section 7.4 Learning processes and in 8.3 Implementing team training.

Finally, we wanted our study to have a broader impact on development within other contexts, both by encouraging active dialogue amongst specialists, bureaucrats, and the general Norwegian public and through its dissemination during the course of the project. However, assessing such outcomes was never an explicit aim. In accordance with the AR tradition, interaction with the wider context was assured through the researchers functioning as participating agents and engaging with others whenever their contribution might make a difference – at their own initiative or when invited. According to the concepts of complexity, unpredictable non-linear processes, and impact through social networks, our activities probably have had some effect. We have not tracked those results, but, towards the end of this chapter, I will comment on what we did do.

I open the following section with a discussion of the value-based foundations underpinning the study, followed by reflections on our participatory research design, and on the ethical dilemmas implicit in the choices we made. Since AR is not a design that is used routinely in medical research, the methodological foundation is discussed in light of how various AR traditions respond to different needs. Both understanding and improvement are explicit aims in AR (Bradbury, p.2.), unlike in research traditions which aim primarily at explaining or understanding. Consequently, the first part of the chapter concludes with a short discussion of the so-called 'transformative research paradigm'. In the sections which follow, new understandings that emerged during our project will be discussed. The aforementioned thematic perspectives in the three articles are my point of departure for discussing the study's relevance and applicability within a wider context.

7.1 The ethical ground

Principally, every choice a researcher makes during the process of research is value-based, regardless of the underlying research tradition. Our study was unequivocally grounded in democratic principles and the personal values of both the researchers and the participants inevitably informed it. Research involves more than following a recipe (Kelly et al., 2015). Increasing the transparency of the researchers' explicit and core values might thus improve the reader's understanding both of the choices that were made and of the perspectives underpinning the study. In the current study, we have not explicitly asked participants to report on their values; rather, we explored the values that seemed implicit in what the local health personnel said. According to the AR design, however, the research

group wanted the local health personnel to practice democratic participation in order to make room for the diversity of their perspectives.

We experienced, however, that the researchers alone could neither produce nor safeguard democratic participation; having an intention, a clearly stated aim of involvement is not enough to make that participation happen. Such interactions require the contribution of everyone involved. According to Wenger (1998), for negotiations about the meaning of an on-going practice to happen, the guiding principles need to be reified in structures, and the participants must feel that they are welcome to participate. The local debriefing sessions were already a part of the training scheme; focus group and research group meetings were added to provide structures of this sort. In addition, we tried to act in a reassuring way towards all participants to signal that all opinions were valued.

As with each person (patient or health professional), each local community will have its own set of values, reflecting what they consider important to them. Values are embedded in the shared language and in public and professional discourses. According to complexity theory, attractors guide actions and contribute to the repetition of the same patterns in smaller and larger settings (called fractals). This resembles the way in which norms, springing from values, guide actions. Although an ‘attractor’ is not synonymous with a ‘norm’ or ‘value’, we chose to use the concept of 'attractors' to characterise what we saw as guiding the local participants as a group: Strong commitment to the task at hand even though 'unreal'; responsibility for the patient’s life and health; responsibility for colleagues’ functioning and well-being; and, a perception of calmness as an indicator of good teamwork (Brandstorp et al., 2015).

In preparing our third article, we found that the participants based their team training activity on a democratic ethos – challenging each other, debating, trying to improve, and openly revising their concept of what ‘best practice’ might be. Team training schemes may allowed for a dominant instructor who takes control over the debriefing situation and guides the training session through assessments of pre-defined learning goals. This, however, was not the case in the team training scheme in the present study.

7.2 Methodological and ethical considerations

According to the AR Handbook, action researchers are called to engage with, rather than merely understand, the challenges that surround us (Bradbury, 2015). This methodological statement indicates a research perspective and paradigm that goes beyond interpretation. I will come back to a discussion of research perspectives and paradigms at the end of this section. First, I will discuss our methodological and ethical considerations.

7.2.1 Engaging with

Engaging with the research field, the AR researchers take a more direct part in making changes than if they were to merely to observe, analyse and describe their interpretations. Such an engagement provides a useful position from which to document the improvement processes at close hand. In addition, the researcher influences the people with whom he or she is interacting, and, consequently, the results. An important question thus arises: How is it possible to be sure that I, as a participatory researcher, did not manipulate the other participants in order to get the results I desired? How might we control for the possibility that my own prejudices and those of the research group were all that had been identified and confirmed through the research process? In AR, researchers must take a critical view and account for their reflexivity, documenting their own choices and actions, as well as describing the research process, with transparency, in detail – preferably from a variety of perspectives.

Many of the small steps during the course of the study have been described in the previous discussion of methods as well as the theories, which serve as 'lenses' for providing new perspectives on actions taken. In this section of my discussion, I shall describe my assumptions and interpretations, and make visible how the choice of AR as the study´s framework evolved during the research process.

7.2.2 Inside knowledge

Danish philosopher Nina Dohn points out that any researcher who has inside knowledge has access to "the experiential kind of knowledge, practical knowledge, and propositional knowledge (Dohn, 2014, p.61). That researcher can thus enter dialogues which can facilitate nuanced and rich descriptions of praxis, based on her or his 'knowledge in practice' anchored in both research practice and what Dohn calls 'Action Practice'.

In our research group, PAH was the only person with inside knowledge of Alta. He chose to limit his sharing of explicit knowledge about Alta to correcting facts and to not reveal knowledge about local people, previous salient events or social interactions. Nonetheless, both his explicit and his implicit inside knowledge were important for his interpretations of the written material and thus added valuable perspectives to the analyses. Due to his standing in the community as an experienced GP from the municipality and holding an academic degree, his involvement may have increased the status of the project at the local level. In the tradition of indigenous research methodologies, one may even consider close relationships between researchers and participants in a research project as a means for ensuring that all who are involved are doing their best (Chilisa, 2012).

ALK, BS and BH did not participate in the team training sessions or the focus groups in Alta. Their perspectives, informed by their varying professional backgrounds, were noted briefly earlier (section 6.2).

7.2.3 'House blind'

My personal knowledge of team training came both from working within the framework of the model for years and from experiencing everyday primary care work in a municipality in the same county – though not in Alta. The attitude I had towards the model when I first took part in developing and disseminating it changed once I took on the role of a researcher. From my previous work as a GP, I knew about the phenomenon of 'house blindness', as one researcher termed the impact a familiar context can create (Malterud, 2011). Consequently, I already knew about the necessity of using an open-minded approach and of assuming the role of curious explorer. However, it did not seem right to describe the researchers' position as intentionally naïve, as Steinar Kvale recommends (1997). My previous experience with the rich knowledge of team training had equipped me to sit back and more calmly acknowledge what happened in a supportive and facilitative way. Much of what the participants said and did during a team training day was familiar to me. If and when I noticed something new that challenged my understanding, the facilitative role allowed me to ask about it and then make space for the participants' reflections. Holding back my own reflections felt easier than I had expected, perhaps because I had articulated them in other settings.

7.2.4 Critical conversations

A few times, however, I became so engaged critically that my intensity may well have hindered others in raising their voice or behaving differently. One episode which stands out occurred during a debriefing session after the first simulation session of the day. We discussed whether the mother of an injured baby should remain in the room and stay close to her child or if the team would have a better chance of saving the child's life if the mother were removed, even, if necessary, by force. The GP in training and the lead GP instructor both wanted the mother to leave. I disagreed, adamantly. We succeeded in coping with the tension this open disagreement evoked and the second simulation proceeded as usual.

Differing opinions and surprising findings that challenge our preconceptions are important sources of new knowledge and will be further discussed in section 7.4. Learning processes. In the AR tradition, 'deviant cases' not only increase our knowledge by adding something new; they may also be the ones that lead to actual change. Sometimes, it takes an expert to value a 'mismatch' and have the flexibility of mind to ask 'why' and to open a constructive conversation that might lead to a new consensus about change.

7.2.5 Local relationships

During the course of the study, only one participant, a junior GP, criticised my being present as a participating observer explicitly, saying that being observed by me added an extra burden to an already stressful training situation. Earlier that same day, an experienced nurse stopped the simulation to object to what she considered inappropriate leadership on the part of an experienced GP. She felt

the lead GP had been speaking in a loud voice during much of the simulation, which she found stressful and presumed that the SP and other team members did as well. During the subsequent debriefing, however, she expressed her gratitude for my presence and emphasised that I, the researcher, was not a stranger but a fellow participant. The junior GP may have considered it acceptable to put words to his feelings during this simulation training because the frustrated nurse had already done so, and in an even more intense way. Other participants may well have had similar feelings, although without expressing them. Members of a focus group with only nurses related that, initially, simply taking part in an ordinary debriefing session had felt frightening.

The many friendships amongst the local participants may have eased the tensions connected to being watched by a stranger. On the other hand, they may sometimes have kept the participants from making critical comments. Though such relationships – involving various professions, all of which, from my perspective, are based on values of equity – were not likely to create dependency, that issue was never debated. More might have been done to prepare the participants to work with participating researchers, to encourage participants to sharpen their ability to recognise and respond appropriately to even inadvertent coercion. Such discussions might have been held during preparatory meetings, preferably at the participants' workplaces, or included in detailed, written information, and/or as part of the introductions the researchers gave at the start of each training session and focus group.

7.2.6 Well-being and learning

The Helsinki Declaration states, "In medical research involving human subjects, the well-being of the individual research subject must take precedence over all other interests" (World Medical Association, 2008). What "well-being" involves in any given situation must, nevertheless, be considered open to interpretation. Is a heated debate too much to endure at a workplace? Or, might a clash of viewpoints signal genuine engagement? The discussion initiated by the frustrated nurse, as mentioned above, might have occurred independently of the research project, in any regular debriefing. Therefore, any attempts at limiting or preventing this actual exchange might be have been experienced as interfering in existing local processes of learning and development. Ethnomethodology uses the challenging of participants with "irritating" statements as a technique to promote awareness about presuppositions. For example, the actual situation helped enhance our understanding of the importance that quiet calmness may have for good teamwork.

7.2.7 Confidentiality and public recognition

Inherent in the need to ensure confidentiality for the participants was another dilemma. It is mandated in regulations regarding medical research by the International Committee of Medical Journal Editors (*The Vancouver protocol*), the World Medical Association (*The Helsinki Declaration*, 2008), and the Norwegian National Research Ethics Committees. The ambiguity within the issue of anonymity in our AR study first became evident at a conference when some local participants indicated discreetly that

they hoped to be mentioned by a conference presenter. They took pride in their community knowing they were part of the project. Strictly defined, a priori rules regarding anonymity might have precluded naming them. On the other hand, one of the main messages from the study is a confirmation of the great efforts of the local health personnel in Alta.

The Helsinki Declaration states, “It is the duty of physicians who participate in medical research to protect the life, health, dignity, integrity, right to self-determination, privacy, and confidentiality of personal information of research subjects.” Furthermore, “Every precaution must be taken to protect the privacy of research subjects and the confidentiality of their personal information and to minimize the impact of the study on their physical, mental and social integrity.” (World Medical Association, 2008). However, in an AR project, attempting to adhere to a set of rules designed specifically for other kinds of studies, those involving patients and sensitive personal information, proved neither necessary nor possible. Absolute confidentiality is mandated in projects involving patients. In action research projects, however, because of its participatory design, extended time span and contextual focus, a more flexible interpretation of the rules is not uncommon. Social interventions often render anonymity concerning place difficult (McIntyre, 2008). People talk to friends and family about what they take part in, and interventions continuing over time are more likely to become visible. Professionals’ being open about their participation may also yield positive consequences. The National Committee for Medical and Health Research Ethics (NEM) guide for qualitative research (2009) states that disclosing the identity of informants might be necessary in order to get people involved. The potential for our project to make a positive contribution to the municipality’s reputation was, in fact, a point in our project’s favour amongst the local professionals and the health authorities as we sought permission to carry out our research within the municipality. Even so, each researcher has an obligation to reflect on the consequences to the participants that flexibility regarding issues of confidentiality and anonymity might bring. Due to the evolving nature of AR, such reflecting should go on continuously throughout the process.

7.2.8 Linear or non-linear processes

The earlier description of action research as a spiral (Lewin) implies that the participants decide which changes should be made, then try them out, evaluate them and then plan the next step towards change. This view fits nicely with Deming’s circle, ‘Plan, Do, Check, Act’ (or ‘Plan, Do, Study, Act’) (Aguayo, 1990) widely cited in quality improvement literature. In addition, envisioning a spirally shaped process for action research would seem to accord well with the hermeneutical spiral. A crucial aspect of both action research and hermeneutics is that the spiral widens as we increase our understanding, or ‘widen our horizons’. However, in more recent AR descriptions, the spiral model has apparently lost some of its impact and significance. The logic of the construct seems somehow linear; as a model, the predictable widening of a spiral does not reflect complexity adequately. In a recent book about methods in AR, Christens et al. write: “Although this process model can be useful

for heuristic and descriptive purposes, its simplicity can mask some of the complexity and nuance involved in designing and conducting action research for maximal impact on social issues" (Christens et al., 2016, p.246). The image of the spiral does not allow space for potential side-steps, long detours or the need to go back and restart the process.

Instead of such more linear models, several of the contributors to the latest edition of the SAGE Handbook of Action Research (2015) emphasise non-linear processes through which changes emerge from complex processes in open, web-based systems. Understanding based on systems theory and complexity theory, identifying the non-linearity of the processes of change in social settings, appears increasingly often. While leaning toward this view in our later analyses, we had the linear, spiral-shaped model in mind at the beginning of the study. We realised over time, however, that we were engaging in continuously changing complex settings and recognised, in line with complexity theory, that we were involved in changes which, simultaneously, also changed us.

7.2.9 AR traditions

The concept of change emerging through participation is intrinsic to all types of AR. Janet Masters presents three potential modes of action research, each grounded in a different scientific perspective (Masters, 1995). We began our research project without being familiar with these three modes. In retrospect, our study became a somewhat uneven mix of the three.

"TYPE 1: Technical/Technical-Collaborative/Scientific-Technical/Positivist perspective":

> A project guided by technical action research will have the following characteristics: would be instigated by a particular person or group of people who, because of their greater experience or qualifications, would be regarded as experts or authority figures. Technical action research promotes more efficient and effective practice. It is product directed but promotes personal participation by practitioners in the process of improvement" (Masters, 1995).

This positivist mode aims at being "value-free", with the problem having been defined in advance. While our study is not value-neutral, we did determine in advance which themes to explore and were convinced from the outset that we could effectively contribute to improvements.

"TYPE 2: Mutual-Collaborative/Practical-Deliberative-Interpretivist perspective":

> In this type of action research project the researcher and the practitioners come together to identify potential problems, their underlying causes and possible interventions (Masters, 1995 referring to Holter et al., 1993, p.301).

This interpretivist mode is explicitly value-bound, and the problems in focus are defined within the situation, along with the participants. In our study, we moved towards this mode when we designated the transcriptions of our debriefing sessions and focus groups sessions to be our study material. After all, it was the local participants during the study who decided which issues to deal with locally,

although we, the researchers, selected the three themes to be elaborated in the focus groups.

“TYPE 3: Enhancement approach/Critical-Emancipatory Action research/Critical Science perspective”:

> There are two goals for the researcher using this approach, one is to increase the closeness between the actual problems encountered by practitioners in a specific setting and the theory used to explain and resolve the problem. The second goal, which goes beyond the other two approaches, is to assist practitioners in identifying and making explicit fundamental problems by raising their collective consciousness (Masters, 1995).

This critical science type is related to values of equity; the research problem is defined situationally and is based on a clarification of values. Our use of theory to introduce new perspectives and raise collective consciousness is in line with Masters' TYPE 3 AR. Had we included the participants more in the creating of the research design and the choices of theoretical themes, we might have arrived at an even clearer TYPE 3 AR.

Various authors also differentiate AR as being either 'critical’ or ‘pragmatic'. According to Johansson and Lindhult (2008), the pragmatic tradition emphasises that the research process should facilitate knowledge based on what the participants bring up rather than on theoretical perspectives introduced by researchers. This resembles Masters’ TYPE 2 AR. Our study seems to be within the critical action research tradition because theory is such a prominent ‘participant’, introduced to help understand what happens from ‘outer’ perspectives and to contribute ideas for improvement.

From my perspective, however, the pragmatic tradition aims at involving and empowering the participants in a different way than the critical tradition, which leads to a third classic differentiation of AR: the southern vs. the northern branch. The southern branch of AR, developed in Latin America, is explicitly occupied with empowering and emancipatory movements, often called ‘conscientization’ in the tradition of Brazilian pedagogue Paulo Freire (1921-97). This promotes culturally transformative action, developing a broad based critical awareness so that individuals in the community can act against oppression. The typical AR performed in the north is often less community-based, less flexible and more authorial (Ferreira and Gendron, 2011). Much of the southern research has been inspired by the works of both Paulo Freire and Columbian sociologist Orlando Fals Borda (1925-2008). According to contemporary researchers, “Latin America is a continent in the search for a concept”, and that AR, “can be understood as a tool for linking historical trajectories with similar experiences of domination, resistance, and social and political creativity” (Streck and Holliday, 2015, p.472).

Within the field of emergency medicine outside hospitals, small *ad hoc* teams, without many safety structures or much training, were and still are vulnerable and lack a solid, national, unified status. This part of medicine could thus be said to be ‘searching for a concept', and research both with and about it

is needed. Our study had the implicit intention of making that sort of contribution. However, as a researcher with inside knowledge of team training, I found the prospect of introducing new ideas and perspectives through theory captivating. After having conducted the study, I believe that both types – with or without theory as a 'participant' – might have been appropriate and interesting to all parties. I do not doubt that there is enough knowledge locally to design very constructive improvements. I am not sure I doubted that beforehand, though I may well have done so. Yet, on the other hand, Lewin certainly has a point in his famous sentence: "There is nothing as practical as good theory" (K. Lewin in 1961 according to Greenwald, 2012).

The Australian developer of action research, Stephen Kemmis and colleagues, offer a useful definition of Critical Participatory Action Research (CPAR) in their latest book (2013): "To help participants to transform (1) their understanding of their practices; (2) the conduct of their practices; and (3) the conditions under which they practice" (Kemmis, McTaggart and Nixon, 2013, p.67). CPAR is the most appropriate term we've found to describe our study; both a critical aspect and a participatory facility are important in our study. We are aiming to change (or transform) both local and our own understanding, performance of and conditions for useful team training locally, and hopefully on a national level and beyond.

7.2.10 A transformative paradigm

The discussion so far has shown that our understanding of AR developed during the study, and that our choices and activities did not reflect any single AR type perfectly, but rather exhibited traits found in several types. Our research AR study cannot be placed fully within a positivist perspective (TYPE 1, above), nor does it fit well into a constructive or interpretative perspective (TYPE 2), or the critical science perspective (TYPE 3). What Masters calls 'perspectives' above might also be termed 'paradigms'. Malterud offers short descriptions of the two first paradigms. The positivist paradigm: "Universality of method unifies the practice of science and offers unambiguous and accurate knowledge. Data are observable facts which the researcher gathers and systematizes." The interpretive paradigm "advocates notions about particular human experiences and their contexts as recognized from different subject positions" (Malterud, 2016, p.122).

Morris Gordon suggests that certain research practices should be placed in-between the two (Gordon, 2016), and Donna Mertens offers yet another option, quite similar to Masters' TYPE 3 AR, which she terms the 'transformative paradigm' (Mertens, 2012). In this paradigm, value-based actions aiming at change are part of research. Explaining or understanding is not enough. Bagele Chilisa points out that the transformative paradigm has also been labelled "critical social science research (Neuman, 2010), action participatory and feminist designs (Merrian & Simpson, 2000), research with the aim to emancipate (Lather, 1991)" (Chilisa, 2012, p.35). In the introduction of her book *Indigenous Research Methodologies* (2012), she underlines that within the transformative paradigm, working in a

participatory way, using the participants' frames of reference as a departure point, and with the help of history and theory research, the researcher should aim to unmask deep structures. She writes: "The knowledge is true if it can be turned into practice that empowers and transforms the lives of people" (Chilisa, p.36). Furthermore: "Scholars within this paradigm adopt the stance that reality is constructed based on social location and that different versions of reality are privileged over others." She goes on to claim that the scholars" … view research as a moral and political activity that requires them to choose and commit themselves to the values of social justice, furthering human rights and respect of cultural norms" (Chilisa, 2012, p.36).

Our CPAR focuses on participation as revealed through the use of language, on discourse analysis and ethnomethodology, as well as on leadership as interaction. All of this would point toward a transformative paradigm – a research paradigm aiming at explicit, participatory improvement.

7.2.11 Conclusions

Our study's explicit aims to understand and to improve by means of a participatory process required continuous awareness of both dominance and democracy. I have sought to reflect upon whose interests and understandings the research process facilitated, and I have focused on how the interactions took place in demanding settings.

Since AR today explicitly embraces heterogeneous epistemologies, according to the SAGE Handbook (Bradbury, 2015), with the question in AR often being, 'How can we improve this together?', various methods may apply. I believe that our AR project is in accordance with the critical participatory tradition, within a transformative research paradigm.

The central topics of the three previous articles provide my point of departure. Given the non-linearity of social change, and the way the process is dependent on agents interconnected in unpredictable networks, however, I will also emphasise in what follows the relevance and applicability of team training within a wider context. The issue of patient participation is discussed below under the theme of patient safety. Next, I elaborate a central issue within team training – learning. Lastly, I explore the subject of leadership. This sequence does not mirror the chronological order of themes in the published papers. Instead, it represents the core of the entire study and, consequently, of this thesis.

7.3 Patient safety and patient participation

The main topic of our first article was patient participation from the perspective of person-focused medicine. We concluded that the prevailing, objectifying language may well suppress important insights, and that patient participation could potentially prove beneficial for both patients and professionals as persons, those who share the crises of emergencies. While working with our third article, we realised that team training is fundamentally about patient safety – it aims to help health care professionals become better participants in health care systems. Through voluntarily maintaining these Alta team trainings they evinced a consistent and continuous motivation to strengthen the patients' safety, as well as their own in their roles as professionals within the community. As we will see later (section 7.3.3), including emergency medicine and team training in patient safety strategies is not common in Norway.

As I will show later in this section, including 'patient participation' as a part of patient safety work is rather new, as is including patient participation in emergency medicine. The specific, legal rights of patients involved in serious emergencies might have contributed to that. In general, patients' rights are considered strongly regulated in Norway; the right to participate in decisions concerning one's own health is part of the Patient and Users Rights Law (Norwegian Ministry of Health, 1999). Health personnel are obligated to provide emergency care. In life-threatening emergency settings, patients only have the right to reject help under specific conditions, e.g. if religious convictions forbid blood transfusion or during hunger strikes. Thus, action to provide health care when necessary to save life and health is often initiated without any explicit consent having been given by the person in need.

7.3.1 Definitions

'Patient safety' is an evolving concept. Authors are moving from a focus on a system that is detached from the persons involved towards a focus involving all those taking part in health care –patients and professionals.

In the WHO, the patient is present as an object, the professionals are not mentioned, and the focus is on preventing harm: "Patient safety is the absence of preventable harm to a patient during the process of health care. The discipline of patient safety is the coordinated efforts to prevent harm, caused by the process of health care itself, from occurring to patients" (WHO, 2016).

An international group exploring 'What exactly is Patient Safety?' (Emanuel et al., 2008), presents a wider definition, which includes not only avoiding harm but also recovering from adverse events, seen from a professions' and a systems' perspective:

> We define patient safety as a discipline in the health care professions that applies safety science methods toward the goal of achieving a trustworthy system of health care delivery. We also define patient safety as an attribute of health care systems that minimizes the incidence

> and impact of adverse events and maximizes recovery from such events (Emanuel, 2008. Abstract).

In a more recent meta-synthesis of qualitative studies of patient safety in primary care, Daker-White et al. included 48 studies comprising five subsets: patients' perspectives, staff perspectives, medication safety, systems or organisational issues and the primary/secondary care interface (Daker-White et al., 2015). Their interesting and I believe new perspectives are these:

> A conceptual reading of the studies pointed to patient safety as a subjective feeling or judgement grounded in moral views and with potentially hidden psychological consequences affecting care processes and relationships. The main threats to safety appeared to derive from 'grand' systems issues, for example involving service accessibility, resources or working hours which may not be amenable to effective intervention by individual practices or health workers, especially in the context of a public health system (p.1-2).

I have already commented on the democratic ethos of the local participants in Alta, as being their 'moral view'. Daker-White et al. further mention accessibility issues as a main threat to safety. Our study was not designed to explore *access to care* in Alta, although this is a main concern of rural medicine, as mentioned in the background chapter. However, during the final focus group discussions in our study, several young GPs expressed their appreciation for the local team training scheme. One said that he probably would not have dared working OOH without such training. One may hope that team training would strengthen GPs' willingness to participate in OOH work and to remain in their positions as GPs and thus maintain continuity in the GP-patient and GP-community relationships.

7.3.2 Building a patient safety culture

In our third paper, we conclude that our team training model shares the properties of a patient safety culture as described by Sammer et al. (2010). The online Oxford dictionary defines culture as follows: "The ideas, customs, and social behavior of a particular people or society" (http://www.oxforddictionaries.com/us/definition/english/culture, accessed 6. June 2016).

Sammer and colleagues also identified so-called "subcultures", denoting leadership, teamwork, communication, and learning in a framework that is just, evidence-based, and patient centred. We claim that while participants in Alta mention most of these subcultures explicitly, two of them being implicit in the participants' actions: 'evidence-based' practice is the basis for both the introductory review and the debriefings during which the participants share their knowledge; and, their intention to be 'just' manifests in how the participants admit mistakes and share successes, usually without conflict.

The authors of recent systematic review of interventions intended to improve the governance of patient safety in emergency care found very few papers to include (Hesselink et al., 2016). They did

find, however, two types of interventions that had proved to be effective according to their set of criteria. The first of these was simulation-based patient safety training. They describe simulation training as especially important in such a high-risk sector as emergency care. The second type of intervention was to create well-designed incidence reporting systems. The components of effective incidence reporting were:

> (1) education of staff on the importance and the learning purpose of reporting; (2) multiple and constantly available reporting options for staff; (3) a short reporting form to minimise the burden of reporting and (4) structural feedback by presenting descriptive statistics, findings of incident root-cause analyses and improvement actions (Hesselink et al., 2016, p.10).

Thus, this systematic review indicates that patient safety work involves several types of knowledge and also points to the importance of targeting human interaction – which is precisely what we found that the team training scheme in Alta did. The review indicates that working with the local 'culture' is necessary – through team training, education and feedback.

7.3.3 'Train staff in the nature of systems'

The latest Kings Fund report, *Improving quality in the English NHS* (2016), presents a number of principles for the theory and practice of quality improvement. It further underlines that, “reliance on inspection for improvement” is too costly and is inimical to dynamic change. One of the principles appropriate for in situ team trainings is, instead, “training staff in the nature of systems” (p.4). They also recommend:

> ...use of statistical and quantitative data over time to understand variation, inclusiveness, such that all workers have an opportunity to contribute and act on ideas, and a relentless focus on the needs and experience of the people served by a system”, - including, “small scale trials and tests of change as a way to learn in action, the high value attached to teamwork and co-operation, and a belief in the importance of joy at work (The Kings Fund, 2016, p.4).

The scheme we explored for our study corresponds well with these recommendations as it involves the local personnel in contributing to and acting on ideas related to teamwork.

Referring back to the tale mentioned is section 1.1, both the ancient Romans’ standardised military camp design and the ancient Greeks’ contextual approach are clearly recognisable in today’s quality work toward achieving patient safety. Often, however, these are mixed within the same organisation. One may find the registration of measurable standards and actions used “to keep up the standards” as well as there being room for local choices and activities meant to enhance the professionals’ motivation and sense of responsibility for their own work place. Toulmin called this mix of ontologies (Toulmin, 2003), one which he did not reject. He asserted that distanced, rational thinking requires the

contextualised assessment of reasonableness in order to establish appropriate, useful knowledge and decisions.

7.3.4 Norwegian patient pafety work

A national patient safety program was established in Norway in 2011, and since2014, the secretariat has been a part of the Directorate of Health. To my knowledge, however, it has never directly addressed the Regulation of Emergency Medicine stipulation regarding team training. In the national white paper on emergency medicine, NOU 2015:17, the theme ‘Patient safety and quality’ is described in its own chapter, indicating how important this field is considered to be. Team training is not mentioned in that specific chapter, however, though it is found elsewhere in the report. This seems to indicate that relating team training to patient safety work is not yet part of the common professional thinking in Norway.

7.3.5 Patients participation

An extension of the concept of patient safety is ‘patient participation’. In a 2010 review of patients' participation in patient safety, such areas as medical decision-making, management of chronic diseases, e.g. "self-medication, self-monitoring, patient education, goal setting, or taking part in physical care", are mentioned as already established ways in which patients are invited to be change agents (Longtin, 2010). Patient participation in emergency settings is not discussed in the paper, however. There remains a lack of awareness of the patient being the most important source of healing given his or her constantly adapting and changing voluntary and/or autonomic bodily processes. The authors are quite mistaken in their claim that in many cultures, "the patient has been traditionally a passive spectator in his or her own healing process". Patients are never passive spectators; they always participate in their own healing at some level in every interaction with health care personnel – be it verbally or, if unable to speak or move, through their bodily responses.

7.3.6 Patient agency

Patient agency is a specific aspect of participation and concerns patients’ making conscious choices concerning their own health. The normal starting point for professional health care is a patient’s request for help – a choice sometimes made by others, such as in serious emergencies. Both in emergencies and in less time-critical situations, the decision to ask for professional help may come after considerable effort has already been invested in efforts to solve the problem without seeking such help. The concept ‘symptom iceberg’ was described over 50 years ago (Last, 1963), addressing the reality that most symptoms are taken care of by patients themselves and/or by relatives and not by the health care services. The metaphor suggests that, just as the sea hides most of an iceberg, this 'self-care' remains unseen. According to Campbell and Roland, Banks et al., patients in 1975 reported only 1 out of 37 new symptoms to a general practitioner. Scambler and Scambler reported that, in 1984, 1 in 18 symptoms resulted in a patient consulting a doctor (Campbell and Roland, 1996). In 2011, Elliot

and colleagues found that approximately 1 out of 8 patient symptoms led to a consultation with primary care personnel (Elliott, McAteer and Hannaford, 2011). Though all of these investigations were made in the UK, I find no reason to believe that the phenomenon is very different in Norway. Recently, a UK study revealed a large increase in GP consultations during the period 2007-2014, raising the question of whether the GPs may soon, or already have, reached the maximum of what they are able to do for people (Hobbs et al., 2016). Others claim that the GPs would be able to help their patients more effectively if they paid more attention during consultations to their patients' lifeworld and experiences (Berg, 1999). Regarding agency specifically in emergency settings, Swedish researchers found that patient participation, in the sense of being consciously involved in their own treatment, was associated with reduced risk of post-traumatic stress disorder after an emergency caesarean section (Tham, Rydning and Christensson, 2010).

These findings indicate that deliberately facilitating patient agency would be a benefit for the patient. We did not explore how the participants in our study facilitated patient participation during the simulation sessions. In our analyses of the debriefing sessions, however, we found that the participants talked about the simulated patient (SP) using an objectifying language despite the fact that the SP was present, filling in the double or even triple (and thus blurred) roles of SP, fellow health personnel, and, most often, instructor. In the later focus groups, the participants said that they had needed to use the debriefing sessions to process their own actions. 'Caring' for the SP in those specific settings was not amongst the training's aims. Nonetheless, we found their engagement increased when the instructor spoke during a debriefing session about the experience as SP, indicating the participants' implicit interest in such experiences and reflections. Focusing on the patient during the actual treatment serves not only to provide care *to* the patient; it also facilitates the optimal contribution *from* the patient as the most central participant in the setting.

7.3.7 The patient, a member of the team

Regarding the patient as a member of the team was not a theme during the debriefing sessions or the focus group discussions. In caring for chronically ill patients, however, acknowledgment of the patient as a member, or even the leader, of the team occurs more and more often (Frosch. 2015). Riley et al. even includes close relatives: "The only individual present at each stage in every simulation trial was the mother. This finding indicates that including the mother as a team member was an essential aspect of delivering patient-centred care"(Riley et al., 2008, p.10).

Dr. Maren Batalden, her father Paul Batalden (one of the founding fathers of quality improvement movement in health care) and colleagues wrote in 2016: "Our central tenet is that healthcare services are always coproduced by patients and professionals in systems that support and constrain effective partnership" (Batalden, et al., 2016, p.512).

Wenger's 'social theory of learning' (1998) claims that participation and reification function as a duality, complimentary yet distinct, in the process of negotiating meaning. To reify the SP's participation during team training seems necessary in order to make it meaningful. In our study, review, simulation and debriefing were all part of ascertaining the SP's perspectives and appropriate participation. One obvious means to achieve this is by including SPs instead of manikins in the training sessions. Another is to explicitly include the SP in the debriefing sessions – in the role of an SP. In addition, initial reviews could introduce the topic, and textbooks and guidelines could inform how to ensure patient participation and encourage doing so.

7.3.8 The importance of communication

While debriefing, the participants' reflections often focused on issues concerning communications amongst the traditional team members (not including the patient). The members of the first and the last focus groups agreed that, as a group, they had improved their communications specifically regarding emergency medicine.

Roscoe, Eisenberg and Forde highlight that emergency medicine is a difficult communicative activity since "Characteristics such as incomplete information, time pressure, and the potentially serious consequences of errors complicate effective communication and decision making." When they observed nurses in emergency rooms they found that the nurses relied more on a combination of visual observations and measurement of patients' vital signs than on information or stories by the patients (Roscoe, Eisenberg and Forde, 2016).

The researchers describe, however, how patient involvement can empower patients: "Medical encounters that include both the body and the person of the patient can help educate patients, enhance trust between doctors and patients, and assist the patient in returning to life outside of the illness with a story about what happened to him or her and what it means" (p.8). This would obviously be the case also for health care workers' body and person.

7.3.9 Conclusion

Work with health care professionals in the field of patient safety should be both person and context focused, in the same way as health care professionals ought to engage with patients – in order to secure accurate and relevant results as well as to increase motivation and engagement. At the same time, a helper must know when to apply technology, standards and schemes to secure the organisation's efficiency. I recommend context and culture sensitive in situ team training as a confirming activity, complimentary to the more technical and detached adverse events schemes already implemented by many health services

7.4 Learning processes

Because learning is closely connected with change, it too is fundamental to what team training is about and what AR aims for. Apparently, AR is used far more within education research than medical research, and is even rooted in the Science of Education, as mentioned in section 5.3.1. Learning processes was the theme of our third article. We concluded that challenging in situ team trainings facilitate many types of learning. The flexible structure of the present training model mirrors the complexity of emergency medicine and the realism of the team training sessions, and it provides space for the participants' own sense of responsibility, priorities and change making - socially and structurally. In the following, I will elaborate relevant perspectives on learning in order to anchor team training even better in today's professional context.

7.4.1 Learning from errors

The learning materials gathered from the incidence reports mentioned above, related to deviant cases. Learning from errors is a means toward improvement, motivated by the possibility to avoid committing similar errors in the future. In the qualitative research tradition as well as in action research, deviant cases are of particular value. Malterud (2011) writes that good qualitative research reveals the 'surprising findings'. Using AR, deviant cases, persons or solutions represent something new which can help facilitate change (Bradbury, 2015).

In his paper *Five Misunderstandings About Case-Study Research*, Flyvbjerg wrote:

> Atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied. In addition, from both an understanding oriented and an action-oriented perspective, it is often more important to clarify the deeper causes behind a given problem and its consequences than to describe the symptoms of the problem and how frequently they occur (Flyvbjerg, 2006, p.229).

Consequently, the less usual (and therefore often weak) voices in a setting aiming toward improvement ought to receive particular attention as they may offer new perspectives and thus increase the potential for improvement. Applying the principle of 'valuable deviant cases' to the AR design of our study, the visiting researcher may be regarded as a deviant person in a research field, which also may facilitate change.

7.4.2 Learning through dialogue

Incidence reports have been introduced in Norwegian primary health care to improve and assess the transfer of patients from hospitals back to their municipality. Birgit Abelsen and Margrete Gaski at the National Centre of Rural Medicine found that the frequency and way they were used varied. In some of the larger municipalities with hospitals nearby, the municipal nurses preferred to have a direct dialogue with the hospital nurses rather than file a report via the deviant cases system (Abelsen B,

Gaski M. 2016). In The National Reporting and Learning System, established in 2003 by the National Patient Safety Agency of the UK NHS, Waring and Currie detailed their investigation of why doctors seem to underreport adverse events (Waring and Currie, 2011). The authors claim that it is a struggle to integrate incidence report systems into the complex social activities of learning and knowledge sharing. "Occupational groups are often characterized by strong and deeply embedded values and norms that can reinforce normal, customary or socialized ways of working" (p.147). Learning is thus "often more fruitful when it is situated within everyday social practices rather than centralized through managerial processes." As those qualities are integral to the team training scheme we explored, I believe it would it be wise to implement such a social training scheme, in addition to designing a system for reporting deviant cases.

Waring and Currie also warn against uni-professional models and advocate team based learning – to help overcome the issues of power and politics which might arise at the clinical level. "This is important to counter learning that simply reinforces the power and status of one group at the expense of others" (p.149).

7.4.3 Learning by challenging one's own beliefs

In our third article, we show that the team training scheme also fits well with current learning theories. (see Table 1). Stocker, Burmeister and Allen (2014) for example, accentuate sociocultural perspectives, emphasising the value of challenging the participants' understanding of their own practice in realistic scenarios and relevant contexts, and of reflecting on them in an environment that helps them to improve their own understanding. Effective learning and subsequent change are more likely to occur when group members challenge personal beliefs in familiar contexts. Stocker et al. recommend that debriefing sessions include two phases, the first for critical reflection and the second for abstract conceptualisation. These two aspects, or 'phases', were braided into the debriefing sessions in the model we explored.

Table 1 *Correspondence between the model explored and statements made by Stocker, Burmeister and Allen (2014) concerning optimal simulation team training.*

Statement 1 from Stocker et al.	**"Scenario for concrete experience, followed by a debriefing with a critical, reflective observation and abstract conceptualisation phase, and ending with a second scenario for active experimentation."**
Model explored	Good correspondence: The model commences with a review session, continues with a "scenario for concrete experience, followed by a debriefing" and "a second scenario for active experimentation". But our model adds a second debriefing session which is not explicitly divided into two phases, with more weight being given to "critical, reflexive observation" than to "abstract conceptualisation".
Statement 2	**"The scenario needs to challenge participants to generate failures and feelings of inadequacy to drive and motivate team members to critical reflect and learn.**"
Model explored	Very good correspondence: the scenarios seem to be challenging. Failures and feelings of inadequacy are revealed during the debriefing sessions and linked to critical reflection.
Statement 3	**"There is a need for participants to challenge their existing frameworks and principles. Facilitators and peers must guide and motivate participants through the debriefing session, inciting and empowering critical reflexion. To do this, learners need to feel psychological safe."**
Model explored	Good correlation: The participants reflected critically, but *all participants*, not only facilitators, strived toward creating a safe atmosphere.
Statement 4	**"Real multidisciplinary team members acting within their specialty and roles support motivation and preparedness of participants for effective learning."**
Model explored	Very good correlation: None of the participants stepped out of their actual roles during any of the simulation sessions.
Statement 5	**"It is mandatory to introduce cultural context and social conditions to the learning experience for effective team training."**
Model explored	Very good correlation: The training days took place in the participants' own localities.

The previously described CPAR aims also correspond to these views on learning: “to help the participants to transform their understanding of own practice both as to conduct and conditions” (Kemmis, Mc Taggart and Nixon, 2014, p.67). The emphasis on change in understanding found in both Stocker’s and Kemmis’ approaches was key to our recognising which changes to look for in our study. We identified how change emerged locally – examining improvements in the participants’ understanding of their own practice, conduct and/or practice conditions.

Sharing knowledge, perspectives, and practical techniques during team training, the members aim at becoming more capable of helping patients and being good colleagues, individually and collectively.

However, neither the facilitators nor we assessed what each individual learned during the team training sessions. We presumed it to be the responsibility of each participant to evaluate his or her own competence and needs. We considered local changes (as described in the third article) and the voluntary participation of the local health personnel in continuing, monthly training to be implicit indications of both individual and system level change. Likewise, the interest in participating in focus group sessions increased during the course of the years. Participants in the final focus group discussions (2013) confirmed the important impact the team training had, such as: increasing a feeling of safety, getting to know each other as persons, learning how to work in a team, helping them recognise and acknowledge the competencies of other team members, acquainting them with seldom used equipment and its function, amongst many others.

7.4.4 Tailoring services or implementing standards?

Local learning utilising our flexible, in situ team training model could be seen as the local health professionals’ joint effort to tailor their local health system to meet their specific needs. The unique elements of a tailor-made solution are intended to create a better fit, in contrast to standardised solutions in which ‘one size fits all’. Using team training to implement standardised solutions and procedures could, meanwhile, enable all the participants to adhere to the same standards. Actually, both of these aspects were practiced in Alta, each fulfilling a different purpose. The initial review dealt with standard procedures and principles about how to help a patient and work in a team. Because simply following procedures, however, might not function in certain simulated scenarios, the debriefings offered space to talk about local solutions and elements classified as ’participation’ by Wenger (interacting, acting, mutuality), and hence the different forms of knowledge named by Dohn (experiential, practical, and propositional) (Dohn, 2014). During a debriefing session, a local instructor suggested a new procedure concerning the physician’s responsibility when initially approaching the severely injured patient and presented this as a result of many local team trainings. This is an example of a tailored procedure representing a reification having sprung from a participatory negotiation of meaning.

7.4.5 Complex local community

The importance of on-going work with the aim of training and describing how to do things locally is not limited to assuring adequate, non-reified participation. Increasing local consciousness and knowledge (’experiential, practical and propositional’) of how to work in emergency teams might also balance the dominant models, those designed for and better suited to other contexts, e.g. larger cities. According to complexity theory, attractors (rules of interactions) in the larger systems are also present in its smaller parts, i.e. patterns in the larger ‘whole’ are mirrored in the smaller parts. Major developments on the national level thus have great influence at the local level, not only through regulations or written procedures but also through deep-rooted rules and informal perceptions of the professional role, spread throughout and maintained within networks. Attractors developed in dominant services of large cities, such as the capital city, Oslo, have an impact on small, rural communities – regardless of how suitable they may or may not be. In addition, the different professions may have various attractors of their own, making cooperation in multi-professional teams challenging. Local training is likely to help fill in the picture.

Waring and colleagues claim that learning activities at the local level might "perhaps deliver a change that is more attuned to the needs of professionals whilst reinforcing the occupational control of knowledge and limiting managerial encroachment" (p.148). Furthermore, "Whilst such efforts should clearly be supported, questions remain about the degree to which these activities facilitate change across occupational boundaries and at a wider organizational level" (p.149) (Waring and Currie, 2011). We found examples of such changes crossing occupational boundaries and organisational levels: the reification of the GP’s role when approaching the patient (as suggested by an EMT instructor); assigning the role of instructor to a nurse (at the suggestion of an EMT); integrating into EMTs’ employment contracts time for training, as it is already integrated into the contracts of local GPs and nurses. In addition, participants were free to choose which topics to pursue during the debriefing sessions. Table 2 below, from our third article (Brandstorp et al. 2016), documents the wide array of topics discussed in these sessions

Table 2. *A display of the breadth and diversity of the participants' topics in the debriefing sessions and focus groups (of the study) organised according to the eight theoretic elements constituting Wenger's Social Theory of Learning*

1. Theoretic element: Social structure • Team building through allocating roles and tasks
2. Theoretic element: Situated experience • Sense of safety emerging among the participants • Collective interest in improvement • Familiarity with the locality
3. Theoretic element: Practice • Practical skills • Team building through inclusion and cooperation • Closed-loop communication, names, voice, and report • Learning to learn, teach oneself and teach others • Debriefing skills applied in other settings.
4. Theoretic element: Identity • Appraising one's own situatedness as it relates to that of others
5. Theoretic element: Subjectivity • Self-confidence and mutual trust • Awareness of one's own strengths and limitations
6. Theoretic element: Collectivity • Relational skills – group knowledge • Team building, inclusion, "commitment" • Building relationships based on trust and respect • Collegial support through instrumental debriefing, defusing, relieving stress through conversation • Insight into others' competence to improve mutual respect and safety • Identifying who needs to have an overview
7. Theoretic element: Power • Non-defensive feedback • Training making it easier to admit mistakes • Finding the expected leadership position, model, and management skills • Reflections on hierarchies
8. Theoretic element: Meaning • Management of the patients' and one's own crises

7.4.6 Knowledge

English professor in public health, Trisha Greenhalgh begins her paper, *What Is This Knowledge That We Seek to "Exchange"?,* by pointing out how knowledge often is described in such dualities as "explicit or tacit, individual or collective, generic or specific, context free or context bound, value neutral or value laden" (Greenhalgh, 2010. p 492). With reference to Tsoukas and Vladimiro (In Organizational Knowledge, 2001), she defines knowledge as "the judgment of the significance of events and items, which comes from a particular context and/or theory" (p.495). Her point seems to be that the knowledge that is explicitly acknowledged within health care, the knowledge that one may 'exchange', is too often limited to the first part of each of these dualities: i.e. explicit, individual, generic, context and value free. However, the kind of knowledge that is generated in a situated collective is of equal importance. Her statement, applicable also to local team training, is that such knowledge is not exchangeable in the same way. As she writes:

> The collectively generated and shared knowledge contained in such external structures is embodied and reproduced by human agents in a dynamic, organic process that is referred to in different literatures as 'structuration' (Stones 2005), 'collective sensemaking' (Weick 1995), 'community of practice' (Lave and Wenger 1998), and 'mindlines'. (Gabbay and le May 2004) (Greenhalgh, 2010, p.496).

In his book *Communities of Practice* (1998), E. Wenger also uses the word, ‘duality’, applied here to participation and reification – a unity in interplay in the process of creating meaning. Reification means to give form to – or objectify – a certain understanding, e.g. a written procedure. Examples of what he calls participation are mutuality, acting, interacting. Reification is building structures that frame social participation. "It is through their various combinations that they give rise to a variety of experiences of meaning" (p.62). Wenger's concept of 'reification' seems to mirror what Greenhalgh describes as ’exchangeable’ knowledge generated in a collective process.

According to Dohn, the three forms are non-reducible and have distinct ontological realisations, such as the body's response to or memory of a given phenomenon (experiential knowledge), embodied understanding of the doing itself (practical knowledge), and linguistic representation (propositional knowledge) (Dohn, 2014).

Clearly, the in situ team training we explored involves all three kinds of knowledge, but with propositional knowledge predominating during the initial review and debriefing sessions, and more experiential and practical knowledge taking the foreground during the simulation sessions. Dohn’s point is, however, that they conflow, so to speak: the body both remembers and influences what is said.

Experience-based knowledge as a bodily responsiveness is often silent or tacit. In our study, the participants did not explicitly mention their bodily reactions during the team training and were ambivalent about doing so. Practical knowledge – know-how – is also often tacit as opposed to the knowing that is propositional knowledge, which is more often given a voice.

7.4.7 Conclusion

Seen as a whole, the literature delineates several kinds of knowledge, all of which were integrated into in the team training we explored and that proved flexible enough to have room for the local participants' own priorities. The three different elements (initial review, simulation session and debriefing) also embrace different forms of knowledge. In addition, the scheme made space for learning from errors through dialogues in a complex local context. All these aspects are assumed to facilitate both individual and systems improvement.

7.5 Leadership and interaction

To explore the main topic in our second article, leadership processes as interaction, we used two theoretical perspectives to examine the participants' discussions: designated and distributed leadership, and, Complex Adaptive Systems (CAS). We found that this critical application of theory to the participation of local health personnel in several analytic phases facilitated a broader awareness of leadership practice.

Leadership is included in the Canadian Interprofessional Health Collaborative' s "National Interprofessional Competency Framework" (2010) as a collaborative form, and as the fifth of the following six points: 1) interprofessional communication; 2) patient/ client/ family / community-centred care; 3) role clarification; 4) team functioning; 5) collaborative leadership; 6) interprofessional conflict resolution.

When analysing the teams in Alta with regard to types of leadership, we identified both designated and distributed leadership. Consequently, I would prefer point 5) above to be 'designated and distributed leadership'. The GP was the designated leader during team training in Alta. In the follow-up focus group with EMTs and GPs together, the EMTs related that they often handle patients without the GP being involved, but that the presence of a good GP added value to the team.

7.5.1 The needs of the patient and rights of the physician

According to the Norwegian Health Personnel Act, the needs of the patient determine whether collaboration is necessary (Norwegian Ministry of Health, 2001). In cases of emergencies, the EMCC alerts the health personnel. Thus, the EMCC defines, to a degree, 'the needs' of the particular patient with whom they are in dialogue, based on experience and guidelines. EMTs receive instructions from the dispatch centre about which patients to attend to and are not permitted to refuse to respond to the

call. They do have more room to make their own choices when they are with the patient. The GP, on the other hand, is traditionally free to decide whether her/his involvement is needed (Hjortdahl, Zakariassen and Wisborg, 2014). Furthermore, when the physician collaborates with other health professionals, he or she is entitled to make decisions concerning diagnosis and treatment (Health Personnel Act). This special position often leads to the physician becoming the designated leader of a team, though it is more difficult to predict whether she or he will be physically present than whether the EMT will be.

The revised Emergency medicine regulation (Norwegian Ministry of Health, 2015), the white paper Future Primary Health Care (Norwegian Ministry of Health, 2015), and the Norwegian Official Report 2015:17 (Norwegian Ministry of Health, 2015), all underline the importance of the GP taking part in emergencies and teamwork. Our study may serve as an example of how the local GPs might work together with other health professionals in such settings and perhaps increase team collaboration.

7.5.2 Demanding collaboration

Førland, Zakariassen and Hunskår found that some Norwegian EMTs felt that their competence was not adequately appreciated by GPs (2009). They proposed that EMTs and physicians train together to improve collaboration. This is also one of the conclusions in Hjortdahl and colleagues' study in rural Norway:

> The EMTs interviewed in this study reported wanting a GP present in challenging pre-hospital emergency settings that go beyond their guidelines. The presence of GPs was perceived to improve patient care. The EMTs considered a need for professional requirements for GPs taking part in out-of-hours work. The informants suggested formal training between EMTs and GPs on call" (Hjortdahl, Zakariassen and Wisborg, 2014).

In our focus groups, the nurses in particular brought up the issue of a doctor's consent being needed when medication is required. An EMT can only dispense certain drugs. This renders the physician's absence a problem for other helpers, one that is often addressed by phoning GPs. They are mandated to prescribe medications without necessarily seeing or knowing either the patient or the health care personnel calling. It is necessary to be familiar with the other team members' competence, preferably at an individual level though more realistically at the group level, in order to judge which human resources are appropriate in each specific case. Team trainings might be a means to make this obvious to all parties.

In the report on how to train GPs in emergency medicine, Blinkenberg, Nieber and Thesen (2008) claim that such practice takes the GPs out of their comfort zone. Practicing medicine out-of-office is only one element of that. Learning to think 'worst case scenario' instead of the more common GP-

strategy, 'let's wait and see' is also demanding. In addition, working in a team might be challenging if skills such as group communication, leadership and role awareness are lacking. Finally, the field as such may make GPs feel incompetent, assuming that other professionals may be more familiar with emergency medicine. One of the experienced GPs participating in our study said she knew that the EMTs had competence that she lacked, but she felt it was difficult to accept that. Still, there was no discussion of whether or not the GP should join team training sessions. However, as already mentioned, we encountered a high degree of interest in the latest and largest focus groups, especially from the less experienced GPs.

7.5.3 Medical need for the GP?

Previous studies have shown that the majority of patients causing the dispatch centres to activate a 'red response' are elderly (65 +), not in a life-threatening situation, conscious, and suffering from a wide range of conditions not suitable for the application of standardised treatment protocols (Zakariassen, Burman and Hunskår, 2010; Rørtveit and Hunskår, 2009b). Assessing patients' physical condition, having knowledge of available treatments, being able to distinguish who needs to be admitted from who could be treated at home, are all amongst a GP's core competencies. Yet, participation of the physician in emergency care is still being debated, and the reasons for the ambivalence on a collective level are apparently complex. Zakariassen pointed at some pros and cons in his thesis, "The role of the general practitioner in red response", 2010, (p.13-14). Complicating issues include, for example, insufficient radio use amongst doctors, divergent routines at the EMCC-centres regarding when and whether to alert the on-call doctors. On the other hand, GPs in general are highly confident about performing emergency procedures, and the primary health care services are an important part of the out-of-hospital emergency system in Norway.

Applying complexity theory, the impression that the GP is not needed in emergencies outside hospitals may be interpreted as an attractor (deeply funded rule). As mentioned earlier, attractors in dominant settings (such as in Oslo) are spread out yet remain within networks (e.g. colleagues). In rural Norway, the idea that the rural ambulance services can cope without the local doctors emerged simultaneously with the centralisation of the out-of-hours clinics in inter-municipal collaborations. This centralisation resulted in less work out-of-hours per GP but a larger population and thus more patients when the GP was on-call. That increased the GPs' income, but left less time to participate with ambulance staff in emergency out-of-office work.

The role of the physician is debated in other settings as well. Kenneth I. Shine highlights the importance of respecting other professionals' strengths and the necessity of being a good team player in patient safety work:

> It is ironic but often the case that the less the physician is required to do in the course of maintaining a bundle of care, the more likely it is that protocols will be followed and outcomes improved. (...) They are essential parts of an effective team that requires physicians to understand team function and their own leadership roles. Teams will be central to newer delivery models (Kenneth, 2013, p. 353).

Braithwaite et al. focused specifically on improving interprofessional collaboration (IPC) in a 4-year AR project (2007-2010) in the Australian Capital Territory health care system (ACT Health, covering both primary and secondary care). Using "multiple initiatives designed to promote IPC" (Braithwaite, et al., 2013, p.9), the researchers found that the physicians rated the project's results more negatively than did any of the other participating groups (nurses, allied health staff, and administrators).

> There was most agreement that the study had resulted in increased sharing of knowledge between professions and improved quality of patient care, and least agreement that between-profession rivalries had lessened and communication and trust between professions improved."(Braithwaite, et al., 2012, p.1)

Nonetheless, and contrary to predictions, the participants reported becoming more physician-centred during the course of the study. I interpret this as a reflection of how central the role of the physician is within health care

7.5.4 Professional paradigms

Stephen Toulmin claimed that a profession is constituted by a joint knowledge set – paradigm – thus conserving their identity while also conserving the professional life. (Toulmin, 2003). I see no reason to believe the Norwegian GP profession is an exception. The idea of regarding the GP as a team worker is concept that seems rather new to some of the authors of Norwegian GPs' central books and documents. Only recently, in the third edition of the Norwegian handbook of general practice (Hunskår (ed), 2013), have competencies in collaboration with other professionals been included, as an added topic and in the final chapter.

Reports on teamwork have been mentioned in recent years, however, in some Norwegian Medical Association (NMA) documents such as in 2014: Plan for Developing General Practice 2015-2020; and in the 2015 document about OOH and about Primary Health Care. (Norwegian Medical association, 2014, 2015a, 2015b)

The EMTs' situation is similar to that of the GPs: handbooks for EMTs, such as the widely used EMT guideline, Medical Operative Manual (MOM), (rev. 2013), makes no mention of collaboration with GPs or nurses (National Centre for Prehospital Emergency Medicine, 2013). A Norwegian textbook

for educating EMTs and paramedics, ”Collaboration in pre-hospital work” [translation mine], focuses on collaboration with the patient. OHH personnel is mentioned briefly, but local team training is not described at all (Nordby H, 2014).

The 5th edition of the handbook for OOH work in Norway, still focuses primarily on the physician, not the nurse or the team (Johansen et al., 2015). All the authors are physicians. In its latest online edition, however, there are statements about the GP as a team leader. I took part in the revision, and my suggested sentence, indicating that the patient should be regarded as a significant member of the team, is included: "Talk out loud to give the team a running report – the patient included." The book also contains a chapter about key partners such as the patient’s own GP, the dispatch centre, the ambulance and home care services, secondary care teams, centres for preventing violence, nursing homes, fire-fighters, police, midwives, pharmacists, and child welfare services. This list could be extended to include local ‘crisis teams’ – NGOs, such as the local Red Cross, the alpine rescue group, and others. In order to achieve integrated medical care, the caregiver should know how to cooperate with all of these.

This OOH handbook is also a central reference for OHH nurses. Their reflections during our focus groups indicated that they had been trained to work with GPs. One nurse (a woman) stated that it was the nurses’ duty to assist the physician, despite being accustomed to performing many of the same tasks independently. The EMTs (all men) were more eager to underline that they also worked on their own. The GPs neither denied being team workers nor disregarded that role, even though, as mentioned earlier, one experienced GP did feel uncomfortable when realising that others had competencies she did not possess.

7.5.5 About collaboration and interaction

Collaboration is relevant in many other settings than emergencies, and the Canadian Interprofessional Health Collaborative (see section 7.5), claims that:

> Interprofessional competencies are developed to help achieve interprofessional collaboration. They are consistent and stand the test of time. The related descriptors or indicators, however, are individualized based on the level of experience of learners or practitioners, and reflect their learning or practice context (Canadian Interprofessional Health Collaborative, 2010, p.8).

Might health personnel, in general, learn how to communicate by means of emergency medicine team training? I am confident that such focused and stressful settings are highly informative for the participants about the significance of good communication has for effective teamwork. The health personnel in Alta seem determined to improve their ability to save lives through this kind of training, and appropriate communication is a key factor.

7.5.6 Unintended effects of team training

"Caution should be taken in bottom-up approaches to ensure that they are inclusive of relevant professional groups and not reinforcing tribal like behaviours and maintaining juridictionary boundaries" (Waring and Currie, 2011, p.147).

Since the team training scheme we studied involves only local health personnel, there could be a risk that local, ingrained, bad habits go unnoticed. However, there is a continuous turnover of young physicians in internship in Alta as well as some turnover in the other professional groups. These newcomers might be more likely to identify and question ill-advised local practices. Local health personnel should also attend relevant courses, build professional networks, and invite experienced colleagues to join the local trainings in order to improve their own professional habits and skills. Practicing in Alta involves being inspired from outside and learning from other instructors. Precisely this was emphasised by the members of the first focus group discussion. As one instructor, a GP, put it, "I believe that my own ability to improve needs assistance from outside."

7.5.7 Conclusion

Team training is a fitting way to learn the skills needed for interaction and collaboration, and, often, also those concerning leadership. We observed that training sessions involved both distributed and designated leadership: roles such as guiding others were distributed, shifting according to which competencies were needed; by not shifting the person serving as designated leader during the session, she/he could maintain an overview which could then be reported. The role of the GP, meanwhile, was always emphasised since decisions regarding diagnosis and treatment are the legal responsibility of the physician.

In order to improve leadership and interaction in teams, professional education, guidelines and handbooks must emphasise the premises for proper and realistic teamwork with relevant actors. I will come back to some reflections about medical education in Chapter 8. Wider implications.

7.6 Participation beyond the local context

As already stated, AR involves the sharing and generating of knowledge in a participatory process in order to facilitate change. Social accountability is a concept encompassing efforts made by health care workers in order to make a difference, not only to the individual patient, but also according to the *needs of society* (Woollard et al., 2016). Thus, in addition to the three articles underpinning this thesis, research group members have shared their reflections on the project in feature articles in national newspapers (Brandstorp. 2012; Brandstorp, Sterud and Haugland 2012; Brandstorp, 2016). Local participants and researchers have also held oral presentations at conferences, seminars and meetings – regional, national, and international (Sweden, Finland, Croatia, Brazil, Canada). These were all

settings for feedback and learning. Recently, and widely commented, the team training facilitators in Alta were honoured with the Norwegian Medical Association's Quality Award for Primary Health Care (May 2016). I wrote the nomination.

In addition, the model's principles and the insights form the research process have already been integrated into: semi-annual emergency medicine courses for interns and GPs; official material for how to arrange such courses (Directorate of Health, 2016); an e-learning course in emergency medicine used nationwide (2010); an e-learning course in OOH work-in-progress (2016), and in the revised Norwegian OOH Handbook (2013). In my view, contributing professionally on a national level has enabled relevant research perspectives to evolve through dialogue. My understanding of research is that it is a discipline of continuous dialogue about temporary justified beliefs. In the AR tradition, the research process is explicitly regarded as open-ended. A 'final truth' concerning social life and human enterprise can never be delineated once and for all. However, everyone is obliged to participate in improving the practical sides of their life, as participants in the world as a whole.

8 Wider implications

In the preceding chapter, I discussed ethical and methodological elements of the study and elaborated some of the implications of the three chosen thematic perspectives, plus the overarching concept of patient safety and our participation within the wider context. In this chapter, I will delineate how in situ team training might be performed and implemented within health care services and within education – seeking to define its place in the larger whole. Again, this is done within an AR framework, aiming explicitly at improvement. Finally, implications for future research on patient safety are presented.

8.1 Suggestions for improving the in situ team training model

During the study, whenever, we identified issues where we saw room for improvement, we presented them to local focus groups. More ideas for potential improvements to the local team training model emerged during the latest phase of the project which, consequently, have not been presented to local participants, or to the other members of the research group. These will be presented here shortly.

As we did in our analyses, it would be fruitful to introduce here an explicit focus on the patient as being an important team member, worthy of inclusion in both simulation and debriefing sessions. I recommend, in fact, that future investigations of in situ team training be performed with simulated patients. I am convinced that the benefits are great, in terms of realism, feasibility (no costly manikins) and having the patients' perspective available throughout the sessions. A Norwegian study of BEST in hospitals compared participants' opinions about educational outcome, realism and embarrassment when training on manikins vs. SPs and found that, while, the team members rated them as nearly equal, "At the end of the day, however, the respondents all slightly favoured the standardized patient…" (Wisborg, et al,. 2009, p.3). This investigation, however, seems not to have included the SP as part of the team, nor to have enquired into how including patient participants benefits the whole team.

Regarding leadership in teamwork, our study indicates that team training should include in its initial materials an invitation to reflect on designated and distributed leadership. It might also be pointed out early that some elements of leadership, such as the guiding of others, may shift amongst participants during the session since changing circumstances often require a shift of competencies. The designated leader, meanwhile, should not shift so that she or he can maintain the overview throughout the session, and be able to communicate it both to the team and to external services such as the hospital. The fact that the physician is the person with the legal authority and obligation to decide about diagnosis and treatment often makes her or him the logical choice to fill that role.

In line with the Tveiten's recommendations (1998), participants should be encouraged during the debriefing sessions to reflect on and report the bodily reactions that stressful emergencies provoke. Preferably, it will be the facilitator who initiates focusing on this kind of content, by sharing an example or by asking direct questions. Given the reluctance our focus groups showed to confronting this issue, it would probably not improve the group's dynamics for the facilitator to imply that sharing this kind of feedback is compulsory. At the same time, for the facilitator to acknowledge her or his own bodily responses to strain and stress, reactions such as "clumsiness", "sweating", "tunnel vision", etc., might serve as an effective reminder to team members to attend to their own 'bodily being' -- which communicates continually, whether they intend it to or not, whether they are aware of it or not. It would also encourage professionals trained in conceptualising 'professionalism' as a 'body-less' state to re-learn that their own body is their means for being appropriately perceptive, and for being capable of agency.

Twenty-four years ago, in a special supplement of the Scandinavian Journal of Primary Health Care, Swedish Professor Carl Edvard Rudebeck introduced the concept of 'bodily empathy' into general practice (Rudebeck, 1992). Apparently, we need to work smarter if we intend to close the gaps between recognised theory and everyday clinical practice. In my opinion, further *participatory* research is necessary to address these issues.

Finally, in order to secure an even more democratic local involvement, the local participants could increase the effect of their learning by augmenting their engagement in the team training scheme. For example, local personnel might be asked to prepare new training scenarios based on their own experiences of settings worth rehearsing. They might also be offered the opportunity to participate as simulated patients, or to facilitate the (second) debriefing session.

8.2 Future research in the field of patient safety

In our study, we have identified teamwork as an aspect of patient safety work. We have made some discoveries during our participatory research regarding the non-linear nature of improvement processes in social contexts. Theories about CAS helped us understand that, in order to assure both relevance and impact when working toward improvement, we had to relate to the groups' own choices and connect with the participants' network on many levels. Thus, researchers must observe local processes closely in order to perceive how change emerges in social settings and networks. The initiative must have qualities that also attract positive attention from larger networks. Not only should good arguments be developed, but arenas for influence and dialogue should also be sought out or even created. I believe these insights should have influence on future research design and improvement work.

In 2011, a large, international researcher group led by Shekelle (sponsored by The Agency for Health care Research and Quality Group, US) wrote that we have a need for:

> ...greater use of theory and logic models, more detailed descriptions of interventions and their implementation, enhanced explanation of desired and unintended outcomes, and better description and measurement of context and of how context influences interventions. Using these criteria and measuring and reporting contexts will improve the science of patient safety (Shekelle, et al., 2011, p.693).

In a later, comprehensive initiative by Shekelle, researchers from various nations claimed that, although improving patient safety efforts require changes “in policies; education; workforce; and health care financing, organization, and delivery, the most important gap has arguably been in research.” The group also advised researchers to include investigations into whether and how the participants’ roles change (Shekelle PG et al. 2013 p. 365). In process-oriented research, it is crucial to keep in mind the phenomenon of continuous change and/or adaptation of both researchers and participants – especially in projects explicitly aimed at contributing to change. In addition, the likelihood of grasping this kind of change increases when a process is followed closely over time, as was the case in our study.

I find that Swedish action researchers Lifvergren, Huzzard and Hellstrom have a good point about the value of bottom-up interventions such as our team training scheme. As they put it: "A key finding from experience to date on organizational change is that sustainable improvement and innovation in organizational contexts is unlikely to come about by rolling out change recipes from a central source of organizational authority" (Lifvergren, Huzzard and Hellstrom, 2015, p.4).

They also argue that AR is a suitable way to create actionable knowledge for practice:

> Work organization is something that is created in the on-going interaction between theory and practice. And whilst the former is by definition standardized, the latter is context-specific entailing the emotions, perceptions, experiences and knowledge of the people who work in the particular context concerned. It makes more sense, therefore, to ask the question ‘how are innovative forms of organizing healthcare created’ rather than the question ‘what do innovative forms of organizing healthcare look like’" (Lifvergren, Huzzard and Hellstrom, 2015, p.7).

I hope that this thesis provides an example of the process of ‘how’ the innovation team training has developed in Alta and may serve as “codified experiences that can usefully animate dialogue in other contexts” (Lifvergren, Huzzard and Hellstrom, 2015, p.7)

8.2.1 Conclusions

A main question for future research is, "How do we facilitate patient safety work in clinical practice?" The answers must include a focus on how all people involved act within their specific cultures as well as their capabilities with systems and tools. The recommendation quoted above focusing on how innovative forms of organising health care are created echoes the recommendation regarding improvement work: identify core principles for interaction and maintain them during processes of social development.

8.3 Implementation of team training

Local learning, such as team training, underpins Étienne Wenger notion that learning happens in 'Communities of Practice', motivated by the need and wish, more or less conscious, to be part of communities, to find meaning, collectivity, one’s own identity, and more (1998).

Neither establishing local learning nor facilitating improvement is easy, however. As mentioned in the background chapter, the team training model was presented to health personnel in many municipalities in North Norway in 2004-8; there is even a regulatory demand for such training. Yet, we have reason to believe that the model has still not been implemented on a wide scale. The causes are probably multi-layered and could perhaps be analysed from various professional perspectives. I will try to sketch some potentially facilitative factors as well as some constraints.

8.3.1 Multifaceted enterprise

Norwegian social scientists assert that certain difficulties for disseminating local innovations in municipalities lie in an absence of necessary, overarching structures (Ringholm, Teigen and Aarsæther, 2013). A Norwegian/Swedish group found that leaders close to clinical practice were more important than managers when it came to implementation:

> Strategies for and patterns of change implementation were found to differ according to the type of innovation. Internal organisational context factors played a significant role in the development of nearly all, but external factors did not. "Developmental evolution" better described the change process than "implementation"(Øvretveit et al., 2012, p. 237).

In Alta the implementation of the team training sessions were done by GPs holding a part-time leading position in the OOH clinic, together with informal leaders in the ambulance service and amongst the nurses. The municipality’s public health officer and the managers of the ambulance service on hospital trust level supported them. Health personnel as such, however, took the initiative, and professional networks considering team training both valuable and doable reinforced it. One of the public health

officers in Alta had (as a GP) even participated in the model's dissemination during the first two years (2003-05).

In 2004, a systematic review regarding diffusion, spreading and sustainability of innovations in the health services identified six interacting components of these processes: (1) the innovation itself; (2) the intended adopters; (3) communication and influence; (4) the inner organisational or system context, comprising general antecedents for innovation-specific readiness for a particular innovation; (5) the outer (interorganisational and environmental) context; and (6) the implementation process (Greenhalgh et al., 2004). They also found that interpersonal influence through social networks is the dominant mechanism driving diffusion. They reported that physicians tend to operate in informal, vertical networks of peers, whereas nurses often have more formal, horisontal networks in the organisation. The physicians' networks seem to highlight that "Leaders may be especially helpful in encouraging organizational members to break out of the convergent thinking and routines that are the norm in large, well-established organizations" (Greenhalgh et al., 2001, p. 607).

In Alta, the implementation of the team training sessions was accomplished by the GP having a part-time leading position in the OOH clinic, along with some nurses and informal leaders of the ambulance service. The municipality's public health officer and the managers of the ambulance service at the hospital trust level supported them. Health personnel as such, however, took the initiative, reinforced by professional networks that considered team training both valuable and doable. Also, one of the public health officers in Alta had already participated in the model's dissemination as a GP during the first two years (2003-05).

Thus, the successful implementation in Alta in 2007 (and afterwards) might have been facilitated in part by the systematic efforts to disseminate the team training model in 2003-08. One local EMT instructor took part in this work, and the local GPs knew that this activity was supported and acknowledged by many professionals at the national level. In addition, the health authorities claimed to have carried out local training on a regular basis in 2005.

8.3.2 How to spread good ideas and make them thrive

The systematic review referred to above was published the same year as a larger report by almost the same group of authors: *How to spread good ideas - A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organization*. Eleven knowledge traditions were identified as being useful for spreading good ideas; amongst them were complexity and general systems theory (Greenhalgh et al., 2004).

A group, also including Greenhalgh, applied these findings when making a plan for transforming large health systems in Canada. Instead of basing their work on what was called 'gold standard research', meaning large, quantitative, meta-syntheses of trials, they challenged stakeholders, and utilised

research based on both small and large numbers, and on studies designed as qualitative as well as quantitative.

Instead of writing a so-called ‘Master Plan’, they identified five principles to be followed everywhere throughout the process: 1.) involve both formal and informal leadership; 2.) include physicians; 3.) listen to patients and their relatives; 4.) pay attention to history; and 5.) establish close feedback loops (Best, et al., 2012). These points and the issues we chose in our Alta exploration coincide. So does the model itself. We have investigated leadership and pointed out that there is both designated and distributed leadership. Physicians were included in the study as well as in the local model and all the focus groups. Simulated patients and their relatives were included in the team training scheme, and our study has highlighted the many aspects of patient participation. Local history has received attention during team trainings, both implicitly by performing the training in situ and by constructing the scenarios from real events, and explicitly by allowing for time to share experiences throughout a training day. Local history was also included in the focus group sessions of our study. In addition, PAH brought into the researcher group an aspect of his inside knowledge. Finally, close feedback loops are implicit in the model’s debriefing sessions and in the study’s focus groups.

McMullen and colleagues examined trials of complex innovations in light of the review article *Diffusion of innovations* from 2004 by Greenhalgh et al., mentioned in 8.3.1. They found that the successful organisations in complex intervention trials were characterised by “strong leadership, good managerial relations, readiness for change, a culture of staff training and available staff time” (p.1). On the other hand, "low-performing practices typically had less good managerial relations, significant resource constraints, staff discomfort with the test and no positive results early in the trial.” (McMullen et al., 2015, p.1).

8.3.3 Conclusions

Despite Norwegian regulatory demands for training interaction, preferably as team training, there are constraints which hinder the systematic implementation of such training. Based on the findings of the authors above, the implementation process in Alta could serve as an interesting example of success.

Several aspects were facilitative and in accordance with principles identified for transforming large systems. Both formal and informal leaders and physicians were included in the process of implementation and maintenance of training. The model includes time to be history-sensitive and scenarios based on actual patient cases are included. The debriefing sessions are feedback sessions. The local history of implementing new solutions and running innovative projects in primary care is clearly another advantageous aspect of the municipality of Alta. Early, decentralised dialyses and Internet-based communications are only two examples (Bjorvatn, 2003; Rygh, 2007). The leadership

and the structures in Alta seem to have maintained the flexibility necessary for the staff to adapt their work to new projects and innovations.

8.4 Team work in education

The Lancet report *Health professionals for a new century* highlighted interprofessional teamwork to "promote interprofessional and transprofessional education that breaks down professional silos while enhancing collaborative and non-hierarchical relationships in effective teams (Frenk, J et al. 2010. p. 1924). In this section, I will offer some reflections on team training in formal education.

8.4.1 Education close to practice

The message from The Lancet needs to be received by the responsible agents within health education, and not just medical education. Furthermore, I believe that inviting facilitators working with patients on a daily basis to provide education informed by clinical practice is useful. In addition, education *in* clinical practice would add nuanced realism to education. A realistic idea of what is expected might decrease the students fear and unease mentioned initially in this thesis (in 2.1.1.).

A young, local GP in the study mentioned a concern that resonates with my own personal experience. He suggested that doing emergency training mainly on manikins in simulation centres might increase the risk of the professional later "mistaking" a real patient in an emergency for something similar to a silent object without feelings.

In Norway in early 2012, a white paper was presented demanding Interprofessional Education (IPE) (Norwegian Ministry of Knowledge, 2012). The University of Oslo had already established a permanent program called 'Knowledge, Leadership and Quality' (KLoK) (Frich et al., 2012). A popular part of this program is team training, echoing in design many of the principles structuring our model, but performed with manikins in specialised centres (Jakobsen, 2013). At the Norwegian University of Science and Technology (NTNU) in Trondheim, interprofessional project work is the essence of the model, 'Experts in Team', which has become mandatory for all students taking higher-level education at this university. To our knowledge, however, no interprofessional student training in emergency medicine has yet been established (see reference NTNU). At the UiT The Arctic University in Norway, such training is currently being planned, and emergency medicine is a prioritised subject in a decentralised medical education effort planned to start in Finnmark in 2017 (See reference UiT). Stavanger University Hospital (SUS) offers training to medical, nursing and EMT students, encouraging them to reflect on and train collaboration for a whole day (Qvindesland. et al., 2015).

It seems that the need for preparing health students for teamwork has now been acknowledged at the university level. However, how this is to be implemented in the curriculum for EMTs and paramedics, and later in the specialisation of nurses and physicians, remains an open question.

8.4.2 Being in the process of collective and contextual learning

The authors of an Australian study argue that, unlike previous generations of GPs, those of 'Generation X' (born between 1962-77) identify good ethical practice and teamwork as important when choosing a workplace (Laurence et al., 2010).

Building on my own experience from my internship in Dovre, as mentioned in the Introduction, the shift from perceiving the responsibility of medical services after hours as being mine and mine alone to regarding myself as part of a local team of helpers, made my experience of OOH less daunting. Systematic local team training and a new awareness of teamwork afforded me the pleasure of developing joint solutions and offering help along with others. This increased our knowledge, competence and skills, as well as that of the patients and their support networks.

Looking back at my years as a younger GP, I believe that acquiring knowledge, skills and attitudes in teams engendered a sense of safety because I was in that joint process of developing – we were making improvements. Regardless of how little or how much the training sessions actually improved my abilities as a GP, the reassuring sense of personal and professional improvement was valuable. The collective aspect of it added to the feeling of safety. We were in it together.

I find great value and relevance in the process-oriented concept of continuous improvement, both on the individual level, termed 'lifelong learning', and on the systems level, termed 'learning organisations' (Wadel, 2011). Our findings suggest that in situ team training can contribute to both these kinds of learning.

8.4.3 Conclusions

A growing recognition of teamwork as crucial to proper health care for persons with complex needs challenges all professional groups involved in such work to emphasise collaboration and teamwork in their pre- and postgraduate curricula. Many efforts are already being made in the Norwegian educational sector. This thesis may make a contribution towards better understanding of interprofessional education in situ – education in clinical practice.

9 Possible limitations

Reflexivity is crucial in AR and the design of our research has been a subject of discussion in the previous chapters. In several chapters, but mainly in Chapter 6. Methods and Results, and 7. Discussion, I have explained choices made before and during the study. In this section, I will discuss some limitations and strengths of the design.

9.1 Participation

Engaged interaction between the researchers and the other participants in the research process is fundamental to AR. How closely we participated with the health personnel in Alta, which groups we did not include, and my own involvement will be now be discussed.

9.1.1 Following the process

In our study, we have not followed the local processes and participants as closely as we ideally could have done with respect to the development of local ideas, change-making and evaluation. Our contribution to empowering the local participants has also been less than it might have been had we collaborated with them more closely, recognising their competencies and development, individually and as a collective, step-by-step. This may have limited our ability to understand, anchor and disseminate the details of the improvement process. One may argue, on the other hand, that the researchers' only having influenced the local health personnel to a limited degree allowed the participants more freedom to pursue their own priorities – which is consistent with the goal of local empowerment.

We have tried to introduce theories which were relevant to the issues at hand in order to offer new perspectives, or 'eye-openers'. In addition, over a long period, we have strived to participate in a dialogue with professionals outside Alta in order to make a contribution to improvement in a wider context – the context of which Alta is a part.

9.1.2 Managers, real patients, and nurses

Lack of community engagement, from politicians as well as local authorities, is another element limiting understanding, anchoring and dissemination. We did not include their perspectives on the team training activity. Had we done so, we might have been better able to convey our findings to health authorities and policy makers elsewhere. The project also lacked the involvement of actual patients – the persons whom the team training is aiming to help more adequately in the future. We could have included a former patient in the research group, or performed interviews with patients and local authorities. Since the team training does not affect any of these groups directly, however, we chose to focus on the agents of the training activity: local health personnel. As there were no nurses amongst the clinical groups involved in the research group, their professional group's unique

perspective was not as well represented or considered as was that of the EMTs and GPs. Moreover, one might even argue that the study is predominantly oriented towards GPs.

9.1.3 My sense of ownership

I have already reflected upon my inside knowledge (section 7.2.2) and my relationship to local participants (section 6.1.3 and 7.2.5). The many years spent developing the model before actively exploring it have given me a sense of ownership that certainly has influenced the research. This is one of the reasons for choosing a critical participatory AR design. I hope that the readers may see that I have had a genuine wish to improve local team training in a participatory way, and not to conserve the status quo. I wanted to make a contribution to change as well as to acquire a deeper understanding of what in situ team training is in Alta and could be elsewhere.

9.2 Criteria for good AR

The SAGE Handbook of Action Research gives an overview of seven criteria for "How we know when we are doing good action research" (Bradbury, 2015, p.8). This, they state, requires:

1. Articulation of objectives;
2. Partnership and participation;
3. Contribution to action research theory-practice;
4. Appropriate methods and process;
5. Actionability (the extent to which the action research provides new ideas that guide action in response to need);
6. Reflexivity;
7. Significance (having meaning and relevance beyond their immediate context).

It is my hope that the reader may conclude that in this thesis, I have covered all seven points.

10 Conclusions

In our study, we applied a critical action research model to explore and improve in situ team training. The research process and lessons learned have been described here.

I hope this thesis may contribute to a more widespread awareness of the usefulness of performing research with the people who are intended to benefit from the research process.

I recommend a wider dissemination of local in situ emergency team trainings. Potential outcomes may include improvements at a variety of levels, including facilitating a more sustainable culture of patient safety.

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Appendices

Fra: Regional komite for medisinsk og helsefaglig forskningsetikk REK nord

Til:
Helen Brandstorp
helen.brandstorp@uit.no ivar.aaraas@uit.no

Dokumentreferanse: 2010/2249-4
Dokumentdato: 22.10.2010

LÆRING VED AKSJON, REFLEKSJON OG REPETISJON: UTFORSKING AV SAMHANDLING VED LOKAL AKUTTMEDISINSK TEAMTRENING. - INFORMASJON OM VEDTAK

Komiteen behandlet søknaden i møte 30.09.2010. I referatet heter det:

Prosjektleders prosjektomtale:
Tverrfaglig teamarbeid i primærhelsetjenesten er sentralt i Samhandlingsreformen. Forskriften om krav til akuttmedisinske tjenester utenfor sykehus har et krav om at helsepersonellet "skal trene i samhandling", gjerne i team. Trening på samhandling i team kan tenkes gi kompetanse som hva godt teamlederskap er, hvordan kommunikasjonen bør foregå og om hvilke andre roller teammedlemmene bør innta. Lokale akuttmedisinske team har vært et begrep i norsk akuttmedisin siden NOU 1998; "Hvis det haster...", men vi har ingen forskning på hva som skjer når slike tverrfaglig team trenes. Hvordan trener man i samhandling? En teamtreningsmodell som er utviklet og utprøv i hele Nord- Norge er fokus for prosjektet, slik den praktiseres i Alta. Ved hjelp av kvalitative metoder ønsker vi å analysere hvordan og hva slags samhandlingskompetanse bygges ved hjelp av teamtreningsmodellen. Hva må til av samhandling for pasienter, leger og andre teamdeltagere? Hva er hindringene for dette?

Komiteens merknader:

De prosjekt som skal fremlegges for komiteen er prosjekt som dreier seg om "medisinsk og helsefaglig forskning på mennesker, humant biologisk materiale eller helseopplysninger", jf. helseforskningsloven § 2.
"Medisinsk og helsefaglig forskning" er i § 4 a) definert som "virksomhet som utføres med vitenskapelig metodikk for å skaffe til veie ny kunnskap om helse og sykdom". Det er altså formålet med studien som avgjør om et prosjekt skal anses som fremleggelsespliktig for REK eller ikke. Komiteen vurderer at dette prosjektet ikke vil gi ny kunnskap om sykdom eller helse, men formålet er å analysere hvordan og hva slag samhandlingskompetanse som bygges ved hjelp av en teamtreningsmodell. Prosjektet skal således ikke vurderes etter helseforskningsloven.

Vedtak:
Etter søknaden fremstår ikke prosjektet som et medisinsk og helsefaglig forskningsprosjekt som faller innenfor helseforskningsloven. Prosjektet er ikke fremleggingspliktig, jf. helseforskningslovens § 10, jf. forskningsetikkloven § 4, 2. ledd.

REK legger til grunn at prosjektet kommer inn under de interne regler for behandling av pasient-/helseopplysninger som gjelder ved forskningsansvarlig virksomhet.

Komiteens vedtak kan påklages til Den nasjonale forskningsetiske komité for medisin og helsefag, jf. forvaltningsloven § 28 flg. Eventuell klage sendes til REK Nord. Klagefristen er tre uker fra mottak av dette brevet.

Vennlig hilsen

May Britt Rossvoll
sekretariatsleder

Monika Rydland Gaare
førstekonsulent

REGIONAL KOMITÉ FOR MEDISINSK OG HELSEFAGLIG FORSKNINGSETIKK, NORD-NORGE
REK NORD
Besøksadresse: TANN-bygget, Universitetet i Tromsø, N-9037 Tromsø
telefon sentralbord 77 64 40 00 telefon ekspedisjon 77620758 e-post: post@helseforskning.etikkom.no

Nasjonalt senter for distriktsmedisin

SAMTYKKE

Bruk av lydopptak fra teamets to debrifingssituasjoner (samtalene om treningene) kan fritt brukes til forskning ved Universitetet i Tromsø.

Anonymitet forutsettes ivaretatt. Sletting er mulig hvis nødvendig. Oppbevaring vil skje utilgjengelig for uvedkommende

Alta Helsesenter, Dato:……

Navn med leselige blokkbokstaver og signatur:

1. ……sign:……
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Prosjektleder Helen.Brandstorp@uit.no Nasjonalt senter for distriktsmedisin
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