Interaction: 'Samhandling' Under Risk

A Step Ahead of the Unforeseen

Glenn-Egil Torgersen (ed.)

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Preface

This scientific anthology elucidates new views on emergency management and understanding the unforeseen in society and learning processes by introducing the concept of *samhandling*, a Norwegian term that connotes interaction, collaboration, cooperation and coordination in one word.

Interaction: "Samhandling" Under Risk. A Step Ahead of the Unforeseen has a background in several research projects: Military Pedagogies (2004–2008*)*, Leadership, Collaboration and *Samhandling* in Flexible Organizations (2006–2010), respectively resulting in two scientific anthologies and, not least, the research program "Educational Basic Research on the Unforeseen" (2010–2015). The latter program resulted in the research-based anthology *Pedagogy for the Unforeseen*, a collaborative work by 20 scholars (Torgersen, 2015, see Chapter 1). In connection with these projects, there have been countless presentations at research conferences around the world, including the Conference for the Society for Risk Analysis – Europe (SRA-E) and the Congress of the Nordic Educational Research Association (NERA).

One of the most important findings reported in *Pedagogy for the Unforeseen* was the identification of several generic competence structures that must be developed to cope with unforeseen events in all its phases. The various generic competence structures were assembled in a didactic model called *The Strategic Didactic Model for the Unforeseen* (SD-UN). A key competence structure was *samhandling*. The present anthology elaborates on what this *samhandling* competence can be and how this competence can be developed.

After the scientific anthology *Pedagogy for the Unforeseen* was launched on the United Nations' International Day of Peace (September 21, 2015) at the House of Literature in Oslo, my research group and I immediately began investigating the scientific contexts of the research we had completed during the last decade. In this work, the following people contributed in particular: Professor Herner Saeverot (Western Norway University of Applied Sciences), Associate Professor Trygve Steiro

(Norwegian University of Science and Technology), Professor Torbjørn Rundmo (Norwegian University of Science and Technology), Researcher Tone Cecilie Carlsten (Nordic Institute for Studies in Innovation, Research and Education), Lieutenant Colonel Bjørn Eidsvaag (Norwegian Defense University College), Associated Professor Leif Inge Magnussen (University of Southeast Norway), Lieutenant Colonel Marius Herberg (Norwegian Ministry of Defense) and Assistant professor Gila Hammer Furnes (Western Norway University of Applied Sciences). After several weeks of theoretical and practical analyzes, we were left with the following research question:

> What are the basic structures of the concept of *samhandling* under risk and how can *samhandling* be created when conditions are unpredictable?

This research question became the start of the research project "Interaction: *Samhandling* Under Risk. A Step Ahead of the Unforeseen". To go one step further within such a complex issue, it was necessary to gather some of the most prominent researchers working on the topic of *samhandling*, embracing several disciplines, methodological perspectives and sectors. This resulted in 28 research studies conducted by a total of 32 contributors. They are all presented in this anthology.

This scientific anthology conveys new knowledge that forms the basis for a new view on strategic, emergency-preparedness management, and understanding of the unforeseen in society and in learning processes. The approach is interdisciplinary but has a particular focus on disciplines such as pedagogy, psychology, health sciences, military science and organization and management, applied in various industries and sectors related to practical examples, experiences and challenges. The book's primary target group is the scientific research community within these disciplines.

Originally, this anthology was intended to be written in Norwegian, which would mean that it would only be accessible to Scandinavians. The reason for this was that we found the Norwegian word *samhandling* closely linked to cultural aspects. The Norwegian word *samhandling* equates with English terms like "interaction", "social interaction", "collaboration", "cooperation", "coordination", "join forces with", "joint

action", "teamwork" and "working together" (see also Chapters 1 and 2). If we had translated *samhandling* to one of the English equivalents, we believe that some nuances would have been lost in translation. However, thanks to conference participants at The Society for Risk Analysis Europe (SRA-E) in Maastricht 2015, Bath 2016 and Lisbon 2017, there was a strong request that our work should be written in English and therefore made accessible to a wider audience. This clearly has its advantages. But *samhandling* is also closely linked, as we see it, to a Norwegian and Scandinavian context that readers should be aware of and reflect upon. However, these nuances are also the very reason why the international research community wanted to know more and participate in a discussion about this context. I therefore hope for understanding for our choice of using the Norwegian word *samhandling* more or less throughout the entire anthology. At the same time, I am optimistic that this choice may contribute to further interest, conceptual discussions and research on nuanced and basic processes connected to the topic of *samhandling*, of benefit for all worldwide. An example can be the conceptualization made in Chapter 28, where the concept *samhandling* is linked globally and discussed in light of the corresponding Japanese expressions.

Due to our global perspective, additional international research journeys and field studies were also conducted to gain insights into how different countries, cultures and businesses perceive and relate to phenomena such as *samhandling* and the unforeseen. In particular, I will mention the stay in Japan in the autumn of 2017, including visits to the National Defense Academy (NDA) in Yokosuka (Obaradai). I would like to express my sincere gratitude to Professor Hitoshi Kawano, Dean at the NDA, for very useful and professional contributions. Furthermore, I would like to highlight visits to safari guide training schools in Kenya and Tanzania, with particular focus on learning processes related to the interpretation of hazard signals in nature and measures for unforeseen events in the field.

This anthology may be read in any order, but because several concepts and models are commonly used throughout the anthology, such as *samhandling*, "interaction", "unforeseen", "SUR structures" and "Bow-tie model/UN SUR model", I suggest it is a good idea to start by reading Chapters 1 and 2. The last chapter, Chapter 28, aggregates the findings

from the other chapters and suggests an overall model and definition of "SUR structures".

The project has been administered by the Norwegian Defense University College (NDUC) and has been part of the basic research program "The Unforeseen". I have been the leader and editor of the project, with very good support from and interaction with Herner, Tone Cecilie and Bjørn, as well as the rest of the contributors to this anthology. However, special thanks must be given to Trygve Steiro at the Norwegian University of Science and Technology, for the overall effort that he has contributed, both professionally and editorially along the way.

With a total of 32 researchers as well as an administrative support group, both at NDUC and the individual researchers' institutions, this has not only been a continuous and hard-working research group. We have become a solid research community, with enormous enthusiasm, motivation and commitment to basic research. In addition to almost daily contact with each other, there have been several research seminars with presentations and discussions of findings as part of the quality assurance. Each contributor has also participated in conferences and other research dissemination within their own fields of study, discussing their results with their own research and academic environments along the way. As such, this work is the result of favors from all researchers and institutions involved.

All of this has been carried out in a good, "old-fashioned", basic research spirit, without commercial motives or interference in the choice of research topics. Our slogan has been:

Basic research for the benefit of society – SAMHANDLING under risk:
There is no doubt that the message of the book is more relevant than ever …!

With this slogan, we have suggested a benefit to global society. Therefore, I give my sincere thanks to all researchers, supporters and institutions who have had faith in this project throughout the last three years.

An anthology like this is dependent on many. Thanks to the publisher, Cappelen Damm Akademisk, and the publishing editors Dorte Østreng and Simon Aase, who have contributed with their expertise and professionalism throughout the work on manuscripts. Thanks also to the

publisher's proofreaders and reviewers who have contributed to quality assurance of the chapters along the way. In addition, several in our scientific network, both nationally and internationally, contributed with academic input and critical feedback to our findings and texts throughout the three years, for whose efforts we are sincerely grateful. Furthermore, we thank our students, at both bachelor, master and PhD levels, who have contributed to discussions and provided feedback along the way.

I believe that our project work and this anthology can, at least, contribute to a new way of thinking in strategic preparedness management and corresponding subject areas, with particular emphasis on developing interpersonal competence to meet unforeseen events in all their forms.

Obviously, the anthology does not provide exhaustive answers. Nevertheless, I hope that it may serve as a stepping stone towards providing some principles for a way of thinking that can contribute to reflection on existing practices, and, not least, encourage further research. We trust that readers do not stop with our words and discoveries but actively draw on their own perspectives, experiences and findings, to get yet another step closer to how *samhandling* may work best when it counts the most.

Finally, as was underlined in *Pedagogy for the Unforeseen* (p. 7, my translation):

> The Unforeseen (UN) affects everyone in one way or another, both in earlier times, here and now, and in the future. Therefore, my main message is that everyone should develop a relationship to the UN and should also, in their own way, try to prevent dangerous and unwanted situations from occurring, while at the same time seeing opportunities for learning and development in unforeseen and spontaneous situations that occur along the way, both in teaching and in the rest of the world.

This book is dedicated to you all, and all of us who have contributed hope that the book, directly and indirectly, may contribute to better *samhandling*, both in general and when it counts the most, and to knowledge, peace, love and safety in society.

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Oslo/Tistedal, May 2018
Glenn-Egil Torgersen

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This research focuses on the concepts and challenges involved in considering *samhandling* as a separate phenomenon in general and in light of competence and under unpredictable conditions in particular. This is important for learning and improvement processes, including educational and didactical models for "*samhandling* under risk" (SUR).

Samhandling Under Risk (SUR) – Theoretical Foundation as a Common Frame of Reference

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Abstract: The main objective of this chapter is to clarify some key and overall theoretical and conceptual frameworks underlying the research project "*Samhandling* Under Risk" (SUR), as discussed in the various chapters of this anthology. The overall research question is: What are the basic structures of the concept of *samhandling* under risk and how can *samhandling* be created when the conditions are unpredictable? This chapter explains in particular the terms "*samhandling*" (SAM), "the Unforeseen" (UN), "Risk" and "SUR structures". Furthermore, these concepts are explored more deeply in relation to each other, which also frames the main approach of the anthology. As a basis, a specific understanding of "The Nature of the Unforeseen", an expanded and customized Bow-tie Model, as well as a clarification of the boundaries enclosing the research field are compared to traditional risk analysis and training in what is already known and in dealing with probable threats. Although the individual studies reported in this anthology also have their own specific angles regarding these concepts and models, they have nevertheless been based on these. The core focus is also on learning in the light of organizational learning and SUR. The boundaries, challenges and the anthology's focus on learning are also expressed in the more general and overall question: How can we as a society prepare ourselves for the unforeseen, the events and threats at the outer reaches of what we have trained for? A more in-depth explanation about the background of this research project is also given in the preface of the anthology.

Keywords: *Samhandling*, interaction, unforeseen, preparedness, resilience, risk, training, organizational learning.

Background: Problem and purpose

This anthology focuses on *samhandling* (which equates with "interaction" or "collaboration") under risk and unpredictable conditions (SUR), when little or nothing goes according to plan. Examples of this may be the terrorist acts that occurred in Norway on the 22nd of July 2011, the tsunami in the India Sea in 2004, nuclear accidents, cyber attacks or unwanted incidents in the health service. Crises like this hit suddenly and unpredictably, and the risk is high. In view of societal security and preparedness, threats and events in the outer limits of what has already been prepared for and trained must also be handled. However, both experience and studies show that it is often the interaction (*samhandling*) itself which fails in such situations (Bammer & Smithson, 2009). One of the main findings from the studies reported in the anthology *Pedagogy for the Unforeseen* (Torgersen, 2015) was that *samhandling* is one of the key processes for both the prevention and handling of unforeseen threats and incidents. At the same time, future research on societal security should not focus purely on previous crises or events. Next time a crisis emerges, it may be in a completely different area that requires a completely different type of knowledge, or other actions and reactions.

The present anthology is based on *samhandling* as a phenomenon under risk and unpredictable conditions. A challenge that this book aims to address is the creation of a bridge of competence between *samhandling* theory, the unforeseen and practical challenges that some industries and sectors may face under risk and unpredictable conditions. The question is thus, whether there may be some basic skills or knowledge structures that different organizations should emphasize in their competence development in order to be better at interacting (*samhandling*) under such conditions. The book's overall research question is as follows:

> *What are the basic structures of the concept of* samhandling *under risk and how can* samhandling *be created when the conditions are unpredictable?* Or, in a more concentrated form: *What should be emphasized in order to achieve* samhandling *under risk and unpredictable conditions (SUR)?*

Based upon this question, the anthology tries to drill in *samhandling* as a phenomenon related to different industries and disciplines. The purpose

of this work is to find out if any basic relational processes exist that can give us insight into being better at *samhandling* under risk (SUR), thus forming the approach to a more general, SUR-oriented way of thinking. The approach is interdisciplinary but with a special focus on disciplines such as pedagogy, psychology, health sciences, military science and organization and management, and further applied to various industries and sectors related to practical examples and challenges. In this work, a wide range of research methods have been used.

One way to go is to look back, learn from mistakes made in previous crises and unwanted events. This will provide an important competence basis. However, it is also necessary to try to develop new and other ways of thinking and action options that can be included in the overall competence basis. This is necessary to meet future crises and unforeseen events that can take new forms and frameworks, in completely new ways and different areas than before. Here, there is an improvement potential in relation to today's readiness, but this cannot be achieved using simple and quick, short cut solutions.

Interaction: "Samhandling" Under Risk. A Step Ahead of the Unforeseen is intended to be a research-based contribution to such knowledge. We have seen, all too often, that both research and experience reports from accidents and serious events only investigate the depths of mistakes, weaknesses and deficiencies or what makes a success, to a limited extent. Then the results are usually characterized by general and overall descriptions of current phenomena, where the measures are quantified to be more or less of something, such as *more* and better training on *samhandling* and *better preparation* for meeting unforeseen events. However, *what* should be trained using *which* educational methods is often overlooked or taken for granted, as if there are solutions to this from before, that can be easily picked up and implemented in practice. This is not the case. Such knowledge must be developed step by step and *samhandling* under risk is a contribution to this process.

In other words, the contributions of this anthology attempt to investigate profound processes or forms of knowledge that underlie the phenomenon of *samhandling*, especially under risk and unpredictable conditions. These factors are referred to in this anthology as "structures".

The structures that we believe should be emphasized to develop *samhandling* under risk are referred to as "SUR structures". If we can identify any of these, it can provide better opportunities for developing knowledge in a more targeted and secure way, compared to developing the skills that are actually needed to be better at *samhandling* under risk.

The individual studies reported in the chapters of the anthology are based on such a foundation in their subject and problem areas, and present specific findings that can help these structures become clearer. In this way, they can form the basis for strategic leadership development, curricula and training plans, both specifically within the problem area and in general, related to the development of competence for SUR.

The final chapter in the anthology (Chapter 28) attempts to build more general and aggregated features of the SUR structures, primarily based on the different findings in the anthology, but also based on individual studies and findings. The aim is that these more aggregated SUR structures, together with the specific findings in the other chapters, can reveal what, in our view, should be emphasized to develop SUR oriented competence, both at individual, group and organizational levels. These structures must, however, be adapted, developed and integrated by the individual industry and translated into the tasks and challenges that the various industries specifically or potentially may face.

Frameworks: *Samhandling*, risk and the unforeseen

There are three key concepts that form a common frame of reference for this anthology. They are "*samhandling*", "risk" and "the unforeseen" or "unpredictable conditions". As a theoretical platform, the different studies in the anthology have been based on a common definition and understanding of these – as a starting point. However, that does not mean that the studies have been ruled by these. Understanding of concepts has formed a reference framework, as a research methodological approach, to channel this complex problem area into a manageable research area. Thus, each chapter has its own unique and nuanced understanding of

these concepts, adapted to the specific discipline, industry, and theoretical and methodological foundation. Current understanding beyond the general frame of reference is explained in the individual chapters, where it has been necessary to present the professional nuances in the best possible way.

The term *samhandling*

Generally speaking, theories of *samhandling* concern how relationships occur between people, what is needed for this to happen and what consequences this may have, possibly also with regard to technology, both on an individual, group, and organizational and social level. This may also include international (political) *samhandling* (Torgersen & Steiro, 2009, see also Chapter 2). The key issue is the consequences of such *samhandling*, or what is desired by the *samhandling*.

This anthology deals with *samhandling* in a more practical and situational framework than those found in general theories of social interaction, intergroup contact theory, intersubjectivity and symbolic interactionism, as we can see in the psychological and sociological interaction and interaction theories of, among others, George H. Mead (1934), Gordon W. Allport (1954), Herbert Blumer (1969), Alfred Schütz (2005), Peter Berger & Thomas Luckmann (1966), Émile Durkheim (2000/1895), Max Weber (Fivelsdal, 2002), Erving Goffman (1983) and last but not least, Robert Axelrod (1984; 1997). Such theories and models nevertheless underpin several of the chapters of the anthology, but it is not the purpose of this anthology to provide exhaustive descriptions of these.

In *Interaction: "Samhandling" Under Risk*, on the other hand, we focus specifically on knowledge and competence development related to the concept of *samhandling*, in the context of risk and unpredictable conditions, including more professions to solve common challenges. A similar link between *samhandling*, specific contexts and practice-oriented studies and cases is commonly referred to as "interprofessional cooperation" (Crawford, 2012; Barr et al., 2005). Studies of such complex phenomena require both close industry orientation, exploring the unique challenges of industry and their solutions, and interdisciplinary approaches. In this

anthology, we need to engage with the *samhandling* phenomenon in light of three thematic categories:

(1) Education and training (educational structures);
(2) Organization and leadership (organizational structures); and
(3) Industry-oriented actions and operations (operational structures).

The term *samhandling* (SAM) is widely used in Norway, both by politicians and researchers, in connection with societal security, various reforms and sectoral activities, such as emergency preparedness, health and education. Collaboration is also focused on in supranational networks, such as the United Nations and the Organization for Economic Cooperation and Development (OECD). At the same time, the concept of *samhandling* is used both at the organizational, group and individual levels in connection with strategic management, competence management and training, including technology structures. Collaboration is thus engaged in, in all sectors and at all levels, in relation to how organizations can prepare for and handle unforeseen events.

However, *samhandling* is not self-evident and it does not occur in a vacuum. *Samhandling* is developed and built up by underlying relational processes or structures, between people, organizations and technology. Confidence and reciprocity are examples of underlying structures which may be necessary for *samhandling* (Brown, 2016; Stanton, 2011; Torgersen & Steiro, 2009; Siegrist, et al., 2007; Fukuyama, 1995). However, many studies on *samhandling* focus on its occurrence under predictable conditions, where the outcome does not necessarily involve risk. Examples of this may be *samhandling* at an office or meeting, or well-planned exercises and scenarios in connection with training. But what if the *samhandling* takes place in a risky situation and the conditions are otherwise unpredictable? How do these underlying structures behave and which of them are the most important for *samhandling*? Can different structures have different meanings depending on the phase of the sequence of events – prevention phase, during the event and the recovery phase? Such basic questions are addressed in this anthology.

Relational ambition level and conceptual choice

In this book, we have mainly chosen to use the Norwegian word *samhandling* as a term. A meta-analysis reported in the book *Leadership, Samhandling and Education in Flexible Organizations* (Torgersen & Steiro, 2009, see also Chapter 2), showed that the Norwegian concept of *samhandling* has many shades of meaning and theoretical modes, as well as several practical aspects that distinguish the phenomenon of *samhandling* from other Norwegian concepts, such as *samarbeid*, *samvirke*, *samordning*, *samspill*, *koordinering* and *teamarbeid*. The differences between these are mainly at the relational level of ambition, where *samhandling* is considered to represent the highest level of ambition (see Chapter 2). This means that it fulfils several more underlying processes than the other terms. Similar shades of meaning are also found in the English terms "(social) interaction", "collaboration", "cooperation", "coordination", "join forces with", "joint action" and plain "teamwork" or "working together".

However, none of the different concepts, neither the Norwegian nor the English, may be classified in a uniquely-defined hierarchical system or taxonomy. Here it is not the word or term in itself that is most important. Rather, what is crucial are the underlying processes and forms of knowledge that are defined within the term. The underlying processes create the level of ambition and these are important for practice. However, many people make use of these words differently, causing misunderstandings and different expectations with regard to the content of the term and the practical implications. Therefore, it is necessary to be aware of the specific term's usage, not least where these concepts form the basis for competence development and concrete action under risk and unpredictable conditions.

Definition

In essence, we have assumed that the English word "interaction" represents one of the highest relational ambition levels. These English-language expressions equate, but are not identical in all cases, with the Norwegian term *samhandling*, as we have seen. Therefore, we have chosen to use the Norwegian verb although the book is written in English. We have also been encouraged to do this by our colleagues internationally, so

that they can also gain insight into the shades of meaning that we think are unique to the Norwegian concept of *samhandling* (see Preface). However, and we emphasize this, the choice has not been easy, as the English expressions in many cases correspond well. Nevertheless, we have chosen to do so, as it may generate further interesting academic and research discussions and analyzes when selecting terms for articulation of nuanced relational processes on complex phenomena (see SUR structures). For example, it may be associated with the development of curricula for training of specific skills in order to improve *samhandling* (see also Chapter 8), where specific areas of competence for training should be expressed and articulated in the plans as a basis for both planning, implementation and evaluation of human resource development. Another example of the need for such conscious and clarified conceptual use is the analysis, identification and conceptualization of specific experiences from events, which in turn form the basis for education and training.

As a starting point for most of the studies in this anthology, the following definition of *samhandling* is used:

> *Samhandling* is an open and mutual communication and development between participants, who develop skills and complement each other in terms of expertise, either directly, face-to-face, or mediated by technology or manually. It involves working towards common goals. The relationship between participants at any given time relies on trust, involvement, rationality and industry knowledge. (Translated from Torgersen & Steiro, 2009:130.)

In Chapter 2, the background of this definition of *samhandling* is elaborated upon. Here, the concept of *samhandling* is also explained and compared with similar words and expressions in English. Nevertheless, there will be some chapters that do not use the Norwegian word, primarily for academic reasons, where the English expression best fits the meaning of content in light of professional traditions and articulation. In some contexts, there will also be some mixed use, where the author has felt that it best corresponds to the academic message they intend to convey. In other words, the concepts of expression and choice of expressions in regard to relational processes are made consciously throughout the anthology, where the main objective is to convey professional shades of meaning

and individuality in the best possible way. Thus, it has not been the aim to use the Norwegian word *samhandling* purely for the sake of the word. Professional nuances and precision in communicating the message have been the main intention throughout the anthology.

Risk and the unforeseen

There are a number of definitions of risk related to different contexts and disciplines (e.g. see Aven, 2014:230–232). In a more general societal perspective, we also find the risk concept associated with uncertainty and dangers related to social development often with the term "Risk society" (see in particular Beck, 1992; Nielsen, 2015). In the present book, the concept of risk is used broadly, with special focus on various types of risks and situations, and the concept that conveys the particular nuance is used in the chapters as necessary.

By "risk" we mean the superset of this anthology, that the outcome of an event that develops under unpredictable conditions may be uncertain or unknown. In consequence, the outcome is unwanted, potentially a risk to life, property, material or other perceived valuables, in general or in a given context. An uncertain outcome can also provide potentially positive and desired consequences, for example, in relation to learning in an educational context, which is not scheduled in advance. In such situations, it is important to seize opportunities to leverage situations for learning and/or desired purposes.

There is a close connection between the terms "risk" and "the unforeseen" (UN). The term "Black Swans" (Taleb, 2007), is often used as a metaphor for surprising and unexpected events. UN in our context is an overarching concept, covering underlying concepts with different shades of meaning, such as the "unpredictable", "uncertain", "unexpected", "surprising", "unknown", "unimaginable", "improbable" and "random" (Kvernbekk et al., 2015:31). As the main framework of this book, the following definition is used to describe UN:

> A relatively unknown event or situation that occurs relatively unexpectedly and with relatively low probability or predictability to the individual, group or community that experience and handle the event. (Translated from Torgersen, 2015:30.)

The Nature of UN

"Relatively" is the core part of the definition. An unforeseen event will depend on viewpoint or perspective. An event could occur which is unforeseen for some actors (e.g. society or emergency services), but which is expected and planned for by others (e.g. the terrorist act on 22nd July 2011 at Utøya and the Government quarters in Oslo). An unforeseen event can be described in three different time dimensions: (1) Chronological time, where the event develops in a causal timeline from the first sign of danger (which is/is not identified or ignored), maybe via possible barriers, to an event (UN-0). This way of thinking means that, expressed objectively, there are no such things as unforeseen events – only signs of danger which are not perceived; (2) Messianic time, where the event is perceived to occur without any forewarning; and (3) UN-0, expresses the exact moment when the event occurs and the time immediately following. All events in the two last dimensions will be perceived as unforeseen – especially in UN-0 – as they happen immediately and surprisingly. Those who are experiencing the event will, though, as times elapses, gather information and connect it to former experiences that can indicate the event's content and possible further progress.

These three time dimensions are key bases for developing training for unforeseen events. When training for UN-0, it is important to focus on the ability to register details during chaos, also called "holding the space", for concurrent learning and sensing the present.

Degrees of the UN

These are based on Kerwin (1993) and Bammer et al.'s (2009:293) concept of "different knowns and unknowns" related to the concept of uncertainty, primarily from a categorical perspective, such as "known unknowns" and "unknown unknowns". However, in light of our perspective on UN, a more continuous principle is established. Unforeseen events can neither be "totally unknown" nor "totally known". However, an event may be close to the unknown from previous similar incidents. Brand new forms of cyber attacks can be an example (Boe & Torgersen, 2018). Such events can be found in a continuum between these fixed extremes, denoted by the "continuum field". Overall, an unforeseen event is divided into five

main categories or continuum fields – within a degree of (Torgersen, 2015): (1) relevance (to the target audience); (2) probability (of occurrence); (3) how known or prepared the target audience is in advance; (4) warning signs (scope/number); and (5) warning time (for given/identified warning signs and exercises, i.e. unannounced exercises). All of these factors will contain a different degree of the unforeseen. Thus, they are key factors as bases for the planning of learning and training for the unforeseen and can be included as part of the script and varied during training. UN-oriented training has three didactic approaches: (1) intended (known to the directing staff – unknown to the participants); (2) spontaneous (unknown to all, e.g. in a learning/training situation, to be productive elements); and (3) hybrid (planning for possible spontaneous and unannounced situations that are explored in other intended scripts).

UN, SUR and the Bow-tie Model

As a starting point for the analysis of the term "unforeseen" and unpredictable conditions, this anthology is based on a modified bow-tie model (Figure 1). The modified model was developed in Torgersen (2015), based on similar models used in traditional risk analysis (Cruz, Peters & Shevchenko, 2015). The present model focuses on three main phases related to the development of a serious event: preparation, identification
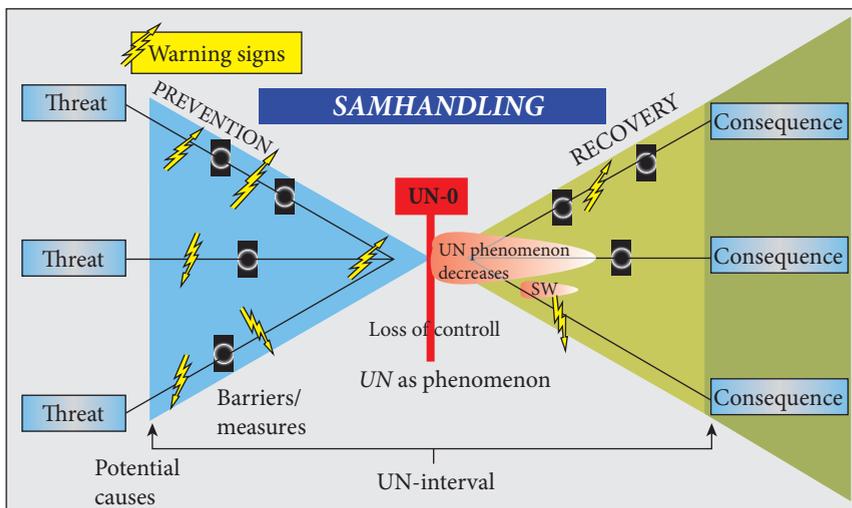
Figure 1.1 "UN SUR Model", Unforeseen (UN) – *Samhandling* Under Risk (SUR) Model.

of hazard signals and development of barriers (Prevention, Phase 1), occurrence of unforeseen event or accident (UN-0, Phase 2) and action/ stabilization (Recovery, Phase 3). In Torgersen (2015), different types of competencies were required in each of these phases and, thus, different educational arrangements for training and exercises for the three phases were also necessary. This model can also be used more generally to describe a course of events that does not necessarily involve risks with dangerous, harmful or unwanted outcomes. The model (Figure 1) is used as a common reference model in the anthology.

Temporality is an important relationship in the context of UN (Aven, 2014; Kvernbekk et al., 2015). This is because the UN crosses the time span between past, present and future. The model shows that if any threats pass the existing barriers, an accident or dangerous event may occur as a consequence (UN-0). This may in turn cause new events to occur (SW – Sidewinders), while others may be stopped or reduced through the actions or barriers that are imposed along the way. After that, the situation stabilizes again. After such events, experiences can be summarized and lessons learned that can be translated into new practices to prevent similar events later.

In the UN SUR Model in Figure 1.1, the UN is presented as a phenomenon of the temporal structure. Here, we call the time span from danger signals being recorded until the event is stabilized, a "UN interval". This range shows that "unpredictable conditions" do not only occur at one point but may occur and vary, taking different forms along the way, in a longer course of events within the range. Statistical thinking and probability theory tell us that the more information we gather in the phase before the event occurs, the easier it will be to predict correctly whether the event will occur or not. If the event is completely unpredictable and comes surprisingly and unrecognized, the UN interval will be shorter and extend from the time the event occurred until we have gathered sufficient information to feel we have understood or managed to stabilize the situation. An event is no longer unforeseen once it has occurred. However, the range can be drawn out because some events are of such a nature that they last for an extended period and because they can launch causal chains where the consequences are also unforeseen:

But the more overview and information we have about both the incident and the consequences, the more familiar and clear the situation will be, and then we move from the unforeseen to, if not the foreseen, then at least the familiar or something that has been seen before. Information that is tabled along the way during the event can thus contribute to the development of well-considered hypotheses about the immediate future of the event, which is, of course, particularly important in cases where we must learn quickly. In narrative theory this is called "memory of the present". (Translated from Kvernbekk et al., 2015:50.)

Thus, concurrent learning is essential for both coping with unforeseen events and utilizing *samhandling* for this.

The field model of SUR and UN

Figure 1.2 illustrates the main framework for SUR and UN research, and this book's approach is on vulnerability and threats related to situations and events occurring in the unforeseen field (outher field) and of what society and different sectors are already prepared for and have trained for (inner field). "Basic capabilities" means skills, procedures and equipment to prevent and handle events that are already known and which will occur with high probability. This must be at the base (as a foundation),
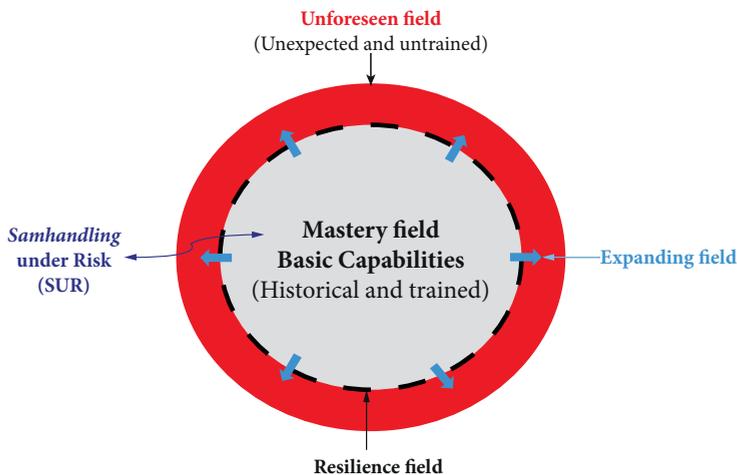
Figure 1.2 Core areas of competence development for *samhandling* under risk and unpredictable conditions (SUR).

trained and practiced, and the vast majority of sectors and emergency rooms have very good control over this competence. That's why they are successful in many cases.

On the outer edge of the mastery field lies *resilience research* (see Hollnagel et al., 2006; Hollnagel, 2014), which also aims to develop barriers and "resistance" towards unwanted events. However, the basic principle here is the focus on events that may occur, that is, assessments based on the frequency of past events and the likelihood of what might happen to the areas in which the assessments apply. There is no barrier or competence here to prevent or master events that are far beyond likely events.

Outside this field, in the outer boundaries of what society can be prepared for, lies the UN field. The core is to investigate challenges and what is needed to express the full potential of *samhandling* in unpredictable risk situations, especially when many actors are involved. These may be situations related to terrorism, natural disasters, nuclear accidents, school shootings, unwanted events in the health sector, but also in sudden challenges that occur at large gatherings of people, such as festivals and sports events. However, unforeseen events can also happen to smaller groups, individuals and in everyday life in general. There may also be situations that do not endanger life or material goods, but where development does not happen according to plan, for example, in the educational context.

This book aims to investigate and identify findings that can contribute to better expertise in the UN field. At the same time, the outer boundaries, DU field, will decrease. That is, what previously belonged to the DU field can eventually be incorporated into the inner fields. Formulated in another way, the goal is to practice the skills to handle unforeseen events and make *samhandling* at risk more familiar and internalized within the organizations, as part of the basic capabilities. This is illustrated in Figure 2 as the "expanding field", which should continuously expand in terms of competence for *samhandling* under risk and unpredictable conditions, until this becomes part of the mastery field, i.e. that which is already mastered, able to be managed and can be trained thoroughly and concretely. However, and this is very important, at the same time, the competency perspective must also be focused on in the development and training for events and situations that are in the UN field and the kinds of skill

structures and underlying processes that need to be trained should also be included, as this book particularly focuses on. There are, therefore, continuous development processes and competence exchanges in and between these fields. It is essential that these do not stop or stop working on the development of knowledge even if something is felt to be within the field of mastering. Competence structures for *samhandling* under risk and unpredictable conditions will be present in *all* fields, but are emphasized in the UN field. The chapters and findings in this book also include this approach. The last chapter, however, has a particular focus on competence structures for the UN field.

The unforeseen and organizational learning

A traditional view of the unforeseen is that there is always something unplanned, unexpected or unforeseen that happens and it is impossible to build competence and prepare for every possibility. This view is often found in experience reports in the case of accidents, terrorism and other serious incidents, and is then often linked to causality in the development of the event, for example, where danger signals have been overlooked or ignored. Thus, UN is used as one of the reasons why emergency preparedness or barriers failed to prevent the incident from occurring or developing unwanted consequences or injuries. In other words, "the unforeseen" may be used as a legitimate reason for the occurrence of events that it has not been possible to plan for or take action to prevent.

This book attempts to develop a somewhat different basis and approach to unforeseen events. The essence of this thinking is that, to some extent, it may be possible to develop skills to prevent and handle unforeseen events. In the scientific anthology *Pedagogy for the Unforeseen* (Torgersen, 2015), this view was also discussed, both through theoretical analyzes and empirical studies, that it is possible to take a step further in developing the competence to understand the nature of unforeseen events and, not least, that it may be possible to develop the understanding horizon and the competence basis for this. At the same time, it is imperative that this approach is not merely understood as the equivalent of having a toolbox with completed measures. Instead, it is a knowledge-based vision that

is based on continuous efforts, with both basic research and systematic competence development within organizations.

Some previous models for organizational learning have also attempted to incorporate unforeseen events. An example of this is the SECI model of knowledge creation in organizations (SECI: socialization, externalization, combination and internalization), developed by Nonaka & Takeuchi (1997). The core of this model is that competence in an organization is developed through a dialectic process (or spiral) between different actors, organizational levels and forms of competence, especially in the relationship between tacit and explicit knowledge. In a research interview, Ikujiro Nonaka expresses the following:

> "I use the example of a strategic planning method – the PDCA [Plan-Do-Check-Act] cycle. This cycle starts with planning, but in reality there is always something unplanned, unexpected, and/or unforeseen that happens. It is impossible to prepare a contingency plan for every possibility. In other words, ambiguity, chaos, fluctuation, and uncertainty are the given conditions that we have to cope with. This is why we propose the SECI spiral. Socialization is about empathizing with reality, and Internalization is about learning by doing. In short, the SECI spiral embraces ambiguity, chaos, fluctuation, and uncertainty. In addition, we even promote what we call "creative chaos" to further embrace diversity. Difference makes differences." (Kawamura & Nonaka, 2016:648).

However, such models focus on competence or knowledge in an overall perspective, with less interventional measures to develop concrete *samhandling* skills to meet unforeseen events. Conversely, this book tries to identify and concretize more specific areas of competence that can assist in developing *samhandling* skills under risk and unpredictable conditions, through the studies presented in the chapters and primarily based on a concept of communication at a high relational level of ambition (see Chapter 2).

Structure: Four sections of the anthology

The thematic approach to the anthology is both industry-oriented, sector-oriented and cross-sectoral. Most chapters emphasize the use of

concepts, problem areas and examples from within individual industries and agencies/sectors, but also draw lines from overall and cross-sectoral approaches. The anthology presents 28 research studies on SUR (including Chapter 1) and these are organized in four sections, with chapters that focus mainly on concepts and educational perspectives linked to SUR in Section I, chapters that focus mainly on organizational and leadership approaches in Section II, and chapters describing experiences from SUR in different sectors in Section III. Section IV consists of the last chapter (28), based on the main findings from all the previous chapters, and deriving the essence of a basic theory for SUR, showing general structures that should be emphasized to achieve SUR.

Section I (Educational *Samhandling* Structures, Chapters 1–9) introduces research that focuses on the concepts and challenges involved in considering *samhandling* as a separate phenomenon in general and in the light of competence and under unpredictable conditions in particular. This is important for learning and improvement processes, including educational and didactical models for SUR.

Section II (Organizational *Samhandling* Structures, Chapters 10–18), presents research focused on different aspects of leadership, innovation, learning and organization in relevant industries, agencies and emergency management, highlighting different research methods, aspects and shades of meaning regarding the concept of *samhandling* competence under unpredictable conditions.

Section III (Operational *Samhandling* Structures, Chapters 19–27), introduces research focused on findings and concretizing challenges in connection with the concept of *samhandling* in operational and practical relationships, different industries and sectors within society, including the defense sector, health sector, emergency preparedness and anti-terrorism.

Section IV (Theory Construction and The Way Forward for Further Research, Chapter 28), aggregates experiences and findings from all chapters of the book. A number of SUR structures are derived from semantic theory construction. These are described in an overall definition and visualized in a model, which in turn, can form the basis of a SUR theory. Extended learning and educational models will contribute to achieving

this. Further SUR research is needed and one of the ways forward is the global perspective, where different languages and cultures can contribute to a better understanding of SUR issues.

The division into the three sections entitled educational, organizational and operational is not only done to create three professional approaches or "lenses" regarding SUR. Neither is the sequence of these sections random. The sections and sequence are based on fundamental pedagogical thinking about forms of knowledge and cycles of competence and education in organizations (Torgersen & Steiro, 2009; Saeverot, 2017). The core is that learning perspectives, knowledge structures and articulation (identification and conceptualization) of underlying processes for more general, competence-related phenomena (in this case, *samhandling*) and the dissemination of these (Section I – Educational Structures) in a given context (in this case, SUR) should be of importance to the institution. That is, the choice of management strategies and organizational structures, and how competence development should be organized within an organization (Section II – Organizational Structures). It may also be important for practical exercises in a given context (Section III – Operational Structures). Experience and evaluation of this flow will then form the basis for adjustments and improvements in a new cycle. The corresponding cycle and competence gap is also found in the competence-based, quality assurance model "Competence Assurance Framework" (CAF) developed by Skjerve & Torgersen (2007). CAF is based on theoretical models of competence chains and planning of learning and competence evaluation in organizations.

In practice, however, both the sub-elements and structures in these three sections are interrelated and the sequence or flow is interdependent and integrated. The theoretical division into sections and sequence must not be perceived as absolute, causal or categorical. However, this theoretical model of thinking has formed the basis for the sequence of the sections of the book and the selection of the chapters in each section. Apart from Chapters 1 and 2 (in Section I) and Chapter 28 as the last chapter of the book (Section IV), there have been no special academic or educational reasons for the sequence of chapters within each section.

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CHAPTER 2

Defining the Term *Samhandling*

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Abstract: In this chapter we will demonstrate that *samhandling* has a different qualitative meaning from other similar concepts. The term "*samhandling*" is used by many organizations, researchers and textbook authors without clarifying the rationale for its use (Torgersen & Steiro, 2009). The word *samhandling* is built on a distinct cultural foundation. Therefore, we think it is necessary to describe Norwegian culture briefly, to enable the reader to understand the basis of *samhandling*. The chapter presents a definition of *samhandling* that was originally presented by Torgersen & Steiro (2009). *Samhandling* is distinguished from cooperation/teamwork by three core attributes which we can call the identity of *samhandling*: focus on complementarity, exchange and utilization of the participants' various skills, experiences, backgrounds and cultures, and coordination of these factors in efforts towards a common goal in a work situation or meeting. *Samhandling* has a higher relative ambition level than the corresponding processes covered by the expressions "collaboration", "cooperation" and "coordination". Increased complexity and relations between stakeholders call for a focus on complementary handling in action, that is, *samhandling*. The following competencies were identified in order for good *samhandling* to occur: trust, assurance, well-being, belonging, clarity, time and tolerance.

Keywords: *Samhandling*, interaction, collaboration, cooperation, coordination, training, unforeseen.

Introduction

In this chapter, we argue that the term *samhandling* plays a key role in meeting the unforeseen, both in predicting the unforeseen, during an impact and in the aftermath of an incident. "Interaction" is often used synonymously with traditional notions of "collaboration", "coordination" and "cooperation". Different terms can cover the same processes, and we can get the impression of "the emperor's new clothes". Conceptual change in itself does not, of course, automatically provide benefits. The term "*samhandling*" is used by many organizations, researchers and textbook authors, without clarifying the rationale for its use (Torgersen & Steiro, 2009). It is important to clarify what is meant by the concepts one uses. Clarification makes it easier to identify underlying factors and assumptions in the processes covered by the term, respond to them, and streamline processes in order to improve products or processes. We will find that there are several overlapping and complex meanings for these concepts, both in literature and in organizations. We will demonstrate in this article that *samhandling* has a different qualitative meaning from the other concepts. Since "interaction" has become a popular contemporary concept, there is a risk that it may be used as a sales pitch rather than a deliberate scientific justification. However, use of the term may also be related to new circumstances, such as technology, unpredictable and risky events, new organizational structures and the division of labor. These are linked to traditional processes, such as "teamwork", "cooperation" and "coordination". On the whole, this is perceived differently to the common understanding of the terms "cooperation" and "coordination". There is a need to choose other terms to cover this, despite any differences that are clearly identified or articulated.

The concept

The Norwegian concept of *samhandling*, has no direct equivalent in the English language and since *samhandling* is rooted in a Norwegian context, we have kept the word *samhandling*. The closest translation of *samhandling* is "interaction" or "joint action". Although these words do

not equate with "interaction" precisely, it is still better than the words and expressions that might otherwise be used for collaboration and group processes, such as "teamwork", "cooperation", "collaboration", or even "join forces with". There are many definitions for these words and they are relatively similar in terms of common knowledge, the focus being on people working together. For example, here is a definition of "collaboration":

> *"The collective work of two or more individuals where the work is undertaken with a sense of shared purpose and direction that is attentive, responsive, and adaptive to the environment."* (Beyerlin & Harris, 2004:18, sec. ref. Nemiro et al., 2008:1).

In this definition, the act and the situation are not as prominent as they rely on the interaction. In such classic definitions, the focus is "collective", i.e. to do something together (teamwork), either simultaneously or following one another sequentially, each contributing to the whole with his own specialty. In other words, a kind of collective effort. After examining several definitions of "team", we have chosen Assmann's (2008):

> *"Team is a small, multidisciplinary group composed for a common purpose and the members feel a common responsibility to ensure that they achieve results".* Assmann (2008:37).

Levin and Rolfsen (2004:69) have a similar definition, but focus more strongly on the relationships between team members:

> *"A team consists of at least two people who have face-to-face relationships, it must exist over a certain period of time, establishing emotional connections between members, they must have a common purpose and understanding of performance requirements, and must meet specific criteria for membership".*

These definitions describe, in principle, a form of organization rather than the process or work being carried out, but nevertheless suggest a process carried out by the "team", in which the collective and joint are central. Each individual makes a unique contribution to this holistic process, complementing the others involved in an interactive development process; individual participants not only contribute with their competence, they also develop and learn from each other during the process.

Technology or equipment is crucial in many complex tasks. This is how we perceive the term "interaction", which we believe describes something qualitatively different from the concepts of "cooperation" and "collaboration".

The cultural context for *samhandling*

The word *samhandling* is built on a distinct cultural foundation. Therefore, we think it is necessary to describe Norwegian culture briefly, to enable the reader to understand the basis of *samhandling,* making it easier to interpret and justify the relevance of the concept. Norway has a small economy with a lot of international contact. Historically, the country has been highly influenced by social-democratic values (Skorstad, 2002). Work and education have been seen as important means for participation of citizens, creating welfare and equal opportunities for everyone. The Norwegian model of organization is based on a belief in rules and regulations, but in an informal manner. In Norway, there has been a long tradition of tri-party collaboration, between the authorities, representatives of both employers and employees, working in close cooperation to develop organizations. The Norwegian Labor Act of 1978 can be seen as a result of this. This legislation places a great deal of emphasis on *medvirkning*, the Norwegian term for "participation". In Norway, this is perceived as a value in itself, worth striving for. In Hofstede's (1991) taxonomy, the Norwegian culture is characterized by low power distance and "feminine" values. Justice and caring for others are seen as important values. A central value in the culture is cultural difference is to limit power aspects (Skarpenes, 2007). In Norway, as in other Nordic countries, trust is seen as important and as a value in itself. Trust is seen as being more beneficial and having lower transactional costs than control. This has led international figures to advocate looking to the Nordic countries, in developing concepts for efficient economic practices (Covey, 2003). However, the Norwegian, or rather Nordic view of trust must be seen in relation to both historical and cultural contexts. *Samhandling* can be seen from a perspective of valuing interaction and trust, as a means of developing organizations and efforts in the community.

The technological context for *samhandling*

We see that technology play an increased role in modern society. The technological elements play an increasing role for *samhandling*. One example is the F-35 that has several advanced censors that enable it to communicate more efficiently with forces on the ground, with other aircrafts and ships (Figure 2.1). It collects and distribute information better and provide a better situational understanding and alignment which again create a better framework for decision making and in particular meeting the unforeseen.
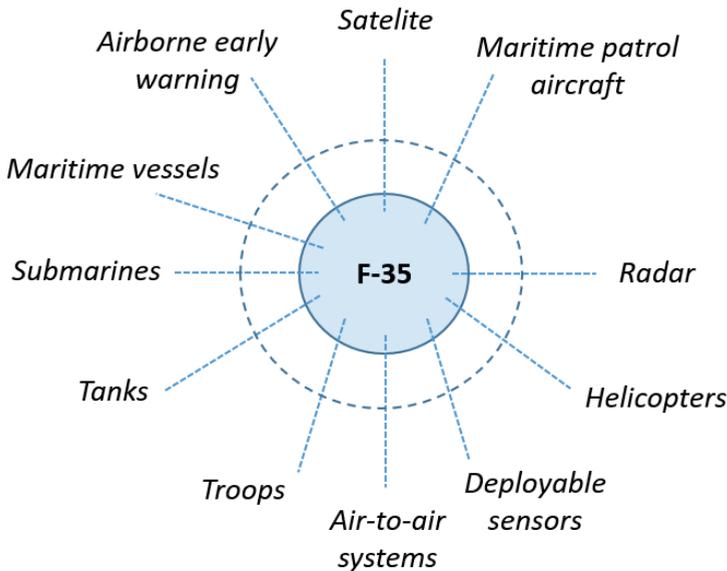
Figure 2.1 Illustration of the concept of F-35 (The Joint Strike Fighter) where *samhandling* is a holistic principle. Many actors are involved and there is flow of information between all actors (network).

In order to utilize the weapon platform; *samhandling*, decision making processes, plans and procedures need to be developed accordingly to use the capacity of the weapon platform.

Definition of *samhandling*

Based on a study of 15 organizations (Torgersen & Steiro, 2009), which we extracted from the aforementioned examples in table 2.1, we have developed this definition of *samhandling*:

"Samhandling is an open and mutual communication and development between participants, who develop skills and complement each other in terms of expertise, either directly, face-to-face, or mediated by technology or by hand power. It involves working towards common goals. The relationship between participants at any given time relies on trust, involvement, rationality and industry knowledge."
(Torgersen & Steiro, 2009:130).

Based on this definition, we see that *samhandling* is not a process that is solely reserved for management and leadership, but also takes place in production and common labor processes in which people work together. *Samhandling* is primarily a way to work or act. Central to interaction is "action", first and foremost a targeted action. This action is shared or exchanged expertise – often extensive, specialized, and used in a complementary manner (Steiro & Torgersen, 2013; Torgersen & Steiro, 2009). The focus on complementariness can also be seen in the work of Miles and Watkins (2007), supporting the notion that interaction is more than the sum of its parts. The definition also covers the use of technology. It covers the mediation of technology that assist humans like a shuffle. It also covers *samhandling* over distance by the use of Information and Communication Technology (ICT). It also includes *samhandling* between robots and robots and humans.

Another illustrative example is the foundation of the dome of Florence Cathedral, designed by Fillippo Brunelleschi between 1417–1434. Brunelleschi had the bricks laid in a herringbone pattern to support the inner dome. This is illustrated in Figure 2.2. King (2000) explains this as an action and reaction between the bricks. We can argue that they are the same bricks but assigned different roles, and that the action and reaction creates interaction, redistributing the forces of pressure outwards and downwards. This prevents the dome from collapsing inwards.

For *samhandling* to occur, one must also be aware that each participant contributes with their unique situational understanding ("shared situational awareness"), based partly on their own perspective and position in the organization, and their experiences, culture, knowledge, attitudes, emotions and job satisfaction, including recommendations to the interaction process (Sandeland & Boudens, 2000). In other words, while traditional collaborative and cooperative processes are, in principle, subject
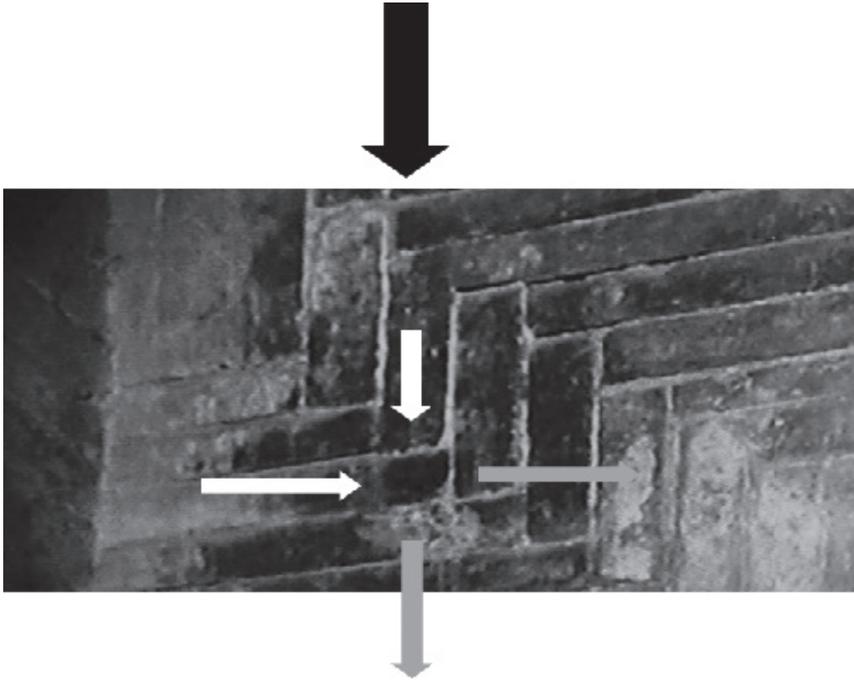
Figure 2.2 The herring-bone pattern of brickwork designed by Filippo Brunelleschi (1377–1446), for the inner dome of Florence Cathedral, which effectively divides the pressure downwards and outwards, avoiding an inward collapse (grey arrows). The white arrows symbolize action and reaction, thereby creating an interaction. (Photo: Trygve Steiro, 2017).

to collective actions in common vision and understanding, it is in the nature of interaction that different situational understanding is required. Furthermore, it is the process or "way forward" towards a common understanding or use of the various skills, such as problem-solving tools, to create a product or reach a goal, which is unique to the interaction process. Interaction subsequently includes an awareness of relationships and the participants' interactions or exchanges (Steiro & Torgersen, 2013). Martin, Nolte & Vitolo (2016) have investigated crisis management and underlined the importance of the fours Cs; communication, cooperation, coordination and collaboration (Figure 2.3).

Increased complexity and relations between stakeholders call for a focus on complementary handling in action, that is *samhandling*. We scaffold on the work of Martin et al. (2016), but argue in this article that *samhandling* is closest to the unforeseen.

The Unforeseen

Increasing
- ambitions
- complexity and requirements for the action
- diversity and satisfaction of basic relational processes / indicators (eg trust, involvement, learning, etc.)
- need for training and training
- effect for handling unforeseen events

SAMHANDLING
(Interaction)

Collaboration

Corrdination

Cooperation

Communications
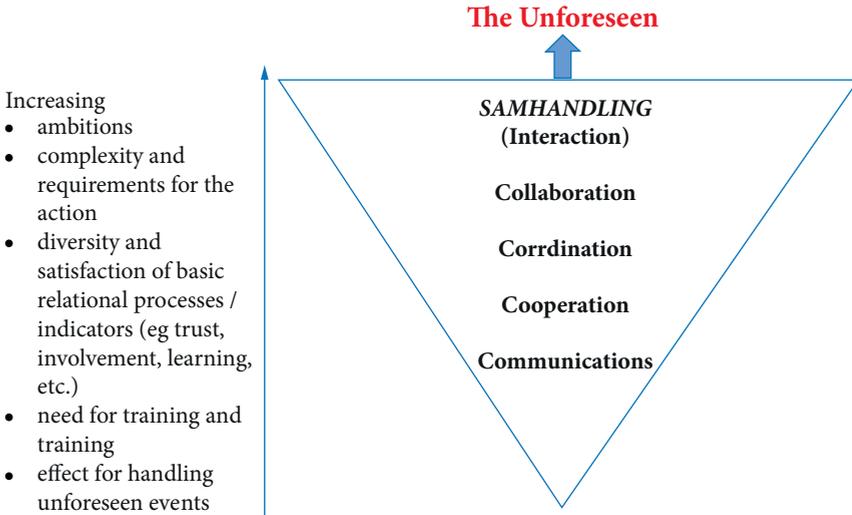
Figure 2.3 The relation between the unforeseen and *samhandling* [interaction], based partly on Martin et al. (2016).

Fifteen indicators of *samhandling*

In table 2.1, we have listed a number of underlying processes that are essential for effective interaction to take place, based on a study carried out by Torgersen and Steiro (2009). Of course, this does not mean that the indicators can be viewed as universal to all organizations and businesses. Each organization must choose to develop the conditions that are the most meaningful for their activities. However, the list may still be a good starting point for such development.

We believe that *samhandling*, with the points mentioned in the table 2.1 and a greater focus on activities and how they are performed within the interaction, constitute something that is broader and deeper than cooperation. However, these conditions do not constitute a direct cause and effect relationship in the phenomenon of interaction, but represent rather key assumptions and characteristics in our opinion. In other words, the organization should consider these factors in the development of interaction processes within the organization. Awareness and training in these underlying processes should be carried out, so that they become a natural part of the daily interaction processes. This can be achieved through formal training and concurrent learning.

Table 2.1 Key underlying processes that are important for effective interaction, based on the experiences of a variety of businesses and theoretical approaches (modified after Torgersen & Steiro, 2009:157).

Underlying process	Explanation
Coordination	Distribution and transfer of duties to the right place, with the right skills.
Complementary Expertise	Participants complement each other with their unique expertise.
The Ethical Aspect	This assumes that all participants have equal value and dignity, respect for each other and are willing to take responsibility in the interaction process.
Learning	Participants learn mutually from each other in the interaction process.
Interaction Training	Consists in practicing the above-mentioned conditions that are important for interaction.
Involvement and Awareness	Show a willingness and awareness of the need to contribute actively.
Mastering Tools	Be able to master various tools that are part of interactions, such as technology, equipment and other materials, in a professional and instructive way.
Organizational and Cultural Knowledge	Awareness about the organizational structure and culture of the organization; be aware of "what is".
Power Balance	Absence of dominance/power balance between participants, with a consciousness that the power structures and the experience of these may be somewhat different in an interaction process than in traditional teams and cooperation.
Precision in Communication	Participants express themselves clearly; the knowledge and use of presentation skills.
Role Awareness	Participants understand each other's roles, functions and distribution of tasks in interactions.
Professional Logic	Development of a common understanding of the language and industry jargon. This is not necessarily universal and objective but may have developed within the organization and only have relevance there. The participants must be made aware of the jargon, to enable good communication and establish a foundation for interaction.
Sense	Development of a kind of accurate understanding of the growth that takes place during a *samhandling* process, and what should be done.
Shared Situational Awareness	Participants are conscious of their own understanding and contribute to this in the process, creating a mutual understanding and focus which accumulates during the interaction process.
Trust, transparency and confidence	Participants experience confidence in each other, trust each other and are able to give of themselves.

The identity of *samhandling*

Activity Theory or Business Theory emphasizes that learning and development in humans occur in the interaction between people and their environment. Jean Lave and Etienne Wenger (2003) have developed perspectives on learning, and stress that learning occurs through participation in a community of practice. Yrjö Engstrom (1999) links this more closely with relationships and processes in organizations in general. The core of this thinking is action ("human activity") and interaction (here understood as *samhandling*) between the individual, the other participants and the environment they are operating within. In other words, activity theory is concerned with the interaction and the processes that occur in and during a business operation or action. In this theory, it is clearly stated that the various participants complement each other in the overall development process. This means that each individual contributes something unique. In activity theory, we find clear traces of complementary perspectives tied to both learning and the production of something. High-quality knowledge is a critical resource of competitive advantages, which relates the concept to *samhandling*. The less standardized the outcome is, the greater its basis on "tacit knowledge". "Tacit knowledge" can be defined as knowledge based on intuition and experience (Polyani, 1963; 1967). Nonaka et al. (2001) adds that knowledge is developed through interaction between tacit and explicit knowledge, and that knowledge development thus consists of one "… continuous, self-transcending process…" (Nonaka et al., 2001:15–16). In this process, they claim that the boundaries of the old self are exceeded so that a new self is created, and that this occurs by acquiring a new context, new knowledge and a new world order (Prigogine, 1980, in Nonaka et al., 2001:17). At the same time, the boundaries between one's self and others are exceeded as knowledge development occurs through interaction between individuals, and between individuals and their surroundings (Nonaka et al., 2001:16). Furthermore, the authors claim that it is necessary to have a context in which knowledge can be created. With regard to the unforeseen, this is a crucial factor, which is also covered in the definition of *samhandling* (Torgersen & Steiro, 2009). Trust can be a regarded as a requirement that allows *samhandling* to function as expected. Trust increases the degree of knowledge exchange (Tsai & Ghoshal, 1998), also making it more

likely that the receiver will make use of this expertise (Lewin et al., 2004). All this is highly important for good *samhandling* to occur.

In the definition, we see that *samhandling* is a process that is not only reserved for management and leadership but also occurs in production and common work processes, where people work and act together. "Collaboration" is primarily a way to work or act. This includes "coordinated actions" (see for instance Dale, 1999). In "coordinated actions", comprehensive and specialized skills are shared or exchanged by participants, which complement each other. Therefore, it is reasonable to use the term "action competence" to refer to the skills needed to contribute in a collaborative effort. Furthermore, interaction depends on both individual characteristics and cultural components – and an awareness that diversity of expertise is necessary for interaction. Formulated more specifically, we can say that dealing with diversity is a skill. The lack of diversity adversely affects the effectiveness of complementary expertise. *Samhandling* is distinguished from cooperation/ teamwork, by three core attributes, which we can call the identity of *samhandling*:

- focus on complementarity,
- exchange and utilization of the participants' various skills, experiences, backgrounds and cultures,
- coordination of these factors in efforts towards a common goal in a working or meeting process.

In practice, this means that *samhandling* is built and developed on a common understanding, with different skills and knowledge contributed and exchanged during the working process. *Samhandling* is both a mind-set and a working method. In sum, *samhandling* involves strategic measures that must be planned and organized, and included in the organization's strategic business plans. The goal is "efficient" *samhandling*. However, we do not distinguish between "effective *samhandling*" and *samhandling*. If a situation or workplace has developed interaction in practice, then "efficiency" is already a part of its nature. However, "efficient" is often used in everyday speech and strategic terms, usually to emphasize that a measure is effective and that it helps to achieve set objectives and results in a satisfactory manner. Consequently, we have incorporated "efficient"

samhandling into our discussion of the term *samhandling*. "Effective" *samhandling* is identified with the following competencies, four of which are identified in Torgersen and Steiro (2009) – namely trust, assurance, well-being and belonging. Trust is essential. Based on recent research, literature and feedback from lectures, some additional competencies have been identified and we present them in table 2.2. They are clarity, time and tolerance. On the basis of this, each organization needs to develop more specific criteria for "effective" *samhandling*.

Table 2.2 Competencies for *samhandling* and sources of influence.

Competencies for *samhandling*	Sources of influence
Trust (Norwegian word *tillit*)	Torgersen & Steiro (2009)
Assurance (Norwegian word *trygghet*)	Torgersen & Steiro (2009)
Well-being (Norwegian word *trivsel*)	Torgersen & Steiro (2009)
Belonging (Norwegian word *tilhørighet*)	Torgersen & Steiro (2009)
Clarity (Norwegian word *tydelighet*)	Weick (1987), LaPorte & Consolini (1991), Weick & Sutcliffe (2001), Løfdali (2014), Steiro, Johansen, Andersen & Olsvik (2013), Fredriksen & Moen, 2013, Eggen & Nyrønning (1999), Simensen (2005), Leitao (2010)
Time (Norwegian word *tid*)	Weick (1993), Steiro et. al. (2013), Steiro & Saksvik (2018), Chapter 22 in this book.
Tolerance (Norwegian word *toleranse*)	Kant (1795/1991), Derrida (2005a; 2005b; 2000), Torgersen & Steiro (2009), Steiro & Torgersen, 2012, Steiro et. al. (2013), see also Steiro and Torgersen (2018), Chapter 10 in this book for further elaboration regarding tolerance.

Conclusion

Samhandling describes something that is completely different from "collaboration". It has a deeper meaning which is more focused on interaction, complementary skills, and competencies and how to utilize them. *Samhandling* can be beneficial for occurrences and accidents, as illustrated in the Bow-tie in Chapter 1. However, this chapter does not provide a standard formula for organizations to develop *samhandling*. Each organization needs to conceptualize this term individually. A definition of *samhandling* is a recommended starting point. However,

this chapter presents a foundation that could be useful. In Chapter 14 (Steiro & Torgersen), 2018, relational aspects regarding *samhandling* are presented and discussed further.

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Is It Possible to Prevent Unforeseen Events?

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Abstract: An unforeseen event may be defined as something that happens suddenly and unexpectedly. Such events are seldom the result of an organisation's operational planning, but they can be side-effects of such planning. An unforeseen event may have either positive or negative consequences. This chapter aims to discuss if it is possible to prevent unforeseen events. The major focus is on analysis and prevention of unforeseen events with negative consequences, such as accidents, catastrophes and acts of terror. Such events often take place in complex systems, and failures of appropriate organisational interaction and communication among participants with complementary competence in such systems may contribute to unforeseen events. Risk-analysis methods and tools based on energy-barrier models, causal sequence and process models, as well as information-processing models are presented and their applicability to the prevention of unforeseen events is discussed. This also includes the Bow-tie approach, as well as other approaches which take into consideration organisational factors and social interaction (*samhandling*). The conclusion is that unforeseen events can be prevented. However, in the aftermath of the implementation of safety and security measures, it is not possible to know which events they prevented, or to obtain knowledge about their efficiency. An additional strategy for prevention of unforeseen events with negative consequences is proposed.

Keywords: *Samhandling*, interaction, emergency-preparedness, training, risk analysis, organisational learning, unforeseen.

Introduction

This chapter aims to discuss if it is possible to prevent unforeseen events. The major focus is on analysis and prevention of unforeseen events with negative consequences, such as accidents, catastrophes and acts of terror. Such events often take place in complex systems, and failures of appropriate organisational interaction and communication among members with complementary competence in such systems, may contribute to unforeseen events. Risk-analysis methods and tools based on energy-barrier models, causal sequence and process models, as well as information-processing models, are presented and their applicability in the prevention of unforeseen events is discussed. This also includes the Bow-tie approach, as well as other approaches which take into consideration organisational factors and social interaction (Norwegian *samhandling*). The conclusion is that unforeseen events can be prevented. However, in the aftermath of the implementation of safety and security measures, it is not possible to know which events they prevented, or to obtain knowledge about their efficiency. An additional strategy for prevention of unforeseen events with negative consequences is proposed.

An unforeseen event may be defined as something that happens suddenly and unexpectedly. Such events are seldom a result of an organisation's operational planning, but they can be side-effects of such planning. An unforeseen event may have either positive or negative consequences.

Unforeseen events with positive consequences are perceived to contribute to improvements in quality of life, well-being and happiness. We prefer them and like them to happen and consequently, preventing such events is not an issue. However, the consequences can also be negative and precautionary action is often demanded to mitigate these. Kvernbekk, Torgersen and Moe (2015) restrict the concept of 'unforeseen events' to events only leading to negative consequences. Accordingly, this chapter's focus is on unforeseen events with negative outcomes, such as accidents, catastrophes and acts of terror.

To reduce the severity of consequences when an accident, catastrophe or act of terror has occurred is, of course, a high-priority community task. High priority of emergency preparedness and crew training may improve

the handling of foreseen as well as unforeseen events. It aims to reduce the level of loss and damage and stabilise the situation after such events. It is necessary for society to give priority to loss reduction. However, this is not relevant when discussing the prevention of unforeseen events.

A starting point for further discussion could be to conceptualise events with negative consequences as being more or less unforeseen. Events may be similar to those which have occurred on previous occasions, but the exact point in time for the future occurrence could be difficult to predict. It is perceived to be an unexpected event when it happens, because nobody had foreseen this occurring. When it appears, the severity of the consequences may be the same as the previous occasion, but it may also be that the consequences differ somewhat from those anticipated by examining previous experience. To separate such events from unforeseen events, they may be defined as 'unexpected events'. What characterises these events is that it is possible to prevent, as well as stabilise, their consequences by emergency preparedness, crew training and other countermeasures aimed at loss reduction.

A truly unforeseen event would be one that has never happened before. Ordinarily there will not be any past experience about the characteristics of the specific event or the causal factors that may have contributed to its occurrence. Consequently, it would be impossible to give examples of such an event before it happens and there is also very little knowledge about the probability of occurrence and severity of consequences if it should occur. Is it possible to identify and prevent events even though there is no way of imagining what they could be?

The suitability of risk analysis methods for identifying future unforeseen events

In the prevention of accidents, catastrophes and acts of terror, the main approach has been to examine and learn from the past through accident investigation. Examining 'causal' factors of past accidents and catastrophes by applying some type of accident analysis method may make it possible to put countermeasures in place to thwart these factors, preventing the same type of accident from happening in the future.

While accident investigation only aims to examine causal factors in accidents that have already taken place, risk analysis also concerns the analysis of potentially-harmful hazards, irrespective of whether or not an accident has already taken place, based solely on the existence of potentially-harmful forms of energy or other possible factors which may have negative consequences if they get out of control.

Several data sources in addition to, or in place of, past accidents may be necessary to conduct a risk analysis (Rausand & Utne, 2009). This includes technical data about the amount of potentially-dangerous chemicals and forms of energy, available devices on machines, etc. Operational data, as well as data on risk sources, reliability and maintenance routines may also be included. Exposure is taken into consideration when assessing the 'level' of risk as part of such an analysis. Other data sources may be meteorological data, data on the possibility of natural catastrophes and the possible environmental consequences of an accident or catastrophe. Social conditions and political issues may also be important when analysing the risk of acts of terror.

A problem that emerges when dealing with unforeseen events is that opportunities of learning from past experience may be scarce compared to the prevention of accidents which occur more or less repeatedly. Could it be that risk analysis methods and tools are primarily aimed at examining the 'level' of risk when a potentially-harmful risk source has already been identified and that they are less suited to identifying new and unknown risks?

Risk analysis methods may be divided into: *causal sequence and process models* (Heinrich, 1959; Weaver, 1980; Gibson, 1961; Primrose, Bentley, van der Graaf & Sykes, 1996; Rasmussen & Svedung, 2000); *human reliability and information-processing models* (Hale & Glendon, 1987; Rasmussen, 1981; Leplat, 1984; Hale & Hale, 1970, Swain & Guttmann, 1983); and *energy-barrier models* (Haddon, 1980; Reason, 1994, 1997; Primrose, Bentley, van der Graaf & Sykes, 1996). A general problem with the available risk analysis tools is that they are only perfunctorily associated with a sound theoretical basis. Theoretical perspectives, accident models and practical risk analysis tools are often confusingly mixed-up. Models are defined as "theories" and risk analysis tools as 'models'. The majority of tools are based on models that do not satisfy the demands

for designation as a theory. Due to these problems, the current discussion will incline towards discussing risk analysis without distinguishing clearly between theories, models and tools.

Process and causal sequence models

In process and causal sequence models, accidents, as well as other events leading to negative consequences, are perceived to be 'end results' or negative outcomes of a sequence of events. Thus, these models place emphasis on events happening in a chain of events, where causal factors and effects are defined by their place in a temporal and time-space continuum of events and conditions.

In the domino approach (Heinrich, 1959), an accident is perceived to be the end result of a temporal chain of events consisting of the following dominoes: social and environmental factors, personality, risk behaviour, an event with negative consequences, and injury or loss (as the end result). If one of the dominoes preceding the injury falls, those following it will also fall. The domino theory forms the basis for risk analysis tools based on modelling the process leading forward to a loss of control and injuries.

Several core analytical techniques or tools have been based on a process model approach. Event and Causal Factor Charting (ECFC) is a tool for charting the sequence of events in a graphical display. Conditions, as well as primary and secondary event sequences 'causing' an accident or catastrophe, are examined. Event and Causal Factor Analysis (ECFA) takes this method a bit further, to determine the causal factors by deductive reasoning, identifying which events and conditions were necessary for an injury to occur. Root Cause Analysis (RCA) is a causal sequence model which is also defined as a core analytical technique. So-called TIER diagrams are often used as part of the analysis to identify root causes, to draw decisive conclusions about why the negative event happened. (DOE, 1999; see also Sklet, 2002)

Process and causal sequence models have been criticised because organisational factors in accidents have not been taken into consideration. The first to address this was Weaver's (1980) modified domino model. In this model, direct causal factors are separated from operational errors.

Introducing the latter type of errors recognises the role of management and organisational factors in a chain of events. SHE-management models and analysis methods have further developed the focus on such factors. Another critique of the domino theory was the focus on one, single, temporal chain of events, excluding the possibility of examining communication processes and social interaction. Benner's (1975) process theory takes into consideration that there could be several participants and parallel, temporal chains of events. It focuses on communication and social interaction as causal factors in accidents and events with other negative consequences.

The STEP analysis tool (Hendrick & Benner, 1987) is based on the idea that several participants and actions in temporal and time chains of events should be the subjects of analysis. Analysis is not restricted to a single linear sequence, as is the case in core analytical techniques. It takes into consideration that several activities can take place at the same time. This also makes it possible to examine the role of social interaction and communication in an organisational setting.

MTO analysis is a tool which constructs an events and causes diagram, integrating change analysis and barrier analysis in a temporally-organised chart of events and causes. A checklist of basic failures includes organisational factors, management, technology deficiencies, work management, social interaction and communication, as well as issues related to instructions and procedures, education and competence, and environmental factors (Bento, 1999).

Process models and risk analysis tools based on such models employ a temporal conception of events on a timeline, leading forward to a loss of control and injuries. An event preceding the next is conceived to be part of the 'explanation' of the forthcoming event. Using such a conception, the timeline understanding of events may easily become mixed up with causality, in a way that does not fulfil experimental requirements for inferring causality. However, causal factors can be conceived from a theoretical as well as a pragmatic point of view. From the pragmatic perspective, a causal factor is conceived to be one which gives the power to control the risk source through manipulation (Rasmussen, 1990). A thorough definition of causality is not the subject of the current discussion.

Process model-based analytical tools seem to be well-suited to analysing accidents, catastrophes and other events leading to negative consequences, to prevent identical or similar events happening in the future. The process, as well as the end result, with positive or negative consequences, has to be known in advance. For analysing unforeseen events and the role of communication and social interaction, core analytical techniques seem to be inadequate. However, what is interesting about several of the process models and analytical tools is that they link accidents, catastrophes and other events with negative consequences to the interaction of technical, organisational and social factors. Some of these models and analysis tools, such as STEP analysis, seem to be suitable for examining the role of social interaction and communication.

Human reliability and information-processing models

In this group of approaches, injuries and loss are perceived as the result of 'human error', caused by limitations in human information-processing capacity. The theoretical foundation is provided by psychological information processing theories (e.g. Deutsch & Deutsch, 1973; Neisser, 1967, Kahneman, 1973). A 'mismatch' between system demands and individual behaviour is perceived to be the core causal factor in human error.

Rigby (1970) conceives of human error as behaviour exceeding the limits of tolerance within the system in which the person operates, i.e. a 'deviation' from the norms of the system. Swain and Guttman (1983) define human error as an 'out-of-tolerance action', in which the limits of tolerable performance are defined by the system. In this approach, errors are understood to be natural outgrowths of an unfavourable combination of people and the situation in which they act.

In Human Reliability Analysis (HRA), Swain and Guttmann (1983) define human error as an act in which a person fails to either carry out something correctly, do something as expected, or do something in time. Incorrect human outputs are separately categorised as errors of omission and errors of commission. Errors of omission occur when someone either omits one step in a task or the entire task. Errors of commission comprise

selection errors (e.g. reversals and wrong commands), errors of sequence, errors of timing (too early or too late), and quantitative errors (too little or too much).

The THERP analysis tool (Swain & Guttmann, 1983) is based on this perspective. Estimation of the probability for deviation in task performance consists of defining all the possible fault conditions, mapping tasks associated with these conditions, estimating the probability of human error, evaluating the consequences of these acts, and proposing counter-measures. The definition of human error is a functional evaluation of the consequences of behaviour. Human error is conceived in the same way as technical failures. Thus, the human 'component' may be overloaded and fail in the same manner as technical or mechanical components''.

Human reliability analysis has been criticized for the following reasons: The approach is normative. It does not take into consideration the complexity of human behaviour. The empirical basis which analysis is based on is insufficient and the approach fails to take into consideration that the same causal factors may cause errors of omission as well as errors of commission (Hale & Glendon, 1987). The approach contributes to an explanation but not to an understanding of the role of human error in accidents and catastrophes. The core focus of analysis is on information-processing capacity;communication and social interaction are not taken sufficiently into consideration in analysis, neither as causal factors in accidents nor causal factors in accident prevention. It is also less suitable for explaining acts of terror.

A more comprehensive model, proposed by Hale and Glendon (1987), integrates elements from several other models. It includes LePlat's (1984) model of safe behaviour, which is based on Rasmussen's (1981) three levels of cognitive functioning, as well as Surrey's (1968) two-level model. Human behaviour can either be skill-based, rule-based or knowledge-based. Skill-based behaviour is automatically activated in a situation based on observation. Rule-based behaviour is based on interpretation. It is controlled through rules and instructions. Knowledge-based behaviour is based on goals and plans to reach goals. Through training, knowledge-based behaviour may become rule-based and rule-based behaviour may become skill-based. Surry (1968) introduces a two-level model distinguishing between

the build-up of potentially-hazardous risks and the loss of control. In his model, human perception, interpretation, decision-making and action are analysed separately in each of the two steps. Hale and Glendon (1987) integrate these steps into their model, which distinguishes between input, throughput, and output. In this model, the input phase consists of hazard identification through the three levels of cognitive-based behaviour (no warning signs, warnings, and identification of danger). The throughput phase identifies whether or not there is a need for precautionary action. If the process of hazard identification has failed, the danger will not be controlled and the real risk may continue to be present, or the level of real risk may increase. Whether or not the danger is brought under control depends on the results of the output phase, i.e. whether or not responsibility is taken for the implementation of countermeasures, whether or not the necessary procedures for how to carry out safety measures are known to those responsible for implementation, and whether or not precautionary and mitigation measures have been carried out. In addition to the two loops presented, the model also contains several other loops.

The model places the lack of identification of deviations in the input phase. In the control of danger, either warning signs of danger or hazard identification must be successful to bring the danger under control. A lack of problem identification may be the core reason that an event with negative consequences is deemed 'unforeseen'. This model is classified as a systems approach to the control of danger. It specifies cognitive information processes, individual-level decisions and behaviour. However, neither communication, interaction and social interaction nor contextual factors are specified at the same level of detail. Specific contextual factors, e.g. situational, organisational and community-related factors that influence individual behaviour, are not taken properly into consideration. Hale and Glendon's (1987) model explains very well why accidents can be unexpected and even unforeseen, although this was not their primary intention.

Energy-barrier models

The Bow-tie method (Primrose, Bentley, van der Graaf & Sykes, 1996) is one of the most increasingly-accepted and best methods for analysing

risks (Crerand, 2005; see also Ruijter & Guldemund, 2016). It can be classified primarily as an energy-barrier model. However, temporal aspects are also given attention. It combines several other analytical methods and approaches previously known within risk analysis. To understand the strengths and limitations of this method, it needs to be discussed in the light of preceding energy-barrier models and approaches to which it relates.

In energy-barrier models (Haddon, 1980), an injury or an event with other negative consequences is perceived to take place when energy is transferred to the human body. When the energy is above the tolerance threshold of the body, this causes an injury. Injuries can be prevented, either by placing barriers directly on the energy source, separating the energy from the human, or enhancing human resilience, e.g. using personal protective equipment. In barrier analysis, the hazards, the target of the hazard, as well as the barriers have to be identified. The barriers can be physical as well as communication and management-related.

Analysis methods based on the energy-barrier model are suitable primarily when hazards can be identified (DOE, 1999; see also Sklet, 2002). In barrier analysis, the hazard or potentially-damaging energy as well as the possible target have to be identified. Physical and well as management barriers are considered; the latter is more difficult to identify than the former. After having identified the barriers, probable causes of barrier failure and their consequences are investigated.

Change analysis aims to examine all deviations in a system that cause negative outcomes, by comparing an accident-free situation with an accident and identifying the differences and their consequences. Accident Analysis and Barrier Function analysis are methods of analysis which examine ineffective, non-existent and effective barrier functions. In this type of analysis, the organisational context as well as the technical systems are taken into account when analysing past accidents to propose effective countermeasures. The BORA analysis method is another tool for analysis of barriers, especially suited to the offshore oil and gas extraction industry (see Rausand & Utne, 2009, for a thorough description of this analysis method).

The logical tree model (Johnson, 1980) is also based on the assumption that potentially-harmful forms of energy are causal factors in accidents.

Such events could be prevented by countermeasures, which consist of barriers that prevent energy from reaching the human body, for example. MORT (Johnsen, 1980) as well as SMORT (Kjellén et al., 1987) are logical tree models, based on the identification of specific control factors and management-system factors. Causal factors are identified using generic questions.

These methods are all practical tools for analysing how to prevent injuries and damage. Energy-barrier models focus primarily on the period following a 'deviation' in a sequence of events. The period before the deviation is not perceived to be a relevant subject for analysis. In the case of unforeseen events, hazards as well as their targets are usually unknown. These risk analysis methods are not well suited to dealing with such events.

Energy and barrier models are often interchanged with process and causal sequence models. Change analysis is also partly a process model. The same applies to Accident Analysis and Barrier Function analysis. The TRIPOD and Bow-tie models can also be classified as energy-barrier and process models, as well as causal sequence models.

The 'Swiss cheese model' (Reason, 1990) is the approach which lies behind the TRIPOD as well as the Bow-tie model (Alizadeh & Moshashaei, 2015). Reason (1990) distinguished between active (tokens) and latent failures (types). Active failures are errors and violations with an immediate negative effect or consequence, usually committed by front-line operators, crews and traffic controllers etc. In Reason's model, these types of failures include unsafe acts and inadequate defences in interaction with local events. Latent failures, on the other hand, are management actions and decisions that have no immediate 'effect'. They may lay 'dormant' for a period of time, only becoming evident when combined with factors such as active failures, technical faults or atypical system conditions (Reason, 1990). Latent failures include fallible decisions, line management deficiencies and psychological precursors of unsafe acts. Unsafe acts are slips, lapses and violations. Psychological precursors of unsafe acts include factors such as time pressure and lack of operator-safety motivation (Reason, 1994; 1997).

In a risk-management system based on this approach, the first information loop is the reporting of accidents, injuries and other events with

negative consequences. The problem is that this type of information, in most cases, is provided too late for proactive measures. The second loop consists of identifying and observing unsafe acts at the lower supervisory level of an organisation or a system. According to Reason (1990), the most effective loop systems are those that identify line management deficiencies (loop 3) and psychological precursors of unsafe acts (loop 4). In the prevention of accidents and catastrophes, it is more efficient to focus on these loops, i.e. on 'types' rather than 'tokens.' Thus, in the complete TRIPOD model, organisational failures are conceived to be the main causal factors because they may contribute to breaches in barriers during operational disturbances (Groeneweg, 1998).

This method identifies basic risk factors for latent failures. An effective safety-management system consists of eliminating or reducing the effects of the latent failures identified in the model, thereby preventing psychological precursors, human behaviour that is 'out of tolerance' with the system, as well as operational imbalances.

The Bow-tie method, which has been used extensively in the offshore oil and gas extraction industry and several other industries (Pidgeon, May, Perry & Poppy, 2007), combines fault tree analysis, causal factor charting, and event tree analysis (Lewis & Smith, 2010). It is related to the TRIPOD in several ways. However, it is debatable whether or not it is a step in the right direction when compared to the emphasis placed on organisational and social factors in the TRIPOD, in relation to the capacity to understand latent failures in complex and unforeseen events. The Bow-tie analysis diagram shows the threats, hazards and consequences and aims to identify barriers or control measures, as well as recovery measures. Pre and post events are analysed. Barriers show mitigation activities (Pidgeon et al., 2007).

Kvernbekk, Torgersen and Moe (2015) present a modified and extended Bow-tie model (see also Chapter 1), especially suited to analysing unforeseen events. In addition to being an energy-barrier model, the Bow-tie method is also a process model, where the interval between registrations of 'warning signs' prior to an undesirable event is perceived to be important for prevention as well as the success of recovery. However, what characterises unforeseen events is that the potentially-dangerous hazards leading up

to the event are not identified. How it is possible to identify early warning signs of non-identified hazards needs to be thoroughly explained.

To prevent unforeseen events, according to the Bow-tie model, it is necessary to focus on warning signs of potentially-hazardous energy that could get out of control, i.e. active failures. This type of indicator is related to the chain of events leading to loss of control. Typically, they take place on a timeline temporally close to the event with negative consequences, which means they are active failures. The chain of events will be specific and unique for each case or occurrence. Directing efforts at identifying active errors as a prevention strategy will not be effective unless identical events happen repeatedly. Therefore, it should also be explained why priority should be given to early identification of active failures in the identification of unforeseen events.

Fortunately, major accidents and catastrophes rarely happen and they are unique events. The same is true of acts of terror. Unforeseen events are also characterised by failures that are unique for each single event. It could be argued that when the temporal line of failures is unique, risk analysis methods which focus only on active failures and 'tokens' will not be suitable tools for examining unforeseen events.

Contrary to 'tokens,' 'types' are latent failures caused by fallible decisions at society and managerial level. What is typical for these types of failures is that each of them may cause several different temporal chains of actions. By focusing on 'types' instead of 'tokens,' it is possible to prevent many different action chains which may have negative outcomes. Countermeasures aimed at preventing such failures may prevent many different action chains and active failures. After the implementation of such countermeasures, it will not be exactly clear what types of unforeseen events they have prevented. Therefore, it will also be impossible afterwards to learn anything about which events that have been prevented.

The core aim of the current paper is to answer the question of whether or not it is possible to prevent unforeseen events with negative consequences using risk analysis to identify hazards and warning signals of forthcoming injuries and losses. The answer to the question is yes, it is possible, but efforts have to focus on latent failures and types. As shown, several of the core analytical methods (perhaps even the majority), along

with other methods which do not take social interaction into consideration, have limited interest as analytical tools when aiming to analyse rare and unforeseen events. However, analytical tools that include examination of social interaction and parallel temporal chains of events also have limitations when it comes to understanding the types of events in focus in this chapter. The appropriate accident and risk analysis methods may contribute to prevention of the unforeseen; however, learning from past experience is not possible, because knowledge about what has been prevented cannot be obtained using these types of analysis.

Discussion and conclusions

When investigating accidents, catastrophes and acts of terror, risk analysis may focus on latent failures and human error. After identifying the causes of failures and errors, prevention measures can be implemented.

In Figure 3.1, this is entitled the 'first route' to safety and security. This model is based on a basic understanding of organisational culture, branching out from 'cultural content', which is the latent, non-observable part, and 'cultural manifestations,' which form the observable part of
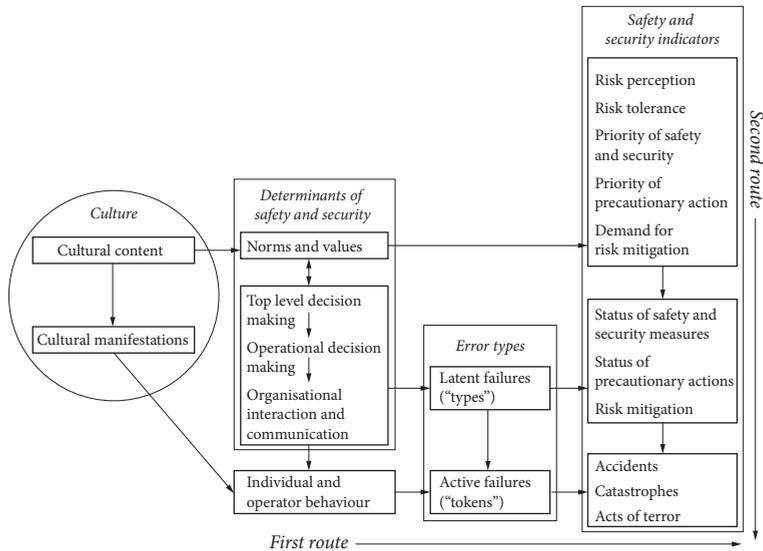
Figure 3.1 A heuristic model for understanding events with negative consequences.

culture (Schein, 1990). Reason (1998) also relates the Swiss cheese model to safety culture. Part of 'cultural content' are norms and values. These influence decisions and can cause latent failures, which are 'cultural manifestations' that can be observed and analysed. All available accident analysis and risk analysis methods are based on the 'first route'. This is mainly a temporal route based on accident and risk analysis approaches.

However, a 'second route' could also be proposed (Figure 3.1). Fortunately, accidents, catastrophes and acts of terror do not happen often. Because they cause attention when they occur, they may also be perceived to be more frequent than they really are. The 'second route' in prevention of negative events is, accordingly, to explain why negative events occur so rarely. Most of the time, events with negative consequences do not happen, which makes it of interest to know why. Unlike the majority of risk analysis methods and tools, the 'second route' is not concerned with analysing specific events that have either happened or could happen in the future.

The interesting question is not why accidents and other negative events take place, but rather, why they take place so rarely. What can be done to keep it that way? The 'second route' is a non-temporal route based on a set of indicators connecting accidents, catastrophes and acts of terror to indicators of social interaction, i.e. norms and values, risk perception, risk tolerance/acceptance, priority of safety and security, and priority of precautionary actions. It may be based on knowledge obtained using survey methodology aimed at examining associations between organisational factors and social interaction. These factors are also connected to individual-level behaviour, the status of safety and contingency measures, and precautionary actions, as well as risk mitigation measures. Research carried out previously has shown these factors to be positively associated with accidents in industry as well as in transport.

The psychometric qualities (reliability and criterion validity) of several measurement instruments aimed at measuring all these factors have previously been examined and found to be related to accidents and catastrophes (e.g. Iversen & Rundmo, 2012; Nordfjærn, Jørgensen & Rundmo, 2011, 2012; Norfjærn, Şimşekoğlu, & Rundmo, 2012; Rundmo 1992; Rundmo, 1994a-c; Rundmo, 2000; Rundmo & Iversen, 2004; Rundmo & Moen, 2006; Rundmo, Granskaya, & Klempe, 2012). Low scores on these

measurement instruments indicate an unsatisfactory safety and security level, and high scores indicate a satisfactory level.

It is interesting to note that measurements of the 'second route' can be done independently of any specific events or risk sources possibly involving potentially-hazardous forms of energy. The main focus of accident and risk analysis is on factors causing failures in single accidents and analysis of other negative events. The focus of prevention efforts should be on the opposite. To prevent negative unforeseen as well as foreseen events, the most effective countermeasure is to continue doing what has previously been shown to successfully ensure that unforeseen events with negative consequences do not happen. To focus on success indicators could be especially advantageous when the aim is to prevent unforeseen events.

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Workshop-*Didaktik* for Cooperation in a Contingent World

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Abstract: Based on the idea that contingency frames people's view of the world, the text examines how cooperation is still possible. It is argued that cooperation is a human constant (Tomsello), as well as a skill and craft to be unfolded again (Sennett). In order to facilitate teaching and learning processes focussing on the emergence of cooperation, a "Workshop Didactic" is developed. Such a didactic is particularly powerful in enabling people to deal with the challenges of unforeseen situations.

Keywords: *Samhandling*, interaction, didactic, education, training, learning, unforeseen

Introduction

The purpose of this chapter is to investigate how a Workshop-*Didaktik*[1] perspective can contribute to the development of cooperation (*samhandling*). In this chapter, I mainly use the term 'cooperation'. It is this term that is most commonly used in the field of educational science internationally, and largely covers the same meaningful content as the Norwegian word *samhandling*. Any deviations and additions to the meaning are commented on in the text. The text examines the question of how contingency, risk and unpredictability impact upon teaching and learning. A *Didaktik* model, based on Tomasello's concept of shared intentionality and Sennett's ideas about the worth of cooperation, is provided in this chapter. This Workshop-*Didaktik* answers the question of how people can be prepared for cooperation in a complex and changing world, which is determined by a combination of uncertainty and contingency.

Risks are estimations of possible (harmful) events that are a part of people's knowledge. The experience of risk results in the collapse of ontological security and a sense of fundamental vulnerability (Giddens, 1990). Risk experiences are a mode of considering and mapping the social and cultural world. The benchmark for measuring this is the person's individual conceptualization of a meaningful human existence (Bauman, 1998). However, current society's complexity contributes to placing risks out of reach; there is no place or space for them. Furthermore, there are parties (individuals, teams, organizations, governments) that cause risk while deciding between different solutions to problems. Such risk production makes it impossible to attribute clear causes. Decisions made about actions not only contribute to a complex reality, but cause unintended and unpredictable side-effects (contingency). This is also true of the development of cooperation.

Cooperation is the ability to create with others joint intentions and joint commitments in cooperative endeavours. It is a human behaviour that is functionally integrated and the respective partners have mutually agreed upon it in several ways. Furthermore, cooperation is structured by

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1   The German term Didaktik characterizes various theories and research approaches about how teaching can instigate learning of content. I will explain that concept more fully presently.

the processes of partners' joint attention and mutual knowledge. Such an understanding of cooperation combines both aspects of collective work (Beyerlein & Harris, 2004:18) and (mutual) communication processes about knowledge (Torgersen & Steiro, 2009:153).

Contingency

Historically, people's courses of action have always been challenged by several possible alternatives or unforeseen circumstances. Risks (social, economic, environmental etc.) are intrinsic in postmodern society; they are unpredictable and uncontrollable since the future is unknown (Beck, 1992). Such complexity is inherent in postmodern society and causes contingency. As a key concept in postmodern societies, contingency encompasses complexity, openness, unpredictability and flexibility. On the one hand, contingency describes people's life experiences, like ambivalence of values, insecurity, risk or disorientation. On the other hand, one finds experiences like freedom, play and enablement. In other words, contingency describes man's state of being between complete determination and complete indeterminacy. However, being part of such processes means that people cannot avoid having to act. To be able to act, people have to select their actions. Significantly, people know that their actions are 'also being possible otherwise' (Luhmann, 1995:25). This 'also being possible otherwise knowledge causes people's and societies' developments to be unpredictable and uncontrollable. In short, contingency is the basic condition for cooperation and educational concepts for cooperation have to take this into consideration.

Contingency and *Didaktik*

In education, contingency phenomena (competence, skills, behaviour) are presented as ill-defined problems (Hopmann, 2003; Werler, 2015). Educational problems (defined in the present, based on knowledge from the past and assumptions about the future) appear to be ill-defined, since there are no commonly-agreed solutions, and anticipated solutions (projections of a desirable future) are a matter of opinion. Ill-defined problems are characterised by a highly-complex structure and by doubts

regarding the completeness with which a problem can be clarified. In addition, such problems cannot be solved by obvious means or methods (since it is not knowable what result 'tools' will give). At the very least, such problems lack components like a clear initial state, permissible operators and a likely goal state. When trying to solve ill-defined problems, one runs into difficulties specifying the initial state, which is necessary for formulating possible and adequate actions to modify the initial state and reach the goal. In brief, it is hard to find causal relationships in education.

Traditionally, ill-defined problems of education have been institutionally-framed (in schools, universities etc.) and teachers have had to find immediate, but temporarily-valid solutions. Especially in Central and Northern Europe, the ill-defined problem of education has been addressed by *Didaktik*[2]. The fundamental aspiration of *Didaktik* is to transform the ill-defined problem of the relationship between teaching and learning into better-defined models describing how teaching generates learning of defined subject matter or skills. *Didaktik* offers a specific language for education which does not originate in other academic disciplines, like sociology or psychology (Werler & Saeverot, 2017). Such *Didaktik* systems establish ideas about how and why one should connect the teaching of collective cultural content (matter) with the creation of individual significance (meaning) (Hopmann, 2007). It is crucial for the experience of individual significance that the learner experiences some of the content as existential (Saeverot, 2013). In other words, *Didaktik* supplies teacher training with a well-founded meta-plan, which answers the question of how to impart a society's culture to learners. Such plans bring together fundamental ideas about cultural knowledge, and the teaching and learning of this knowledge. In short, *Didaktik* models are characterised by their aspiration to reduce both cultural and social complexity and contingency. However, even the most advanced concepts of *Didaktik* are not capable of developing teaching technology that guarantees learners will learn something specific, such as particular knowledge or skills (Werler, 2015, 2017). In contrast to

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2   For a more elaborate discussion of the differences between *Didaktik* and Anglo-American research on teaching and learning/curriculum research, see Gundem, 2004; Gundem & Hopmann, 1998; Hamilton, 1999; Kansanen, 1995a, 1995b; Nordkvelle, 2003. To distinguish the term *Didaktik* from the English word 'didactic,' it is written in German.

evidence-based teaching methods, the use of *Didaktik* approaches generates flexible and viable solutions for teaching.

A *Didaktik* for cooperation

Postmodern societies can no longer rely on generally-binding traditions, nor is there educational technology that prepares one for the unforeseeable situations of life. Today's societies are heterogeneous and, in a world that is closely interconnected due to technical possibilities, one encounters a multitude of different forms of life. To solve the inconsistencies of postmodern society, like unpredictability or risk, Sennett proposes meta-level cooperation as a sound mean to support social liabilities. At the same time, cooperation is not binding enough to require unification of the parties involved. It is more than simple functioning and demands working together on common tasks.

Sennett's description suggests that cooperation is perceived as something positive and desirable. Individuals are presented as parties who pursue a common goal in which attainment is only achievable through cooperation. Furthermore, cooperation requires trust, which often develops and stabilises as a result of experiences gained in the course of cooperation. Recent anthropological studies indicate that man is disposed towards a genetically-determined proto-pedagogy (Tomasello, 2009). However, not all cooperation is justified; cooperation is a means to an end, and not every purpose has moral or legal legitimacy.

Cooperation's anthropological basis

Tomasello makes some interesting observations. Based on his research on babies, toddlers and great apes, he argues that humans are born cooperative and helpful, and that society later corrupts them (Tomasello, 2009:3). Amongst other things, the research showed that 2-year-old children are already able to collaborate by forming shared goals and dividing labour among participants in various ways. This 'shared intentionality' is identified as a species-unique character trait (Hermann et al., 2007). 'Shared intentionality' is characterised as one's "ability to create with

others joint intentions and joint commitments in cooperative endeavours" (Tomasello, 2009: xiii). With reference to the concept of 'collective intentionality,' (Searle, 1995) 'shared intentionality' is sometimes termed 'we intentionality' (Tomasello et.al., 2005:680). However, 'shared intentionality' refers to collaborative interactions in which participants have a shared goal, demonstrate shared commitment and coordinate their actions for pursuing that shared goal (ibid).

Even if man is primed for cooperation-communicative acts (Tomasello, 2009:59), which I label as a kind of proto-pedagogy, it must be experienced by the parties involved. Such mutual communicative acts form the basic principles of cooperation. These communicative acts consist of at least three steps. Firstly, informing about issues creates coordination and the flow of communication. Secondly, sharing of valuable resources allows for the development of tolerance and trust; and thirdly, complying with social norms (fairness) or showing altruistic behaviour creates action-relieving norms or institutions. This proto-pedagogy is fundamental, as it allows for the stimulation and regulation of learning processes, resulting in the ability to read the other's intentions. However, Sennett (2012) shows that modern society has reshaped the basic ability to cooperate through social processes like education.

Cooperation – a skill and a craft to be rediscovered again

The question of how to teach and learn cooperation arises in the tension between methodical collectivism (Comte, 1853; Durkheim, 1938) and individualism (Schumpeter, 1909; Olsen, 1965, Elster, 1982). However, people do not only cooperate to solve a given problem for gaining individual benefit, but also because they want to find a common solution. It is not only out of pure necessity that people cooperate but also for the joy of a common action.

However, Sennett's central thesis is that modern society has weakened people's social (and original) ability to cooperate (Sennett, 2012). He assesses the omnipresent project work as superficial and instrumental. In other words, the division of labour in postmodern society has robbed it of its social-integrative abilities. Furthermore, he finds that ignorance about cooperation has resulted in poorly-designed institutions

and technologies. The ideas behind those entities regularly assume that human beings are incapable of negotiating complexity. Poor institutional design as well as the outlined *Didaktik* development have contributed to institutions where contingency is not wanted. Essentially, this means that the potential for cooperation is incapacitated by institutional omissions.

However, Sennett argues that learning to anticipate the unforeseeable in an ever-changing world is possible through cooperation. A main condition for any form of cooperation is to learn to live and work with people who think and possibly act differently. Doing things with others and doing it better with them than without them is, according to Sennett, a necessary skill. So, the general question then arises, how can these skills be rebuilt?

At this point, Sennett argues that cooperation is not so much a matter of a certain moral attitude towards others as it is a matter of skill. Similar to Tomasello, he argues that cooperation is an embodied craft that is conveyed by social rituals (even if they are often deemed as pre-modern). In addition, cooperation is framed as a time-limited activity, which is learned and reproduced collectively. However, such activities constitute individual experiences based on emotions and reason. In the following passage, I will develop a Workshop *Didaktik* for the learning of cooperation, based on the epistemological reasoning above.

Workshop *Didaktik*

In the world at present, not everybody can be friends with everyone else – even if technological possibilities create this impression (i.e. web-based social networks). The same is true of ideologies which served, mainly in the last century (and even now) to create a violent differentiation against others. Confronted with this situation, Sennett suggests reactivating cooperation. Cooperation is not binding and does not demand unification of participants. Cooperation demands working together with a basis in common tasks. To create cooperation, Sennett suggests re-actualizing the model of the workshop, to re-build competencies, skills and institutional arrangements supporting the development of cooperation. In other words, the workshop is the place and space where cooperation based on dialogue (rather than debate) and mutuality (rather than unity) can be established and sustained.

Based on historical examples provided by Sennett, one can argue that cooperative work is based on work-rhythm, the interplay of verbal and non-verbal language interaction, bodily interaction as well as emotional interaction. In short, the foundations for skilful cooperation lie in learning to listen well and to discuss. The workshop model creates a place where people can learn from one another while they discuss problems, procedures and results.

I have argued that postmodern educational institutions and technologies are ill-designed. As individual performance tests or traditional seating plans show, the design of schools is based on the idea that learners are incapable of cooperation or dealing with social complexity. In other words, today's educational processes are characterised by efforts to eliminate contingency, in that institutional design limits people's developmental potential for cooperation. According to Sennett (2012:5), cooperation can be defined as an exchange in which the participants benefit from the encounter. However, cooperation also becomes an independent value in rituals, both sacred and secular. Any form of cooperation joins people who have separate or conflicting interests (ibid.:5). The main feature of cooperation is that it allows people to develop characteristics rather than to form them according to a defined image (model). The main target of cooperation is to create social commitment that is stable, even if people experience permanent differences. Cooperation opens up collective space for interaction to solve problems. However, the most important fact about cooperation is that it requires skill. To function well, one has to do it well. In order to do it well, people need to learn to rediscover what seems to be part of their anthropological inheritance. They can learn (again) to cooperate.

In the following section, I will elaborate on two basic conditions for Workshop *Didaktik*.

Ritual and rhythm

Following Sennett`s approach (Sennett, 2012), learning for cooperation builds on two stages. First, people have to learn rituals at the workshop; second, they have to follow a certain rhythm when practicing them. Rituals are a way of structuring symbolic exchanges of information regarding the solution of problems. They establish powerful social bonds and work as tools

to balance cooperation (close to altruism) and competition (close to egoism). It should be pointed out that rituals gain intensity when repeated. Normally, one would focus on the avoidance of repetition since it is equated with routine that might dull our senses. Repetition of rituals does not only intensify their result, it also helps to improve the coordination of activities.

Rituals work as an intangible structure for people working on practical problems. They have the power to transform bodily movements, words or objects into symbols. For example, a carpenter's tool belt symbolizes their knowledge of a trade. Furthermore, it expresses their belonging to a certain group of people. In other words, rituals 'condense' meaning. In addition, rituals canalise a group's attention, helping to focus on certain actions regarding the solution of a problem. The practice of rituals at workshops includes everyone also (although this may be done in several ways).

However, rituals do not only draw on symbolic exchange and creation of meaning. Rituals become established if they are practiced and follow a certain rhythm. The rhythm of rituals directs people's skill development. Sennett points to three stages of rhythm (Sennett, 2012:200). Firstly, people have to build up habits. Secondly, to expand skill development, people have to question the established habits. Thirdly, the modified habits must be re-ingrained to improve the fluency and confidence of the skill. The following quote illustrates that:

> *"Faced with a new problem or challenge, the technician will ingrain a response, then think about it, then re-ingrain the product of that thinking; varied responses will follow the same path, filling the technician's quiver; in time, the technician will learn how to impress his or her individual character within a guiding type-form".* (Sennett, 2012:201).

In other words, rituals are in many ways equivalent to choreographies, combining both physical and verbal utterances in way that can be repeated, again and again.

At the workshop

Artisans, sharing materials, as well as a variety of tools, characterise the workshop. It is a place of shared labour, for the manufacture of collective

products. Within each workshop, one will find that the people there share the worth of things (raw material, tools) through applying rituals for *critical thinking*. However, a workshop is characterised by its communicative actions. Amongst other things, artisans at the workshop traditionally criticize the journeyman's piece of work. Such critical discussion about the results of the work process will normally contain suggestions for improvement or for making the processes more efficient. Critical reasoning turns a workshop into a place 'for dialogical communication and informal association.' (Sennett, 2012:113). This is necessary to question a habit.

Obviously, when applying *dialogic conversation* to the evaluation of a piece of work, a person should refrain from insisting or arguing. A necessary consequence of this type of behaviour is that everyone must take someone else's point of view. Sennett argues (2012:211) that this forward-looking style of conversation will result in less aggressive verbal force and contribute to reducing anxiety within the space (ibid.:212) of dialogic inquiry.

However, workshops are to a large extent driven by working without thinking. The application of routines helps people to keep focus on the product. Routinised work is interrupted as soon as unknown problems occur. To solve such problems, artisans employ critical thinking and dialogic conversation to investigate the problem, and to develop different routes to solve the problem, following alternative scenarios according to the shared materials and tools at hand. Such collective questioning of a routine may lead to better routines. Interestingly, through such *collective inquiry,* non-verbal, bodily gestures can take the place of words. Furthermore, demonstration of a revised routine helps to establish trust and cooperation (ibid.:205).

Nevertheless, cooperation requires trust that develops from shared experiences. Trust functions as substitute for security and allows people to interact even when conditions are uncertain, established knowledge is at stake or it is impossible to predict the future actions of others with any degree of certainty. Trust is both a condition for, as well as a result of, cooperation. However, trust is developed only when people experience opportunities for learning and testing their trust in others (Luhmann, 1995).

The *Didaktik* of workshop learning – a model

In the following section I suggest, based on the observations above, (Tomasello, Sennett) broadening the limited concepts of cooperative learning (Gillies, 2016; Kyndt et.al., 2013). Teaching strategies such as this have been used to promote reading and writing achievements, understanding and conceptual development, problem-solving and higher-order thinking. It must be recognized that competitive and individualistic learning traditions have, according to a meta-analysis (Johnson & Johnson, 2002), positive effects on achievement and attitudes (Kyndt, et al., 2013), on the elaboration of people's speech-competencies (Gillies, 2014) and people's learning capacity (Gillies, 2016).

The *Didaktik* of collective workshop learning builds on the anthropological knowledge that people are able to engage with others in collaborative, co-operative activities with joint goals and intentions, based on shared intentionality (Tomasello et al., 2005). In order to illustrate this point, let me give you a fictive example:

In order to save a child from a burning house, a fire brigade has to communicate. This communication happens on different levels. In order to succeed in such a task, firefighters have to act as goal-directed agents. That means that they must develop some shared goal, i.e. saving the life of the child – even if they do not fully understand the situation they are entering into. In doing this, firefighters perceptually monitor the goal-directed behaviour and perceptions of the others. Furthermore, each firefighter knows that he or she can interact with the others on the basis of previously-developed (learned) and coordinated action plans (learned during basic training), which is manifested in a joint intention (to save lives). In other words, each firefighter enacts both the shared goal and action plan. Initially, such shared intentionality (based on different forms of language (speech, gesture, symbols) allows firefighters to create collaborative and cooperative behaviour.

As shown by the example of the fire brigade, to achieve a common target everyone must keep focus on what is necessary. Consequently, each person creates an opinion about his or her role-specific contribution – interdependently of the others – to achieve the common target. To coordinate one's own contribution, individuals need to

know about the possible actions of others. Such shared intentionality (Tomasello, 2010) is built up in situations where a group of people solve problems and are mutually-enabled to observe and reflect on the others' actions whilst contributing to the solution of a problem. The central idea is to build up mutual knowledge about possible actions, through group-based reflection about various (supportive or negative) actions of group members.

In relation to other models of *Didaktik* or instruction, this concept does not focus on one source of knowledge (i.e. curriculum, textbook). The core concept of workshop learning is the shared construction of knowledge (e.g. Searle, 1995). Such a rationale transforms the teacher's role; he or she is no longer the source of authoritative knowledge. The teacher's main task then becomes the creation of shared spaces for dialogic communication, characterised by teaching processes, which canalise a group's attention through collective reflection about the actions of the group. To create such *collective inquiry* about people's experiences, perspectives and competencies, several teaching tasks must be initiated:

1) Group members have to address a proper collaborative task that allows all members to decide autonomously about:
   – content-related perspectives (topics)
   – processes of knowledge production (e.g. division of work)
   – the tools to be used
2) Furthermore, both group processes and the production of mutual knowledge have to be given (temporal) space that may differ from traditional modes of time allocation. This means, above all, that there is a corresponding, extended period for the consolidation and work of the groups.
3) To enable group members to reflect about processes and applied knowledge/competencies, they must be allowed to construe their own contributions (participation).
4) Several tasks for the development of mutual trust have to be carried out. Such processes are characterised by the focus on an individual's identity formation, as well as on aspects of role making/role taking.

Unforeseen contexts

Using traditional models of *Didaktik*, it is impossible to say how the ability to co-operate in an unforeseen context (UN-Unforeseen) might be developed. This is true even if cooperation is chosen as content and/or a form of teaching, which is typically the case in collaborative or cooperative learning (Johnson & Johnson, 2002, Kyndt et al., 2013; Gillies, 2014; Gillies, 2016). Beyond that, learning cooperation is hard because it is about learning to live with people who think differently.

The suggested *Didaktik* for cooperation takes into account several conditions. Firstly, it responds positively to the fact that one can never know exactly what a learner has to 'adapt' to (e.g. due to the unpredictability of materials used in the workshop), because the social and cultural conditions one is prepared for through education are in the future and therefore never fully predictable. In addition, the model assumes that the environment is never fully recognisable for learners and teachers. However, a limitation of the suggested perspective is that one can never be sure whether learners have adapted themselves optimally to their environment because there is no outside observer perspective ('God's perspective').

As the environment changes rapidly and unpredictably, any strictly-limited adaptation to such an environment is dysfunctional. When discussing the bowtie-model, Kvernbekk, Torgersen and Moe (2015:48–50, see also Chapter 1) point to the fact that experience of past events determines the likelihood of future events (and therefore also possible responses).

Therefore, this Workshop-*Didaktik* approach promotes cooperation through the consideration of redundancy, non-specificity and risk (see Tremel, 2002). Rituals that provide information mainly produce redundancy. Furthermore, an abundance of information is created by rhythmic repetition of rituals, for example, through the repetition of gestures or repeated discussion of solutions to similar practical problems. However, ritual and rhythm will prepare learners for being able to cope with non-specific and unknown future situations (Kvernbekk, Torgersen & Moe 2015:49–50). Redundancy, (i.e positive information richness), is an adaptation reserved for unpredictable environmental conditions and changes – a kind of silent resource for the unknown future. Non-specificity

is a form of adaptation that is regarded as the exclusion of concrete details. It is characterised by the fact that it refrains from defined competencies and prepares learners for uncertainty. Hence, the model proposed in the chapter has the potential to generate communication about significant symbols in social actions (Mead, 1980), in order to create a framework for cooperative behaviour under unpredictable conditions.

Regarding the ill-defined problem of education, one observes that collective inquiry – building on shared intentionality – does not pay attention to it. The members of the workshop are explicitly focused on viable processes and temporarily suitable solutions. They critically negotiate both decision-making and reflection (sense-making) under conditions of insecurity. This creates a situation where the workshop members are controlling their own learning situation.

Conclusion

The presented model is based on the assumption that cooperation is (perceived as) something positive and desirable. However, not all cooperation is justified, because cooperation is a means to an end, and not every purpose has moral or legal legitimacy. One might think of cooperation within terrorist groups, the concerted bullying of colleagues in a company, or the anti-competitive concentration of cartels resulting from cooperation between companies. Such cooperation is within reach of the suggested model too.

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Human Interaction: A Mood-Based Perspective

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Abstract: During military exercises, crisis situations give the participants mood experiences. By exploring the concept of "mood", our aim is to contribute to the development of new interaction theory. We will explore three perspectives related to mood and the possibility of changing mood: (1) A Mood-Based Perspective: Heidegger ascribes moods a fundamental role in human life. Before a human being can think or feel something, he or she is already attuned, already in a mood that structures how reality appears to them; (2) A Rhetorical Perspective: Even though Heidegger understands moods as a non-thematized horizon, our moods can nevertheless be changed. Here we elaborate on Aristotle's ideas on rhetoric as the first systematic hermeneutics of the interacting, everyday human being; and (3) A Pedagogical Perspective: Pedagogy here refers to learning about the development of humans in society. An existential part of human existence is to sense moods and be attuned to "the other". Then we have the possibility of changing the mood and establishing harmony. Finally, a conceptual model is presented to show the theoretical and practical implications beyond the military exercise that has been the point of departure for this text.

Keywords: *Samhandling*, mood, interaction, rhetoric, education, organizational learning, leadership, unforeseen.

Introduction

Interaction is the world's easiest process, when we are not exposed to crisis situations. We are inspired here by the concept of interaction as described in the Chief-of-Defense's fundamental view on leadership in the Armed Forces (Sunde, 2012). Moreover, interaction, as described by Steiro and Torgersen (2015), is of particular interest, because the authors connect the concept to risks and unforeseen events in the Armed Forces. In their study, an F-16 pilot and a helicopter pilot address the importance of presence in the moment and interacting with the crew, respectively. Moreover, interaction also gives us associations to music, where interaction is dependent on management, musicians, instruments, voices, plans and practice, something we will elaborate on below.

We use the concept of interaction for two reasons. Firstly, "inter" points to the relationship between things or people – in our case, people. Secondly, "action" is of particular interest as a doorway into the analysis of the mind, as it is so closely linked to thinking and emotions, as illustrated in Bruner's classic triad encompassing action, emotion and thinking (Bruner, 1986). Moreover, action also allows us to look into people's social being, as an action is often undertaken in relation to significant others (Mead, 1934). People create "their surroundings as well as themselves through the actions in which they engage" (Wertsch, 1991:8). Bearing this in mind, we argue that "inter" and "action" fit nicely together in the concept of interaction.

Another important concept in this chapter is the concept of mood. We find that on a deeper level and prior to interaction there is mood. Mood is found in the whole situation, in relationships and in people (Heidegger, 1996).

When it comes to understanding a crisis, we will use the Bow Tie Model in the analysis (see Chapter 1), including the three phases: (1) Warning Signs (Warning Signs), (2) During the Actual Event (UN-0) and (3) Creation Phase (Recovery) (Primrose, Bentley, van der Graaf, & Sykes, 1996). The key here is to gauge the extent to which a leader can enter the actual event, the unforeseen moment, and make a difference. By linking mood to such a model, the main question to be addressed in this chapter is: *How can leaders change mood during crisis situations?*

Through exploring the concept of "mood", our aim is to contribute to the development of a new interaction theory, and to investigate the possibility of changing mood and establishing harmony, both in crises and in our daily lives. We have been inspired by a crisis situation that occurred during a military exercise and using this we will explore mood, rhetoric and pedagogy.

Crisis situation

A crisis situation unfolds and is expressed in many dimensions. In an exercise at the Royal Norwegian Air Force Academy, a crisis was an important part of the participants' experience. Here is a description of the event:

The actors, women from the National Performing Arts College, approach the control post. The four of them talk together for a few minutes. The guards seem to lower their mental and physical guard, perhaps because of the blue-eyed women. Suddenly, one of the women takes a step backwards and pulls out a gun. One man is down – shot on the post. Mayhem ensues. Was he shot, is he dead? The mood drifts slowly. People come to see the stretcher. They light candles, conduct a memorial ceremony. The coaches are no longer tutoring; they are simply there together with the cadets. Finally, we leave off for reflection.

We sit there in a circle, 40 cadets and seven supervisors. It is cold, sad and completely dead in the plenary review session. Then some questions arise. The cadets ask whether there is any point in practicing grief and whether there is academic justification for this. They claim that the situation and the process they have just experienced are irresponsible and unethical. A bad mood engulfs both the cadets and the coaches. Then one of the coaches raises his hand; he asks for permission to speak. "Yes, please help us out of this is," seems to be the collective response from the others, a response expressed without words.

The young man starts by mirroring the mood of the moment. He puts the feeling of anger, fear and grief into words. He asks if these emotions are not precisely part of war. He asks several rhetorical questions in a very humble way. During the process, we discover that death is within our profession, something we as officers have to relate to and cope with. The result is that we are left with the grief. People

are crying. There is still a prevalent bad mood in the air. Our thoughts go out to "the dead cadet" and to others we have lost in real life. The grief feels real, it is real.

He moves on, takes us further into death and he keeps us there. He tells us about "Zombies" and the people who know about death – and the difference. He uses Heidegger to emphasize that people know about death and that this is something that is particular to human beings. He pushes on and asks us whether death can be a mirror of life, whether the dark can bring us the light. Moreover, he argues that today we have been visiting death, but we can put it behind us; we now have death behind us and life ahead of us. We can be grateful that we are alive, grateful for life. Participants are crying again, not out of sorrow but out of joy. The mood has changed. The mood is now characterized by joy, gratitude and love. He tells us that the operations must continue, this is part of our profession. We were led by the young man, and we declared ourselves ready for battle.

By utilizing the Bow Tie Model, we can interpret the crisis in greater detail. For the cadets, the actual incident (UN-o) was "the dead cadet", a case that was written into the script with the subsequent ceremonies. For the coaches, the actual incident (UN-o) was "the reflection", something which was also written into the script. However, what was not scripted was the fact that both the cadets and the supervisors would be enveloped and paralyzed by such a "bad mood". We will let this story serve as the backdrop while we adopt a more theoretical approach to the topic, where we will explore three concepts: mood, rhetoric and pedagogy.

Mood: An existential dimension

Although moods are an obvious part of a human being's daily life, they are not sufficiently emphasized in philosophy and psychology. When investigating the human situation, our starting point tends to be the subject and how it structures the world. Heidegger's idea is that this kind of investigation starts "too late". The focus on the self-conscious subject overlooks the fact of human existence *per se*. Before we examine human subjectivity, for example in terms of our thoughts or feelings, we have to examine *our existence*, what it means to exist:

> With the *cogito sum*, Descartes claims to prepare a new and secure foundation for philosophy. But what he leaves undetermined in this "radical" beginning is the manner of being of the *res cognitans*, more precisely, the meaning of the being of the "sum" (Heidegger, 1996:21).

Such an examination is what Heidegger understands as ontological. It is an investigation of the human as always already existing in a world, as *being-in-the-world,* and he calls the structures of human existence *existentials* (Heidegger, 1996:49–50). An important "discovery" in Heidegger's study is that on this fundamental level, human existence is structured by *moods.*

> What we indicate ontologically with the term "attunement" is ontically what is most familiar and an everyday kind of thing: mood, being in a mood. Prior to all psychology of moods, a field which, moreover, still lies fallow, we must see this phenomenon as a fundamental existential and outline its structure (Heidegger, 1996:126).

Before humans can think, understand or feel anything, our existence is already in a mood that structures how reality appears to us; we are tuned in to reality. The fundamental ontological role Heidegger ascribes to moods in human life may be clarified by an analogy. The fish lives its life in water, and its "existence" is structured by the water in which it swims. If the fish could reflect on its existence, it would lack objective or "outer" reference points to describe what water is and how it is affected by it. This can only be described from "within". This is also the case for how moods structure human existence. They are not objects that we can point to, but permeate every part of our existence. The lack of reference points means that moods have to be investigated phenomenologically: "To let what shows itself be seen from itself, just as it shows itself from itself." (Heidegger, 1996:30) Thus, it is not possible to adequately grasp moods by treating them as objects and understanding them in contrast to other objects. Moods express themselves as a dimension of our experience, and not as an experienced object, because our experience of the world is always already in a mood, and what moods are can only be grasped from "inside" the mood.

Another way of putting this is that moods are part of the background or horizon of human experience, different from the cognitive schema or categories by which a subject structures its reality. Moods are pre-reflective or pre-subjective; the subject is already inside and affected by a horizon of moods when it applies its categories or schemas. "Mood has always already disclosed being-in-the-world as a whole and first makes possible directing oneself toward something" (Heidegger, 1996:129). The mood we are in shows us what meaning reality has for us and the meaning of the situation in which we find ourselves.

Since moods are fundamental in the sense of being *existentials*, they affect *all* human practice, not only the subjective aspects, for example emotional dimensions. That is, moods are more than "fleeting experiences that 'color' one's whole 'psychic' condition" (Heidegger, 1996:313). Moods express an existential dimension of human existence; this is ontological, not ontic. "In attunement lies existentially a disclosive submission to world out of which things that matter to us can be encountered. Indeed, in principle we must *ontologically* leave the primary discovery of the world to 'mere mood'" (Heidegger, 1996:129–130). Thus, moods affect all aspects of how human beings experience reality. If we are in a bad mood, we do not only feel the emotion of anger, but we also experience the car as lousy, our work as boring and other people as incompetent. Even apparently "emotionless" activities, such as theoretical studies, are tuned in to a mood, a mood characterized by calmness and tranquility (Heidegger, 1996:130). Consequently, moods structure all our intentional orientation towards reality on a fundamental level. "The fact that moods can be spoiled and change only means that *Dasein*[1] is always already in a mood" (Heidegger, 1996:126).

The emotional dimensions of moods

Although moods are not reducible to emotions, there is an important connection between these phenomena. Emotions are *one* aspect of how the mood, as an existential background, shows itself concretely. Because

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1   Dasein means literary "being there" and is Heidegger's term for the experience of being, the mode of existence, that is peculiar to human beings.

human existence is always attuned to or in a mood, emotional or affective responses to reality may arise.

> And only because the "senses" belong ontologically to a being which has the kind of being attuned to being-in-the-world, can they be "touched" and "have sense" for something so that what touches them shows itself in an affect (Heidegger, 1996:129).

Moods are the background that make emotions as conscious, cognitive objects, "visible". When Heidegger connects emotions or affects with moods, he revalues the role of emotions in human life. Emotions can no longer be regarded as *only* the subjective coloring of the objective situation that humans are a part of (Heidegger, 1996:313). Heidegger's point would be that there is no "objective" situation independent of the mood. The "objective" is always already influenced by mood, for example, fear. Furthermore, our subjective, emotional responses are affected by mood. This means that emotions are more than only subjective or psychic reactions. Even though they are based on the subject, emotions arise on the basis of the existential mood of the situation.

At this point it is possible to give a brief sketch of how Heidegger's concepts relate to leadership in crisis situations. As described in the introductory example, a crisis manifests itself among other things in emotional responses, like fear or insecurity. The relation between emotions and moods implies that such situations also have an existential dimension. As a leader, to respond adequately to a crisis, it is not enough to only address psychological and emotional responses. Leadership is also about understanding and influencing the mood of the situation. Moving into the social dimension of mood may bring us closer to the question of how leaders may be able to change mood during crisis situations.

The social dimension of moods

To see more clearly the link between leadership and mood as an existential phenomenon, the concept must be put into more concrete terms. As Dreyfus relates, Heidegger discusses moods in a more concrete social context in one of his 1929 lectures:

A – as we say – a well-disposed person brings a good mood to a group. In this case does he produce in himself a psychic experience in order then to transfer it to the others […]? Or another person is in a group that in its manner of being dampens and depresses everything; no one is outgoing. What do we learn from this? Moods are not accompanying phenomena; rather, they are the sort of thing that determines being-with-one-another in advance. It seems as if, so to speak, a mood is in each case already there, like an atmosphere, in which we are steeped and by which we are thoroughly determined. It not only seems as if this were so, it does so" (Heidegger in Dreyfus, 1991:171).

Two points are important here. Firstly, the constitution of a group must be understood according to the concept of mood. A group does not only consist of the members' shared cognitive understanding or their emotional identification with each other. Heidegger sees mood as primary in that it constitutes the horizon for the group members' interaction. We do not first understand ourselves as members of a group, whereupon this participation is "colorized" by subjective feelings or moods. The mood or the atmosphere constitute the background where the quality or dynamics of the group interaction are played out. The mood shapes the members' being-with-one-another – their coherence or harmony. In other words, moods are fundamental for understanding and managing group interaction.

Secondly, Heidegger's point is that a well-disposed person, a person of *character,* may influence the mood or atmosphere of the group and its interaction. This would be an important way of exercising *leadership*. During crises, for example, a group's interactions may be challenged and result in a bad mood or atmosphere; there might be disharmony. Although Heidegger understands moods as a non-thematized horizon, it is still possible to master and influence moods (Heidegger, 1996:128).

Rhetoric: The possibility of changing mood

In traditional, psychological theories of leadership, an important aspect is to create motivation by influencing the group members' emotions. Heidegger's theory opens up an alternative existential approach to leadership: Leadership is about mastering the mood of the group. Moods are

neither emotions nor cognitive-psychological objects, and therefore transcend the psychological domain. According to Heidegger, a framework that adequately conceptualizes how the mastering of moods is possible can be found in Aristotle's *rhetoric*.

Rhetoric

Heidegger perceives rhetoric as a description of social practice and social relations, namely as "the first systematic hermeneutics of the everydayness of being-with-another" (Heidegger, 1996:130). Social practices are embedded in moods; thus, Aristotle's rhetoric provides guidelines for how social moods can be influenced and changed.

An important premise for the mastering of moods is that it is impossible to remove or create moods analogous to emotions. A mood is always already there, and only its quality can be altered: "[W]e never master a mood by being freed of a mood, but always through a counter mood" (Heidegger, 1996:128). To lead the mood in the desired direction, the speaker must first have a sense of the specific mood of a group: "The speaker speaks to it [the mood] and from it. He needs the understanding of the possibility of mood in order to arouse and direct it in the right way" (Heidegger, 1996:130). Thus, there are no objective, consistently effective techniques for changing moods. Leadership is about sensing the group's specific mood and changing its quality.

As mentioned above, the mastering of moods refers to the speaker's character or disposition: "The well-disposed person brings a good mood to a group" (Heidegger in Dreyfus, 1991:171). Aristotle's classic model has three elements of rhetoric: ethos, logos and pathos, where ethos reflects the speaker's character. Through ethos, the speakers disclose their own authority and appear with their values and attitudes. Aristotle describes this as follows:

> Persuasion is achieved by the speaker's personal character when the speech is so spoken as to make us think him credible. We believe good men more fully and more readily than others: this is true generally whatever the question is, and absolutely true where exact certainty is impossible and options are divided (Aristotle, 2004:7).

Thus, ethos is fundamentally important for credibility. Just think of the "I Have a Dream" speech by Martin Luther King Jr. It is a good example of the speaker's character and values and also appears to be highly authentic.

Logos appeals to reason and logical reasoning. It is about transforming the audience from believing one thing to believing another by taking them through a number of reasonable steps. The speakers can use formal arguments, where two terms mean that the argument is true: "syllogism", the use of reason in a somewhat easier and more flexible way, and "enthymeme", the use of examples. The latter is an inductive approach, a type of argument that is based on the claim that what is true in one situation also applies to other situations (Keith & Lundberg, 2008).

Pathos is displayed through passion and empathy, where the speaker turns to the listeners and tries to influence their emotions. The case may require the speaker to mobilize the listeners' sense of anger, peace, fear, shame or kindness. There is a difference between leaving the audience feeling anger or kindness in relation to a counterpart (Aristotle, 2004).

Thus, rhetoric is something more than a blog, YouTube or TED Talks, for instance. The art of speech, in line with upgrading the mood to something existential for the human being, can be upgraded to an opportunity to change the mood, which can bring us even closer to the leader's opportunity to change the mood during a crisis situation.

Changing mood

To a large degree, rhetoric is a matter of the speaker's ability to communicate. The theoretical approach might be the traditional communication model, a linear model with a transmitter and receiver and a message to be transferred. This communication model appears problematic because the reality is that both parties are cooperating in the process (Bakhtin, 1986). The receiver works actively throughout the listening period to prepare his response, while the speaker adjusts his utterances and also considers his opposite's anticipated response. It is therefore impossible to separate the parties; the two parties will be in contact with each other, influence each other and develop new opinions that neither of the parties had before the dialogue.

Rhetoric must be understood collectively, not as changing the participants' cognitive understanding or feelings, but as having a sense of the mood of a group and meeting in a mood. Only then can he speak into the mood, and by being attuned, also change the group's mood. If one continues with the three classic elements of rhetoric, logos, pathos and ethos, the latter might stand out as the most important factor. As ethos is about being a well-disposed person and person of character, we will now address the pedagogical perspective.

Pedagogy: The process towards being attuned

The Royal Norwegian Air Force Academy has based its pedagogy on the concept of learning from experience (Dewey, 1961; Luftforsvarsstaben [AirForceStaff], 1995), where there are three important processes: theory, practical training and reflection (Firing & Laberg, 2010). This pedagogy has given birth to the crisis situation and the coach's speech presented at the beginning of this text. We were inspired by the man who gave his speech, as we have been inspired by Martin Luther King Jr. They have succeeded in growing through their experiences and were well-trained for interaction.

The Chief-of-Defense expects leaders to be good role models and holds that excellent leadership should be expressed through (1) Mission Focus, (2) Interaction, and (3) Development (Sunde, 2012). Interaction-oriented behavior means improving relationships, increasing motivation, developing trust and encouraging cohesion. Inspired by the pedagogy as it unfolds at the Academy (Firing & Laberg, 2010) and by music, we will elaborate on the development of interaction skills through three processes: (1) Instrument, (2) Voice, and (3) Being Attuned.

Instrument

As leaders, the most important instrument we have is ourselves. The question, then, is how should we tune our "instrument"? Authentic leadership begins with awareness of who we are, which means that leadership emanates from the resources within the leader himself (Avolio &

Gardner, 2005). Leadership development involves becoming aware of oneself, one's own thoughts and feelings, and one's own IQ and EQ. We may start with the sharing of "life history" and "trigger events" in smaller groups, where we seek awareness of how the individual's life story gives meaning to the person's thoughts, feelings and behavior in the present. Furthermore, we conduct psychological tests that indicate which "notes" we have. The cadets write a leader's logbook throughout the process, a written record of what has happened but also how this was experienced and which subjects were disclosed to the individual. The intention behind all this is to increase self-awareness of who one is – one's ethos. We focus on behavior, cognition and emotion. The leaders disclose more and more of their "instrument".

Voice

As leaders, it is not enough to have a tuned instrument; you also have to use your voice in communication with the other. In interpersonal inter-action, the voice encompasses both the formulation of words, that express what you wish to communicate, and the voice timbre, which shows the emotional state the person is in. Thinking and emotion are expressed through what we say and how it sounds vocally. In some ways, the voice is a signature of who we are. The voice may be the carrier of who you are, the actual identity of yourself, in relation to "the other". Having found his voice, the leader continues the process of tuning the instrument.

In leadership development, it is important to use others to broaden our knowledge about ourselves. This is why the practice of feedback, which involves both giving it to others and being able to receive it, is essential. Many of the experiences here are related to awareness of behavior that others experience but have not been aware of themselves. Hence, we argue that feedback is like a gift, giving valuable insight about ourselves from others' perspectives, if we dare to be open to it.

The practice of the processes described above – recounting "life history" and "triggering events", writing the leader's logbook and participating in the process of giving and receiving feedback – all takes place within the group. This gives cadets a lot of experience in listening to others, seeing

others' perspectives and empathizing. The way we work here ensures that we move further from thoughts and feelings to practicing relations and interactions with "the other". This points to the process of being attuned, which is something that may be the core quality for leaders if they are to change mood during crisis situations.

Being attuned

Tuning our instrument and discovering our own voice means becoming aware of ourselves, our own thoughts and feelings and our own Intellectual Quotient (IQ) and Emotional Quotient (EQ) (Goleman, 2006a). Furthermore, we should tune our instrument according to experiences with relationships and interactions. Tuning our instruments based on such experiences makes us attuned to "the other"; we are developing our Social Quotient (SQ) (Goleman, 2006b).

What does it mean to be attuned? From our instrument, we can use our voice – both words and voice timbre, thoughts and emotions – in relationship to "the other". The counterparts must see each other. Kierkegaard put this best, perhaps, when he said, "If one is truly to succeed in leading a person to a specific place, one must first and foremost take care to find him where he is and begin there" (Kierkegaard, 1859). Thus, we must see the "other" where he is.

We may also understand the concept of being attuned through the term "mentalization". This concept points to the process of seeing "the other" from within and oneself from the outside (Fonagy, Gergely, Jurist & Target, 2002). This ability must be practiced. We must practice such skills as listening, querying and empathizing, to gain experience about how this affects our mentalization ability. The practiced skills will become an integrated part of our leader behavior. This ability provides a good foundation for being attuned to "the other".

It is in the attuned mode, on the interpersonal level, that mood exists and can be changed. At this level, the individuals will then be affected and changed. Vygotsky points this out through the law of cultural development (Vygotsky, 1978:57). People internalize knowledge from the social context they are participating in. The social mood will be the starting

point from which the individual experiences the mood and the change of mood.

The nature of the mood can be the difference between unhealthy and healthy conflicts, and the difference between distrust and trust. There are examples of how human error and bad relationships have been the cause of accidents in operations. Conversely, we have experienced a mood characterized by flow, companionship and harmony. The difference is enormous.

A conceptual model of changing mood

Starting with a crisis situation, we have seen how participants may be victims of the mood. Through exploring the concept of "mood", our aim has been to contribute to the development of new interaction theory and discover the possibility of changing the mood and establishing harmony, both in crises and in our daily lives. For this reason, we have developed a model (Figure 5.1) that integrates the crisis situation, pedagogy and rhetoric with mood.
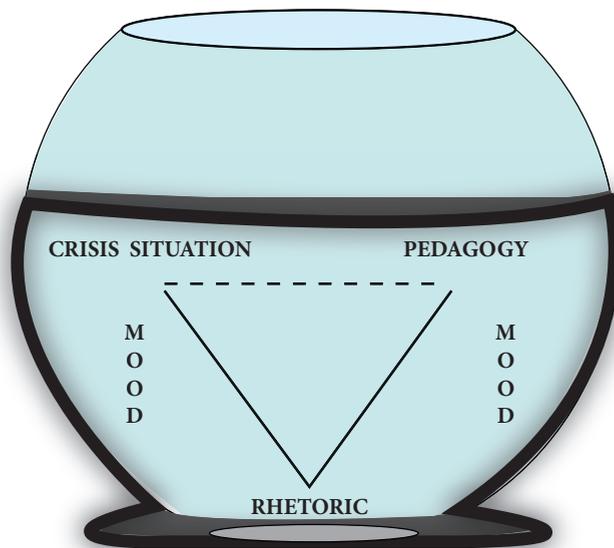
Figure 5.1 A conceptual model of changing mood.

The model sees mood as an existential dimension of humans, just as the water would be to a fish swimming in a fishbowl. We have kept the water in the model, seeing mood as a dimension that envelops human existence. However, instead of the fish, we have included such human elements as crisis situation, pedagogy and rhetoric. We propose the following connections:

1) The crisis situation unfolds in many dimensions, where one of them is mood.
2) Pedagogy is the process of developing a well-disposed person; however, this person cannot reach into the situation directly (dotted line).
3) Rhetoric mirrors an opportunity for the well-disposed person to speak into the situation (solid line).
4) Mood's connections to the elements give rise to a paradox: all these processes take place within a mood, at the same time as it changes and can be changed by mood.

Through the elements and the indirect and direct connections, the model offers opportunities to change mood. This gives the model both theoretical and practical implications beyond the military exercises that were the point of departure for this text. However, we should not think for one moment that leaders can change mood by simply following a model. This can only be done through the art of speaking, an art that enables leaders to establish harmony and get their troops ready for further operations. Perhaps we can be inspired by the young man who taught us a lesson about human interaction, who turned grief and despair into gratitude and love.

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Apprenticeship Learning in Preparation for Meeting the Unforeseen

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Abstract: The chapter analyzes teaching where the goal is to enable students at the Armed Forces Staff College to master unforeseen events. The students are all participants in a program for joint operations in which different military branches are placed together to solve complex tasks. How can the supervisor contribute to increased *samhandling* when facing the unforeseen? The goal is for students to be able to cope with the roles that exist in a normal NATO headquarters and to learn how to use NATO's operational planning strategy. The group supervisor becomes a form of master who greatly influences the approach of students to the training community. From a sample of one hundred students, five groups consisting of four to five students of both sexes, with varied defense-force affiliations, backgrounds and experience were selected to be interviewed. A total of 23 informants participated in the interviews. In addition, observations were carried out. Apprenticeship Learning as a method is appropriate to prepare the students better for *samhandling* in anticipation of the unforeseen. The way the supervisor manages his or her role has a great deal of impact on *samhandling* and learning outcomes. The supervisor's insight and expertise in what is needed to make groups work together is decisive. Strengthening and developing *samhandling* in exercises is a suitable educational method for military forces in meeting unforeseen events, provided that it is done properly.

Keywords: *Samhandling*, interaction, apprenticeship learning, supervising, training, education, organizational learning, unforeseen.

Introduction

In this chapter, we analyze teaching where the goal is to enable students at the Armed Forces Staff College to master unforeseen events. The students are all officers who come from the three branches of the Armed Forces – Army, Navy and Air Force. The purpose of the course is to increase understanding of joint operations (Andersen, 2016; FHS, 2015). Since conflicts and wars rarely follow a familiar pattern, unpredictable factors are incorporated into the teaching (Heier, 2015). Kvernbekk, Torgersen & Moe (2015) define the unforeseen (UN) as something that appears unexpectedly and with low probability for those who experience having to deal with it. Torgersen & Steiro (2009) define *samhandling* ["interaction"] as "… *an open and equal communication and development process between parties whose competence complements one another […] working towards a common goal, where the relationship between parties is always based on trust, involvement, rationality and industry knowledge*" (Torgersen & Steiro, 2009:130). The unforeseen and *samhandling* are linked to the Bow-Tie Model, which shows the phases before, during and after the unforeseen event occurs (Kvernbekk et al., 2015). The tied loop shows the preparation phase, UN-0 (Unforeseen state 0 in the course of the event) and the impact phase (see Chapter 1). Group leaders should stimulate all three phases in order to increase *samhandling*. *Samhandling* in the different phases might change, and the model shows that the participant changes his or her role from legitimate peripheral participant to full participant in social processes. Based on this, we will investigate the following issue: How can the supervisor contribute to increased *samhandling* when facing the unforeseen? "Apprenticeship Learning," developed by Lave & Wenger (1991), is used as a framework in this chapter.

Apprenticeship

Apprenticeship is rooted in sociocultural learning theory, which emphasizes that knowledge is constructed through social interaction (*samhandling*) within a context, and not primarily through individual processes (Lave & Wenger, 1991; Nielsen & Kvale, 1999; Maguire, 1999; Dysthe, 2001).

It is common to perceive apprenticeship as a learning process between an expert and a novice or student, where the learning occurs both by the expert showing and telling the student how to do something and then by the student executing the task or assignment while the expert observes and guides the action. Guidance is thus a central form of communication. The student gains a lot of knowledge by observing and performing actions himself. In this way, knowledge is transmitted that cannot be conveyed directly in other ways (Polyani, 1967). Apprenticeship can be perceived as a metaphor of the learning process, in which a student learns by observing and being supervised by a master (Wackerhausen, 1999). By participating in the activity, the novice learns the cognitive structures by observing how the master solves the tasks. This form of learning is also relevant in military pedagogical (educational) contexts, in which officers learn to handle situations that require both quick decisions, interaction and concrete action in unpredictable and risky situations, concurrently while the situation is ongoing.

The more experienced officers guide less experienced officers and soldiers through given military cases and scenarios that are often based on experiences from actual events. Within this framework, learning develops through social processes, thus making the students' active participation in social interaction a prerequisite for learning. Lave & Wenger's (1991) theory of Apprenticeship Learning emphasizes that through legitimate, peripheral participation in the community's productive activities, the apprentice gradually acquires the essential skills, knowledge and values of the craft, by moving from peripheral participation to becoming a full member of group and class. From this perspective, learning consists in acquiring a structure in which students gain increasing access to the experts' domain; in this context, the knowledge of the officers.

Competence in mastering such action-oriented and situational events is developed not only by reviewing fixed action patterns in advance, or through debriefing. Often, creative and unfamiliar solutions are required when *samhandling* involves many participants. This is where Apprenticeship Learning has its advantage as an educational tool. Apprenticeship Learning captures the components in a concrete way, which can be

utilized in the learning situation. Another feature is that the learning content is complex and diverse, often consisting of many simultaneous and non-linear events that do not seem to belong together, making it possible to associate these in a cause and effect relationship. Here, there is a mix of experience, concrete prior knowledge of proven patterns of action and procedures, and very rapid decisions based on the multitude of information. In such situations, it is not possible to stop up and review the individual events in systematic order to "transfer learning to the pupil". However, the most relevant approaches to observation and guidance in such situations, where an overall picture and diversity of knowledge structures are part of the learning process. The central part of this learning context is how the *samhandling* is carried out between the master and the students.

Lave & Wenger (1991) strongly emphasize that learning can take place despite the fact that the participants do not share a common understanding. The apprentice's ability to understand the master's work is not based on the same perception of what they are going to work with. It also depends on participation from both sides in an equal manner. Similarly, the master's effectiveness as a teacher does not depend on his ability to convey his concepts and perceptions to the apprentice. It is also a result of the master's ability to control participation in such a way that the apprentice can develop. Thus, it is their shared participation, not symbols and structures that are the starting point of the apprentice. Central characteristics of Apprenticeship Learning are (modified after Lave & Wenger, 1991; Pratt, 1998; Nielsen & Kvale, 1999):

- Context-dependent, situated learning
- Active participants
- Collective-oriented social learning communities
- Training in practice
- Dialogue-oriented coach/mentor
- Process in a social community
- Contemplative knowledge, different abilities and knowledge each have their own value
- Students are subordinate to the master

Description of the educational context at the Norwegian Armed Forces Staff College [*Forsvarets Stabsskole*]

Education takes place in the form of group guidance under the direction of more-experienced officers. The goal is for students to be able to cope with the roles that exist in a normal NATO headquarters and to learn how to use NATO's operational planning strategy. The students come from different branches of the defense forces and contribute with their individual competence, so that together they can manage to plan a joint operation. The *samhandling* between participants also helps to eliminate the division between defense branches.

The group supervisor becomes a form of a master who greatly influences the approach of students to the practice community. Students go from being peripheral participants to becoming full members of the group or class. Through practice-based learning in authentic situations, the students learn and eventually become masters. Instead of asking which cognitive processes and conceptual structures are involved, we look closer at the task of what the master/officer must help to promote in the social environment for learning to take place. Vygotsky (1978; 1986) shares the perception of learning as a social phenomenon, which emphasizes that learning primarily occurs through participating in a practice community. Vygotsky's (ibid) view of learning and development is expressed from a socio-cultural perspective by the development of thought, from the inter-psychological (social, interpersonal) to the intra-psychological plan (individual plan).

Method

Our aim is to gain an understanding of the students' experience of the supervision they received; therefore, we conducted both observation and qualitative interviews. The first author of this chapter developed an interview guide, conducted the interviews and was responsible for analysis of the material.

A semi-structured interview guide was developed in advance, in accordance with guidelines issued by Kvale (1997) & Patton (2002). The

interview guide was developed to create a structure, so that the common theme was covered. The interview guide consisted of brief questions related to:

- The students' relationship with the group supervisor
- The role the supervisor plays in the students' learning development
- Whether the group is consciously aware of complementary skills and how participants experienced that the different skills/backgrounds of the group appeared in group guidance
- The group supervisor's influence on *samhandling* and the relationships within the group
- The group supervisor's influence on the work process in the group
- Whether this form of group guidance is of practical and professional relevance for the student group
- How the relationship between group and process is emphasized in the counselling

In order to attain different perspectives, a semi-structured interview guide was used, which covered the same topics but remained, at the same time, open and flexible so that topics which emerged during exciting discussions and exchanges of opinion could also be covered. It was necessary to search for diversity, variety and breadth when interviewing the informants, which Kvale (1997) points to as important. The participants were asked to describe what they had learned and how they considered the role and importance of the supervisor in the *samhandling*. In the follow-up, the interviewer often asked the participants to concretize with examples and elaborate on their statements. From a sample of one hundred students, five groups consisting of four to five students of both sexes, with varied defense force affiliations, background and experience, were selected to be interviewed. A total of 23 informants participated in the interviews.

The informants were informed in advance regarding the purpose of the study, which was to examine how Apprenticeship Learning is used as an educational method to prepare for meeting the unforeseen. The interviews were conducted in April/May 2016. Participants was informed before the interview and all gave their consent, also allowing the use of

sound recording. The interviews were conducted verbally, and later, fully transcribed. This made the analysis work conducted afterwards more tangible, and made it easier to interpret the material better. In addition, an observation form was used to make observations in all the groups in advance. This was done for the same reason as the interview guide. Observation is useful, both in providing input for the interviews, linking experiences in common, and helping to analyze the material. In this way, triangulation of the material is enabled. In particular, emphasis was placed on observing the following:

- The activities of the students
- Shared knowledge among the students as well as between the students and the supervisors
- How the supervisor managed his/hers role

The observations correspond to 10 hours of material. Each interview lasted one and a half hours. In total, this study covers 17 hours of collected material.

Analysis

Thematic analysis was adopted when interpreting the interview material. This is a suitable method for identifying, analyzing and reporting patterns within the data analysis (Braun & Clarke, 2006). In contrast to other types of qualitative analysis, (such as Grounded Theory, IPA or discourse analysis), thematic analysis is not bound to a theoretical or epistemological framework (Braun & Clarke, 2006). The analysis can therefore be classified as a deductive, thematic analysis or a "top down" process, according to Braun & Clarke (2006). A theme was defined as "patterned response or meaning within the data set" (Braun & Clarke, 2006:82). During the process of theme development, themes were continuously revised, implying, for example, that some themes would be subdivided and others would be combined for the purpose of fitting the data. This step of the analysis therefore involved a certain degree of interpretation. The interviews showed that all of the students appreciated the

basic aspects of participating in the learning community in general, and mastery in particular. The fact that learning is added to an exercise that is highly relevant and involves active interaction in a professional and social community, seems to be success criteria for the teaching plan. This is common to all of the groups and is demonstrated in Table 6.1.

Table 6.1 Categorizing the findings by group and seen in relation to Lave & Wenger's (1991) taxonomy.

Lave and Wenger's (1991) taxonomy	Small degree of *samhandling*	Increasing degree of *samhandling*	Approximate exemplary *samhandling*
Group	A	C+D	B+E
Context-dependent, situated learning	Yes	Yes	Yes
Active participants	A few active, the majority passive	A few active, the majority passive	Everyone actively builds on their own background and experience
Collective-oriented, social learning communities	Single performance is emphasized, focus on product	Single performance is emphasized, focus on product	Establishment of a sharing culture, everyone contributing their complementary skills
Training in practice	Yes	Yes	Yes
Dialogue-oriented coach/mentor	Monological approach, the supervisor has the answers.	Monological approach, the supervisor has the answers.	The supervisor highlights the students' answers, consciously repressing his/hers own answers
Process in a social community	Emphasizing the result	Emphasizing the process	Emphasizing the process in the preparation phase and the result in the consequence phase
Students are subordinate to the master	The supervisor has the blueprint/has the right answer/is the one with the right answer	No one is right	There is no blueprint; open questions, different qualities of different answers are encouraged

Product or process – or both?

The analysis reveals that some supervisors mainly emphasize the product, while others emphasize how the group reached the result, i.e. the process, to a greater extent. The product indicates something about the specific

product and solution the group had come to. Furthermore, the product was influenced by the supervisors, who made sure that the groups followed certain structured patterns of action and worked towards a goal that was embodied in doctrines and drills. The process denoted how the group worked together to solve the task:

"It's not just a simple matter of coming up with a move. You must be prepared to explain the analysis behind it and why you think as you do. Then you also stimulate learning in the others. Those who always have a ready response are restrained so that others can share the limelight." (Student, Group E).

In one interview, it was reported that:

"It is not education we are dealing with. We are doing what we should be doing. We are experiencing it. We are forced to be more active. This way of learning leads us a step further." (Student, Group B).

Another group expressed that:

"It is very good that the supervisors walk around in the small groups and participate, that is very good. They contribute in the discussion, but they do not come with the blueprint and specific opinions. They come in and give some hints, and often it's the one that helps to solve the process." (Student, Group E).

The supervisor's alternation between process and product was important for the *samhandling* process itself, especially in relation to the development of complementary competence and involvement awareness among the participants. In the student groups where the supervisors were able to create confidence in the preparation phase, the students stated that it contributed to a culture in which the participants trusted each other and gave of themselves (Groups B and E). The individual saw himself and the others as important resources.

"It's a very good group that I learn a lot from; people are good at sharing the knowledge they have, while the supervisors are open to answering stupid questions and without being nailed to the wall". (Student, Group E).

"Scaffolding" provides a good illustration of *samhandling* between master and apprentice. The master seeks to give the learner an assistant,

which aims to expand the apprentice's ability to solve different tasks. This gives the learner the opportunity to solve tasks that he would not otherwise have had. The proximal (also called the nearest) development zone (Vygotsky, 1978; 1986), is said to be the difference between the cognitive challenges of a child managing on their own and the tasks the child can solve under the influence of an adult or in collaboration with a more knowledgeable adult. The same would be also between adults, i.e. a master and apprentice. From a *samhandling* perspective, the relationship between the student and the teacher assumes, as a matter of course, that the student actively participates in the educational process. Some of the students' statements illustrate the nearest development zone/ scaffolding:

> "*It is very good that the supervisors are available. I noticed this the first week. We were going by a map and we were also fumbled about for a long time to find out what to do. It was like getting a map distributed, but a map where there were no entries in the map. Then the supervisor was there and gave us three key words and solved a lot of things for us, putting us on the track so we realized what to do. Helped us start the process.*" (Student, Group B).

Vygotsky (1978; 1986) believed that teaching and learning had to come first and that psychological development would follow as a natural consequence. However, in order for this to happen, the teacher must be able to facilitate development-promoting learning processes by using mediating tools such as language, signs and symbols, graphic illustrations, theories or models that can constitute a "scaffold" for the students, in their efforts to exceed the nearest development zone. In addition, the task the students are facing should be oriented towards stimulating collective development processes, rather than testing their individual learning outcomes.

Furthermore, based on analysis of the material, we find that the mentors who focused a lot on the product in the preparation phase did not take the unforeseen sufficiently into account. This may indicate that the more insecure the supervisors were in their own role, the better they were at emphasizing the outcome. As an example, a student claims, "It's more that they resolve the problem rather than providing us with the piece of

guidance that will help us to find the answers ourselves." (Student, Group D). There are examples where the students found that the counseling was counterproductive. This happened when the supervisors failed to find a good balance between process and outcome:

> *"So, NATO has no idea how this should be done, and when the supervisor intervenes and presents a solution where there is no solution at all, then it disturbs the process. I think the supervisors were unsure how to do that. It became a little staccato when they appeared."* (Student, Group D).

Utilization of complementary skills

An important task for the supervisors was to utilize and channel the participants' overall competence as well as they could towards common goals. Complementarys skills and the recognition of complementary skills are very important for *samhandling* (Torgersen & Steiro, 2018, Chapter 2; Steiro & Torgersen, 2018, Chapter 14). Sometimes the participants lost motivation. The task was to capture the students' attention and direct them towards the tasks without appearing authoritarian:

> *"We strive and sometimes it's like getting a map out without any entries in the map. Then the supervisors provides us with 3–4 keywords that solve a lot for us. Puts us on track so we understand what to do."* (Student, Group B).

We see here a form of more indirect education which does not instruct but rather stimulates the use of one's own competence, which is brought out by gaining input or new perspectives (Torgersen, Steiro & Saeverot, 2015; Saeverot, 2013; Torgersen & Saeverot, 2012). The quotation above further illustrates that the supervisor had to provide the progression here. When necessary, the supervisor entered and noticed the need for everyone to participate. A "clear process focus" meant that the supervisor invited the participants to contribute and followed them up in the process.

> *"They have given some good targeted feedback, but at the same time not too much. I don't think I would have learned much more if I had received more advice and tips. It might have become a crutch."* (Student, Group B).

An important task for the supervisors was to split the group into smaller subdivisions and place people in roles where they had their strengths. This was important in order to highlight complementary skills:

"Our supervisors were clear that we had to use our expertise because the complexity is so great. As a military man, I don't know how the Navy handles things. We must have naval competence. This was expressed clearly when we distributed roles." (Student, Group B).

Most students felt that dividing sections into smaller groups was positive. Using this maneuver, the supervisors managed to facilitate a good dialogue and contribute to the individual's knowledge development. A student explains:

"You must be prepared to explain the analysis behind it and why you think as you do…Then two things happen – you challenge the person who says it and everyone becomes involved in the thinking behind it. It also helps others to participate and leads to good discussions." (Student, Group E).

The students felt that they became more responsive and reflective in the smaller groups. It was easier to contribute with their own perspectives:

"I pull back in the big group because most people have already 'steamed on ahead' in the process. I find it hard to be a contributor. But when they divide us into smaller groups, it becomes a completely different activity for me and I am able to take responsibility for contributing." (Student, Group E).

Tension between master and student: The asymmetric master-apprentice relationship

Supervisors alternated between authoritative and egalitarian styles of supervision, which was important for the *samhandling* process, especially in relation to the development of trust between all participants. Supervisors who used their professional authority, while acknowledging and elevating the students' competence, succeeded in gaining trust:

> *"I'm unused to the degree of firmness. The supervisors are clear about how things should be done here. They help to steer us towards the center, not the periphery, as a safe way of conducting the operation."* (Student, Group B).

Supervisors who demonstrated their professional authority early in the relationship, while at the same time ensuring equality in human relations, helped to create trust between supervisor and student, but also between the students themselves. An example of such a relationship is the group where supervisors and students built up a master-apprentice relationship:

> *"They don't just throw the ball back and tell you what you should be thinking. It's a good way to give guidance. They have a lot of experience, professional competence and social competence as supervisors. There is a foundation at the base."* (Student, Group B).

Even though the relationship was not equal, the parties had confidence in each other. There is no need for total equality in the roles between student and supervisor. The students should feel safe to reflect and contribute to co-operation. The balance between equality and authority is crucial:

> *"Being able to establish the group's sense of security has been crucial to learning."* (Student, Group E).

A criticism of the Apprenticeship Learning paradigm is that the student is supposed to subjecting the master, learn his values and norms in the work (Illeris, 2000; Skagen, 2004). The authors argue that this is not compatible with modern education, where critical reflection and democratic participation are central. The interviews demonstrate that the students perceive the practice differently; the supervisor who take on an unambiguously authoritative role create a distance between themselves and the students at the expense of learning outcomes. On the other hand, in group supervision it is important that the supervisor takes on a certain amount of authority in the role of master. If there is too much equality throughout the process, it appears to lead to a search for direction and clarity from the supervisor, according to the interviews.

In contrast, three of the student groups showed that professional authority that could be used positively, in some cases, was used as a type of power (Groups A, C and D). In one group, the students reported that the supervisor exercised some form of power and demonstrated authority in the classroom. In this group, the supervisor had a clear need to demonstrate his own professionalism. The students experienced little sense of coping on their own; many of them failed to follow the processes in the group and they lacked faith in their own contribution. For the students, the supervisor's dominance was an obstacle to establishing self-confidence and trust.

> *"The supervisors have a need to show that they are the sharpest on land, sharpest at sea, sharpest in the air. There are students who have several thousand flying hours in an F-16, who have led sharp operations in Libya, and have been deeply involved in Afghanistan. And then the staff of the school sit there and try to tell them what the world looks like."* (Student, Group C).

Here, it is apparent that professional authority is being abused, or at least used in a way that does not create trust and security in the group. Torgersen and Steiro (2009) emphasize the key importance of trust in creating dependable *samhandling*. It appears that the instructor assumes a mentor perspective rather than a coaching perspective in this context (Steiro & Firing, 2009).

Apprenticeship learning and facing the unforeseen

If we return to the Bow-Tie Model, as presented by Torgersen (2018), and the first chapter of this book, we can present the ideal supervisor role in the preparation phase as follows: A process-oriented supervisor with authority. In the preparation phase, it is important to work with the cooperation indicators of trust, security and openness (Torgersen & Steiro, 2009; Steiro & Torgersen, 2015). This phase is characterized by participants becoming familiar with themselves and the others in the group and building confidence in relationships. The trust created during the preparation phase makes the participants more involved and therefore better at contributing their competence:

"Yes, because it is the craft we are learning, you know. You don't learn a craft without holding a hammer and that's what we're doing." (Student, Group B).

In the preparation phase, the supervisor uses his or her professional authority to create a shared commitment and understanding of the situation. By virtue of experience and competence, the supervisor can pave the way in preparation for meeting the unforeseen. It is important for the supervisor to initially build a culture in the group that is based on shared understanding. The students need supervisors who are able to display leadership, define roles and be clear about expectations. If this is not possible, the parameters of what you are preparing for will soon become too wide open. During this phase, the supervisor should take on the role of expert and indicate the direction of the work. The supervisor must facilitate the creation of a common frame of reference – a temporary, "shared room of understanding" (Dysthe, 2001).

Supervision by introducing a topic, cue or question that provides something that can stimulate the group's alertness and curiosity is favorable (Steiro & Firing, 2009). By counteracting instrumental learning, supervisors can also motivate students to engage in informal learning situations. Thus, the students dare to engage in broad and ambiguous issues. A formal and structured perspective, where the focus is on a specific goal, can inhibit learning ability and the prerequisites for meeting complex situations. The supervisor must establish a foundation of trust in the preparation phase, so that students dare to steer away from formal learning processes and towards the unforeseen (Torgersen, Steiro & Saeverot, 2015).

Authority and process focus are a fruitful combination in the preparation phase. It is not, however, that a clear process focus excludes any kind of authority. On the contrary, students report that departing from professional authority in the preparation phase can be a threat to good teaching and guidance. Primarily, the task is to organize a process and dare to challenge the role of the professional expert. The supervisor's emphasis on academic authority provides the basis for each student to take the opportunity to contribute his own expertise and to recognize others' expertise. The supervisor's most important task in the preparation phase is to build trust. As we have seen, the supervisor should be a clear role model in building a culture based on trust, security and openness.

When the supervisor creates a supportive learning culture in the preparation phase, it leads to the students becoming bearers of the same culture. We see that the supervisor provides the basis for what is described as "legitimate peripheral participation".

In UN-o, the supervisor must dare to let go of control to a certain extent. The supervisor must trust that the control and steps he has taken to facilitate the process during the preparation phase have strengthened the students' ability to handle the unforeseen. The supervisor should emphasize an equal and process-oriented tutor style that allows students to act according to the circumstances of the situation. For a supervisor, it may be challenging to lose control. In asymmetric relationships, there is usually a tendency for communication to be centered on the supervisors, because they usually know more or master more skills than the others in relation to a particular subject, or they are better at expressing themselves. By deliberately staying outside of the process, the supervisor encourages a symmetrical form of *samhandling* between the participants, giving each student's voice a greater authority. When the supervisor maintains this paradoxical way of exercising the supervisor role, it opens up for guidance with greater learning outcomes.

In the impact phase, we see how some mentors successfully combine equality with a focus on results. It is an advantage if the supervisor allows students to focus on the result, but at the same time dares to move away from the role of an expert who knows the correct answer. The supervisor should visualize the students' competence and not feel threatened by it. The supervisor does not possess a set answer; each student must use his/her competence in the UN-o phase. It is less relevant to point out who provides the solution as the answers are the result of a process. In the impact phase, it is important that the control dimension is reduced. Through the established relationships, the supervisor can be a catalyst, in order to raise the students' awareness regarding the complementary processes that have led them to the product. The important thing is not the result in itself, but how the students have worked and what processes they have used.

Using an egalitarian guidance style with open-ended questions, the supervisor can provide a structure and clarify how the group reaches

its outcome. In order to solve the unforeseen in UN-0, the students are dependent on complementary skills. Different ways of seeing the matter can make important contributions in solving the task. The supervisor may, to advantage, restrain his/her professional authority and expert role. The supervisors who help strengthen the various contributions are those who take a step back, allowing the students to offer their reflections to a greater extent. The participants not only contribute different skills, but also develop and learn from each other along the way, through what is referred to as concurrent learning (Steiro & Torgersen, 2015; 2013). When the supervisor helps to create such an awareness, it is not only important for the individual's understanding of roles, but also contributes to a broad and complex learning process. Thus, they learn from each other during the *samhandling* process. Production and learning are part of the same process and show that learning takes place in a practice community. Such complementary contributions are essential for a joint operation to function effectively (Torgersen & Steiro, 2009).

In the consequence phase, the supervisor should represent a counterweight to pure instruction, where logical conclusions about results control the conversation. Steiro & Torgersen (2015) argue that guidance should facilitate open and exploratory teaching where guidance and coaching constitute important components. The prerequisite is that the activities not only consist of information that stimulates reason and logic, but also open up for emotions and creativity. The supervisor should not maintain a tight structure with a given focus on a predetermined product. The supervisors should investigate, challenge and test the group's knowledge and understanding, asking follow-up questions where they assess the answers together with the group. The supervisor occupies a coaching role, which is appreciated by the students, as seen in this study.

Conclusion

In this chapter, we have shown that if the supervisors can balance the role of egalitarian authority and process and outcome in the various phases of the Bow-Tie Model, Apprenticeship Learning as a method is appropriate to make the students better prepared for *samhandling* in anticipation

of the unforeseen. The way the supervisor manages his role has a great deal of impact on *samhandling* and learning outcomes. The supervisor's insight and expertise in what is needed to make groups work together is decisive. Strengthening and developing *samhandling* in exercises is a suitable education method for military forces in meeting unforeseen events, provided that it is done properly, as this study has pointed out. The Armed Forces have a long history of experience in training and exercises, but there is still reason to question whether the current teaching methods adequately address the unforeseen. Studying how learning takes place in practice, what is learned and what tools provide the best learning outcomes, is very important. Training under close supervision can probably serve as a model for other agencies who practice unforeseen events. Guided student groups within the Apprenticeship Learning tradition is an alternative to traditional education, one that provides insights and valuable learning experiences.

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Leading and Managing Interaction Under Risk in the Police: What May Be Some of the Underlying Conditions for Learning from Experience?

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Abstract: Leading interaction under risk is one of the aspects of being a leader in the police. After the 22nd of July 2011 Norwegian terror attacks it has been pointed out that the main explanatory factors as to why interaction under risk turned out as it did not necessarily was due to the lack of resources, previous evaluations or government plans but rather the lack of living up to these. In organisation theory, -psychology and management literature, it is customary to distinguish between expressed and actual ways to manage and lead, as well as between the structural-instrumental and the institutional perspective. These strands of research address how the difference between general and overarching political aims and the execution of the same aims in practice neither may be neither uncommon nor unexpected. However, is it possible to expect more agreement between aims and actual behaviour? If so, what may some of the underlying conditions for leading learning from experience be? This chapter discusses what some of the underlying conditions for leading and managing learning from experience in the case of interaction under risk in the police may be. Specifically, conditions of learning located *between* the expressed and executed, that is, *between* the institutional and cultural.

Keywords: *Samhandling*, interaction, police, organizational learning, experienced based learning, leadership, unforeseen.

Introduction

In the Official Norwegian Report that followed the acts of terrorism in 2011, one of the main explanations proposed was that "resources were not able to find each other." (NOU 2012:14:134, chapter author's translation) One example given was when police personnel were unable to attain resources (i.e. boats) that were available at the scene, and coordinate themselves with the situation at hand. Proposed explanations were the lack of appropriate tools (e.g. joint communication platforms), and the quality of the police work performed. While cross-national exercises have been held in Norway (with Swedish colleagues), including joint communication platforms, there seems to have been less work done on the performance of cooperation under risk, and especially cultural explanations of this (Fimreite, Langlo, Lægreid, & Rykkja, 2013; Johannessen, 2015). Cultural traits and the characteristics of the organization or institution have been shown to play a part in the quality of coordination in crisis management (Christensen, Danielsen, Lægreid, & Rykkja, 2016). However, there is still no single optimal "solution or coordination formula that can harmonize competing interests, overcome uncertainty and ambiguous government structures, and make policy choices that everyone will accept." (Christensen, Danielsen et al., 2016:330) In other words, there is no standard system that is best for dealing with emergencies in general (Christensen, Lægreid, & Rykkja, 2016b).

At the societal level, the most serious situations are, fortunately, a rare occurrence. The importance of being able to lead and manage these events *when* they occur is, however, enormous. A lack thereof can lead to declining confidence in the principles of democratic governance and government (Lægreid & Rykkja, 2014). The problems of governmental planning have been described as "ill-defined," as they "are never solved" and are at best "only re-solved – over and over again." (Rittel & Webber, 1973:160). Furthermore, securing public safety has been described as a "wicked problem", as it intersects sectors, institutions and organizations (Christensen, Lægreid, & Rykkja, 2016a). A specific challenge is that this type of work may "fall between different jurisdictions and organizations," which may again result in a situation where the direct treatment of safety issues is

perceived as the "responsibility of none." This may cause the unwanted consequence that necessary security measures are not implemented (Christensen et al., 2016:34). In addition, solving difficult problems by applying the formula of searching for information in order to understand them and then re-solve them, "does not work." (Rittel & Webber, 1973:162). A potential way to go about this is to approach a given task, "reducing street crime" for instance, using "realistic judgement, the capability to appraise 'exotic' ideas" along with "trust and credibility" between the persons involved, and a willingness to try one possible approach, "OK, let's try that." (Rittel & Webber, 1973:164). However, even though these may be well-known moves within academia, Ritter and Webber emphasize that they may be less welcomed among public authorities and head managers in the public sector, as they may be "liable for the consequences of the actions they generate" (Rittel & Webber, 1973:167) to a greater extent. What does such an approach demand of police leaders and police organizations?

Leading interaction at risk in the police

Leadership is often defined as the process whereby one "individual influences a group of individuals to achieve a common goal." (Northouse, 2013:5). The key elements of this general definition may be found in a definition applied by a Leadership Academy for Policing: "the ability to effectively influence and combine individuals and resources to achieve objectives that would be otherwise impossible." (Gibson & Villiers, 2006:6). An equally common way of describing the role of a person that is employed to influence a group towards such a goal is the distinction between management and leadership. According to Pierce and Newstrom (2011), "an effective manager…needs good managerial skills, and if they are managing people, possessing good leadership skills will be beneficial," and vice versa, an effective leader "most likely will need good managerial skills." (2011:xi). It is also common to distinguish between leadership that is characterized by viewing the process of influencing a group towards a goal primarily through the use of transactions, from leadership that leads towards a common goal through the use of vision and inclusion

of employees' views (i.e. "transformational leadership," see e.g. Pierce & Newstrom, 2011). Police leadership is described as neither of these styles exclusively, but rather as a combination of both (Cockcroft, 2014). Despite being described as having a preference for transactional leadership (Silvestri, 2007), some parts of police work may also be associated with transformational forms of leadership (Silvestri, Tong, & Brown, 2013). The dichotomy between transactional and transformational leadership in the police therefore "fails to recognize the nuances of organizational life," and a synthesis of the two leadership models may be a way to overcome these criticisms (Cockcroft, 2014:12).

In addition to the individual roles of leader and manager, leading and managing interaction under risk is influenced by contextual factors such as political aims. What is often the case with complex public-sector objectives is that they may include inherent contradictory demands (Agevall & Jenner, 2016; Granér, 2016). Thus, in addition to leadership in general, leading and managing interaction under risk in the police is also influenced by its context within the public sector. It is also characterized as a form of leadership that has been labelled "operative," in the sense that it potentially includes leading and managing in a context that may pose a threat to the lives of civilians and personnel (Olsen & Eid, 2015). Despite the fact that leadership within the police may be seen as existing within organizational structures that may show similarities to the military, the fire department, as well as the Foreign Service (Gordon, Clegg, & Kornberger, 2009; McKay, 2014; Rothwell & Baldwin, 2007), one challenge is often the described gap between "street cops" and "manager cops" (Reuss-Ianni, 1983/1999). This implies that police employees, despite the structure of their work organization, do not necessarily do as they are told (Andersson & Tengblad, 2009). Furthermore, knowledge-led policing may be questioned and even stopped, on the basis of a police personnel's experience-based knowledge, and professional opinion and judgment (see e.g. Gundhus, 2013).

The Unforeseen

As previously mentioned, some of the most severe cases may also be the rarest. The concept of "the unforeseen" (UN) describes "…any act that

is relatively unexpected and occurs with relatively low probability or predictability to those who experience and must deal with it." (Kvernbekk, Torgersen, & Moe, 2015, 30, translated by the chapter author, se also Chapter 1). Examples of how it may be possible to learn from past experiences when preparing for DU are "unannounced exercises," performed without preparation (Torgersen, Steiro, & Saeverot, 2013:2). The result of such exercises may not necessarily become visible or known to the participants until after the exercise itself, which places emphasis on the role of discussion and reflection. Experiences from planned crisis management exercises on a national level between the Norwegian Police Service, the Norwegian Armed Forces, and other parts of national security (Exercise [Øvelse] Tyr), have shown how having the operative leader (e.g. the Chief of Police), request of his/her colleagues that they play the part of a "critical friend," may influence decision-making and the potential to lead learning from experience (Rosø, 2014).

However, opening up for critical questions alone is not assumed to be sufficient to lead and manage interaction under risk, and influence the ability to lead learning from experience. Particularly in the police it has been shown that opening up for critical input may be challenging because addressing past issues; for instance, actions that are not illegal but still unethical, may expose and potentially self-incriminate police personnel (Hoel & Bjørkelo, 2017). The legal framework that surrounds and is an inherent part of police work may thus potentially hinder leading and managing learning from experience, in the case of cooperation under risk. Other potential obstacles may be interpersonal factors, such as a form of "institutional shame," as police employees, by definition, do not perform illegal acts (see e.g. Wathne, 2012). Furthermore, the surrounding factors of police work may create a situation in which addressing past experiences is not necessarily straightforward (Valland, 2016).

One of the intra-organizational factors that may play a part in the possibility to lead and manage learning from experience in situations including interaction at risk, is the socialization process from education towards profession (Fekjær, Petersson, & Thomassen, 2014; Granér, 2004; Johannessen, 2015; Lauritz, 2009; Reuss-Ianni, 1983/1999; Roberts, Herrington,

Jones, White, & Day, 2016; Rowe, 2005). Several authors have described how Swedish police employees may be met with negative reactions from leaders and managers when attempting to address work tasks, methods and the like, that are perceived as not working well (Kjöller, 2016; Wieslander, 2016). Gendered assumptions and explanations have also been described as factors that influence police leadership (Haake, 2017). This may again limit the potential for leading and managing learning from experience under risk.

Basic police education may be described as an institutional educational practice, where language and social interaction are perceived as the basis for how a social activity is created and recreated (see for instance Phelps, Strype, Bellu, Lahlou, & Aandal, 2016; Sjöberg, 2016). An extension of the basic training is continuing and further education, for example in leadership and management. Such educational programs are based on the view of learning as a lifelong process. Although not part of the same educational pathway in length and time, continuing and further education may be understood as taking part within police organizational and institutional practice (Sjöberg, 2016). Thus, continuing and further education may both be seen as an activity and situation that takes place inside and outside "the police". According to Roberts et al. (2016), "embedding education" during the course of professional police working life may serve the dual purpose of both increasing "leadership" in the workforce as well as ensuring that future police leaders and managers "have the high-level, critical and creative thinking skills that complex problems require." (Roberts et al., 2016:26). In this context, leading and managing learning from experience through DU activities (cognitive, written, oral and physical exercises), may create opportunities for the participants to be affected so that they in turn can "see" their experience, and thereby enable and engage in an interaction about it. But how does this relate to leading and managing interaction under risk? Is it even possible to reflect in the moment of action, and especially when the situation is unforeseen? On-the-spot reflection may not be perceived as possible in action, as it may cause harm to both civilians and police personnel (see e.g., Bergman, 2017). In this respect, "unannounced exercises," performed without preparation, followed by time for reflection and discussion may be of use.

However, in order to evolve, learning implies a need. Thus, even though cases and exercises of the unforeseen may be useful, learning implies a perceived need and openness on the part of participants. A "discrepancy experience" is a term used to describe a situation where an experience comes into our awareness (Lindseth, 2015). Some describe this as realizing that one's current knowledge is insufficient; there is a lack of correspondence between what is expected and what seems to be the case in a given situation (Hugaas, 2014). A discrepancy experience is a situation "where we notice that something is not correct" and where, although our knowledge about what is going on may be good enough, we have reason to doubt (Lindseth, 2012:170, chapter author's translation). It is this doubt that provides the grounds for the discrepancy experience and later learning. So, what does it require of leaders and managers to "see" and experience a discrepancy and be able to assist and create learning from the experience among one's personnel? Especially when addressing past issues may be perceived as a potential threat, leading to self-incrimination and the betrayal of one's team.

In a study that investigated police cases that were legally correct but not necessarily good police practice, the results showed that leading learning from experience mainly took the form of strategies such as "straightening up" one's personnel through instrumental, as opposed to reflective, learning measures (Hoel & Bjørkelo, 2017). Based on the results, suggestions for a stimulating climate for reflection and dialogue around the question "is *this* good police work?", referring to the actual case, were suggested. As a way to bring potential cases of police malpractice to the fore, it was also suggested that going through the experience of being accused might be a way to "see" and experience a discrepancy, thereby creating learning from the experience among one's personnel, and providing a basis for a fundamental change of practice.

Similar to the concept of discrepancy experience, cognitive dissonance is assumed to carry with it the potential for change. The concept of cognitive dissonance describes the experience of "the gap" between, for instance, one's behavior and one's basic values (Elliot & Devne, 1994; Festinger, 1957). Studies have documented that being able to obtain or create dissonance can have a major impact on health behaviors as well as

political affiliations (Bernstein, Alison, Roy, & Wickens, 1997). In the case of the lack of police quality in cooperation under risk, being accused of poor quality work in a national official report is presumably a potential experience that is remembered. However, due to the interpersonal bonds between police employees, the processes of socialization and professional shame, this alone may not enable learning. Thus, experiences of discrepancies and cognitive dissonance may be examples of underlying conditions for leading and managing learning from experience in the case of interaction under risk in the police. But how?

Some argue that it is the leader and manager's responsibility to "ensure that their team gets the experiences they need to acquire knowledge." (Effron, 2008:229) However, experience in itself may not be enough to enable learning. Police leaders may therefore potentially profit from arranging "unannounced exercises" of cooperation under risk for their personnel, based on previous actual experiences, if these are followed by reflection and discussion in a climate of trust. Previous studies have documented the impact of trust in teams (Moldjord & Iversen, 2015). Trust may also play a part in building a future bridge between "knowing-in-action" and "reflection-in-action" (Schön, 1992:123). "Knowing-in-action" is how we may learn to "see" (observe), "reflect on, and describe our knowing-in-action". We can test our descriptions for example by writing down how we *usually* act in certain situations and thereafter *observing* "what happens when other people try to follow them." (Schön, 1992:124). On the other hand, "reflection-in-action" may be useful when attempting to make sense of "on-the-spot" actions (Schön, 1992:125), such as the unnanounced excerises. It may also be of value in drawing attention to leading and managing based on change and complexity, rather than predictability and control; encouraging one to "…take ordinary, everyday experiences seriously," and shift focus from systems to relations, movements and "ongoing ethical and moral evaluation" (Johannessen, 2009:225). Thus, nurturing the moral paradox of police leadership may in itself "sustain movement and tolerance of the known and the unknown – the expected and the unexpected." (Johannessen, 2015:179).

Conclusion – a model

This chapter has discussed what some of the underlying conditions for leading and managing learning from experience in the case of interaction under risk in the police may be. Specifically, conditions of learning located *between* the expressed and executed, that is, *between* the institutional and cultural that deal with "wicked" problems that in themselves may be unsolvable. One of the answers may lie in a model of *Leading and managing interaction under risk in the police*, which takes into account both context and potential underlying conditions for learning from experience.

Contextual factors may include (1) leadership style, with both elements from transformational and transactional ways of leading and managing; (2) its position within the general public sector, with its "wicked problems" that may be inherently unsolvable; and (3) the influences of interpersonal and socialization processes, and professional shame. In addition to these, there is also the impact of the current reigning economic and managerial ideology (e.g. New Public Management (NPM) in public sector, Christensen & Lægreid, 2001). As a process, a preliminary model of leading and managing interaction under risk in the police will have several similarities with general models of experiential learning, (such as Kolb's learning circle, cf. e.g., Kolb & Kolb, 2005 and Lauritz, Åström, Nyman, & Klingvall, 2012). However, in order to provide "unannounced exercises" of cooperation under risk for their personnel based on previous actual experiences, police leaders and managers may also need to take into account notions of leadership that are based to a greater extent on complexity in everyday life rather than learning as a linear and instrumental process. "Managing the unexpected is not simply an exercise in going down a checklist." (Weick & Sutcliffe, 2015:vii). Simultaneously, leading and managing under risk also requires adherence to risk and action lists during crisis. To sum up, the model proposed here may potentially influence all three levels of the bow-tie model (see Chapter 1): (1) what will be interpreted as a warning sign in the future; (2) how one plans for and reacts to the unforeseen; and (3) how recovery is understood and applied in practice.

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The Relevance of *Samhandling* in Military Doctrines

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Abstract: Military leaders are faced with high expectations when it comes to handling unforeseen situations in joint military operations. This chapter aims to present a nuanced professional and pedagogical discussion of how an increased awareness of the concept of *samhandling* in the use of military doctrines may contribute to the professionalization of military higher education. Different doctrines reflect different theoretical decisions. They are given relevance in education as a way to illustrate formal examples of what is preferred and what is rejected. As doctrines are built on experiences from real-life scenarios, as well as on predictions and strategies for possible change, they may serve as a way of balancing the branch-specific "hidden curriculum", i.e. an established culture with a set of current values, behavior and thinking that have been developed over time in the organization. The findings in the current case study indicate that military doctrines are regarded as important in leadership training at the Norwegian Military Academy, especially when it comes to understanding and guiding *samhandling* in unforeseen and risk-oriented situations. However, at the same time, the terms used to describe *samhandling* in military doctrines found relevant in education at the Norwegian Military Academy are numerous, vague and somewhat overlapping. It seems crucial to raise awareness of the underlying processes and the relational ambition level that forms the basis of the chosen term. It is advantageous to reach a collective understanding of the kind of skills that need to be developed and trained. Another benefit of such analysis is to provide a basis for clarified learning goals and practical scenario development through exercises and other teaching plans in leadership education, as well as the evaluation of this, both in terms of learning outcomes and education as a whole.

Keywords: *Samhandling*, curriculum, doctrines, interaction, collaboration, organizational learning, military training, unforeseen.

Introduction

Military organizations today must deal with very high levels of uncertainty, as a result of the international political environment, the possibility of direct intervention by formal authorities, and the very nature of combat (Posen, 2016). New and changing forms of terrorism and cyberattacks, the latter in combination with other efforts, are also parts of the threats both for the Armed forces and for civilian organizations. Leaders, and particular military leaders and leaders responsible for preparedness are now faced with high expectations when handling unforeseen situations in combined operations, also related to cyber operations and terrorism. *Samhandling* (interaction) is believed to have an increased relevance to meet the challenges. In addition, the level of uncertainty is increased because of the mixed motives of organizational participants, and the fact that military organizations do not get much realistic practice (Posen, 2016; Carlsten, Hybertsen & Heggem, 2015; Carlsten, Skaug & Haugdal, 2016). Military leaders are now faced with high expectations when it comes to handling unforeseen situations. One way of preparing new leaders for interaction under uncertain circumstances has been, for a long time, to introduce different doctrines into leadership curricula.

Different doctrines reflect different theoretical decisions. They are given relevance in education as a way to illustrate formal examples of what is preferred and what is rejected. As doctrines are built on experiences from real-life scenarios, as well as on predictions and strategies for possible change, they may serve as a way of balancing the branch-specific "hidden curriculum", i.e. an established culture with a set of current values, behavior and thinking that have been developed over time in the organization (e.g. Jackson, 1968; Giroux, 1988; Margolis, 2001), with tools to understand and develop competence to handle new ways of *samhandling* in upcoming, unforeseen situations. In order to find concrete examples of educational planning, using both general and operational doctrines as part of the formal curriculum, we have selected the risk-oriented officer leadership education at the Norwegian Military Academy as a specific case in our study.

In this chapter, we aim to present a nuanced professional and pedagogical (educational) discussion of how an increased awareness of the concept of interaction in the use of military doctrines may contribute to

the professionalization of military higher education. The discussion of the relevance of such a concept may be of specific importance at a time when military higher education is increasingly cooperating with the civilian education sector (Carlsten et al., 2016). Therefore, we argue that this chapter is of relevance for both military and civilian higher educational institutions.

More specifically, we ask how *samhandling* ("interaction") is framed within risk-oriented educational planning using military doctrines. What concepts are used to describe different types of *samhandling* in the relevant doctrines, and how do those responsible for military educational planning judge the relevance of *samhandling* in the central doctrines?

The chapter aims at answering the following questions:

1. What terms are used to identify different constructs and concepts of *samhandling* in doctrines relevant to officer leadership education planning at the Norwegian Military Academy?
2. How do instructors in charge of officer leadership education planning at the Norwegian Military Academy explain how normative understandings of *samhandling* within different doctrines serve to prepare future officers for *samhandling* in unforeseen and risk-oriented situations?
3. How does the leadership of the Norwegian Military Academy explain how doctrines may serve as relevant tools in educational-strategic planning?

Doctrines, the unforeseen and *samhandling*

What is a doctrine and what is its function in terms of getting closer to a nuanced understanding of *samhandling* in risk-oriented educational planning? In our study, we use central discussions in military and educational theory to support us in finding answers to these questions (Andersen, 2016; Zapfe, 2016; Honig, 2016; Kronvall & Petersson, 2016; Posen, 2016; Slensvik & Ydstebø, 2016; Høiback, 2016; 2013; 2012; 2011; Bekkestad, 2012; Jackson, 2013; Torgersen, 2008; Torgersen & Steiro, 2009; Rasmussen, 2006; Kier, 1997; Gordon, 1997; Posen, 1984). Common

to discussions about the role of a doctrine in military theory, is understanding its purpose in providing common operational and administrative procedures, as well as its function as a basis for communication, coordination, cooperation and *samhandling* between military branches and member countries. As Høiback (2016) points out, doctrines serve as tools for operations, education, and change. These three functions have driven defense transformation in Norway, along with threat perception and defense spending (Kronvall & Petersson, 2016).

A doctrine is built on a speculation about what is needed in the future – in an unforeseen scenario. It is also characterized by a certain inertia, and may be understood as a documented tradition more than a guideline for unforeseen situations. How well does a doctrine with such an unclarified foundation address *samhandling* in modern military operations, in providing a realistic foundation for ongoing changes? As pointed out in Chapter 1 in this book, the unforeseen and *samhandling* are linked to the Bow-Tie Model, which shows the phases before, during and after an unforeseen event. *Samhandling* can be beneficial in relation to occurrences and accidents, as illustrated in the Bow-Tie Model. As underlined by Torgersen and Steiro in Chapter 2, there is no standard formula for organizations for developing *samhandling*. Each organization should conceptualize the term individually. Our claim in this chapter is that the study and application of relevant definitions of *samhandling*, as found in central military doctrines, is a recommended starting point in educational planning. We assume that *samhandling* as a term embraces a high relational ambition level, more than just coordination and communication (see Chapter 2).

A common understanding of the relevance of terms used to identify constructs and concepts of *samhandling* in doctrines is central to current risk-oriented education. In our case, the Norwegian term *samhandling* is defined according to Chapter 2 in this book: *"Samhandling is an open and mutual communication and development between participants, who develop skills and complement each other in terms of expertise, either directly, face-to-face, or mediated by technology or manually. It involves working towards common goals. The relationship between participants at any given time relies on trust, involvement, rationality and industry*

knowledge" (see also Torgersen & Steiro, 2009:130). As further pointed out by Torgersen and Steiro in Chapter 2, for *samhandling* to occur, each participant must contribute with their unique situational understanding. Sørensen (2017) found, in his study of Norwegian civilian maritime crisis collaboration exercises, *"… a need for greater emphasis on collaboration learning and usefulness (…)"* Furthermore, he recommends *"…adopting a national collaboration exercise framework that stresses collaboration development rather than continuation of current practices…"* (p. 101).

The unforeseen is by no means a closed concept, but is rather a relatively-open expression (Kvernbekk, Torgersen, & Moe, 2015). *"In the military context, the essence is, in the best possible way, to forestall the unforeseen through intelligence gathering, planning, structured training and learning. Samhandling is needed to make this happen."* (Bergh & Boe, Chapter 17:310). Bergh and Boe (Chapter 17) further write that military commanders are of great importance for both the leadership of planning processes in military doctrines and military leadership literature. A broader and deeper understanding of the concept of *samhandling*, seen in correspondence with relevant doctrines and both formal and hidden curriculum analyses, could provide the basis for more robust and relevant competency development. We know from earlier studies of the relevance of Norwegian officer leadership education that concepts and structures related to the unforeseen and *samhandling* are diverse and not made sufficiently explicit in curricula and educational strategies (Carlsten et al., 2015; 2016).

Samhandling is a precondition for mastering complex crisis situations with a high risk of loss of life and materials, where action carried out in an integrated process consists of many parties and advanced equipment and technology. Such pedagogical (educational) thinking has, among other things, a basis in encyclopedic reasoning (diversity in competence) (Torgersen, Steiro & Saeverot, 2015; Torgersen, 2008). Antithetically, ambiguities and a lack of conformity in the use of the concept of *samhandling* between doctrines and curricula could provide weaker and more random skill-development in handling unforeseen situations. At the same time, it is paramount that education of each individual officer enables a tailoring of the concept *samhandling*, with corresponding competence in specific core tasks. Such a correspondence between management documents,

concepts and educational content obviously applies to all types of professional education, where many parties are involved in the execution of competence-demanding tasks, and where the conditions are unforeseen and risky.

Samhandling in doctrines relevant to educational planning

Does it matter what words and terms are used in the curricula? Yes; as indicated above, it is important to choose the right words and expressions as the basis for curricula in higher education, especially where education is practical and focuses on the development of creativity and innovation (Jackson et al., 2006). This kind of training often requires sophisticated teaching plans and exercises. It takes time to develop such arrangements. It entails that instructors have a sophisticated planning tool based on current competency expressions and terms, that serves as a substructure for training. In such situations, it is necessary to have a reflected view on key terms used to identify concepts such as *samhandling*, and to what extent they involve the same construct or whether there are nuances. Identifying and applying nuanced meanings will have consequences for the actual teaching plans and the storyboards for exercises and scenarios. If not made explicit, skills that are desired or needed may not necessarily be developed in a qualified and secure way, unique to each situation.

Military doctrines are commonly used as a basis for several topics in military education, as well as for developing learning objectives and content in the higher education institution's curricula. This applies in particular to higher military education for educating officers at staff level. Discussions of terms covering the relationship between military branches are decisive in developing expertise in both branch-specific and cross-branch understandings of interaction and cooperation in domestic and international operations. Different concepts relating to *samhandling*, and varying interpretations of how these same different concepts relate to branch-specific interaction, will influence what kind of competence is desired to be developed among the students. This will be of relevance for the teachers' choice of curriculum content and

competency goals, as well as for how teaching and training plans are facilitated and evaluated, and should be formulated and written down in the school curricula. It is seen as important to use concepts that represent the actual and strategic competence desired to be developed (O'Neill, 2015; Leash, 2015).

Doctrines have been the subject of much research during the past few years. We know from some of the research that doctrines may be a powerful and efficient tool of direction. As Andersen (2016) points out, they may therefore be understood within a paradigm, emphasizing doctrines as functional and rationalistic documents. He points out that this understanding may be more apparent in joint-operational doctrines than in branch-specific doctrines, the reason being that there may be added room for sensitivity to cultural tension in branch-specific documents (Andersen, 2016). There is, however, a lack of knowledge regarding if and how doctrines, as normative documents serving as a basis for domestic and international interaction, may be used for educational purposes as tools to ensure interaction in the planning of unforeseen and risk-oriented situations. In this chapter, therefore, we identify terms used to cover the constructs and concepts of interaction, collaboration, cooperation and joint force in Norwegian documents and NATO doctrines relevant to officer leadership education at the Norwegian Military Academy, and ask how relevant they may be as part of a curriculum aiming to build competence in handling unforeseen situations requiring *samhandling*.

Method and materials

Through a thematic document analysis as well as the analysis of an interview study, we have examined if terms used to identify constructs and concepts of interaction are used in similar ways, or if they seem to stand opposed to each other in educational planning. Studying this possible tension empirically, we designed a study where we examined how joint and branch-specific operation doctrines are used in officer leadership education at the Norwegian Military Academy (Krigsskolen).

The doctrines were identified through an informal survey among central officers in the Norwegian Armed Forces, as well as through the

interviews with instructors and leaders at the Academy. More specifically, the doctrines were thematically studied according to Research Question 1, in order to extract the terms that could encompass the construct and concept of *samhandling*, as defined in Chapter 2 of this book and on page 138 in this chapter.

In the interview study, we developed a semi-structured interview guide. The reason for this was to ensure comparability and congruence in the informants' answers when using terms in the curricula. The reason for keeping it somewhat open was to enable each participant to contribute their understanding of the application of the constructs and concepts of *samhandling* unique to their situation. We identified six informants, representing different roles and backgrounds at the Norwegian Military Academy, which could provide us with sufficient data. Informants 1–4 were instructors, while informants 5 and 6 represented the leadership at the Academy. The sample can be viewed as strategic. The purpose of the study was explained to all of the informants, as well as the research ethics of issues related to confidentiality and confirmed consent. The individual interviews were conducted at the Academy in the spring and fall of 2017, each interview lasting approximately one hour. After the last interview, the data was analyzed by all four authors of this chapter. The data material collected was considered sufficient and no further interviews were regarded necessary. The interviews were analyzed using a thematic methodological approach (Braun & Clarke, 2006).

Results

The following section presents the results of the thematic study.

Terms used in relevant doctrines

What terms are used to identify different constructs and concepts of *samhandling* in doctrines relevant to officer leadership education planning at the Norwegian Military Academy (Research Question 1)? The Norwegian Armed Forces uses the following definition of a basic doctrine: "Basic doctrines are used for the development and application of military forces

in support of national objectives. They are guiding but require judgment in use."[1,2] As seen, the definition of a doctrine relevant to identifying terms covering constructs and concepts of *samhandling* in the Norwegian case, exemplify the claim by Torgersen and Steiro in Chapter 2, that there is no standard formula for organizations for developing *samhandling* when analyzing and applying the doctrines in educational planning and in concrete action. As each organization conceptualizes *samhandling* individually, to link unforeseen and risk-oriented interaction (the Bow-Tie Model in Chapter 1) requires identification of the terms, covering possibly comparable and contrasting understandings. Terms relevant for answering Research Question 1 in this study were identified in the doctrines represented in Table 8.1 below.

According to Table 8.1, the Norwegian Military Academy uses a wide range of national and international doctrines in the education of officers. In the documents, we find different terms for cooperative efforts, such as *samhandling* (interaction), collaboration (cooperation under leadership aiming for a common goal), cooperation, and combined arms[3]. The book on *the German Art of War: Truppenführung* (Condell & Zabecki, 2001) is also stated by many as a widely used source as a basis for discussion and reflection, but the book is not used as an instruction or guide for directly developing officers at the Norwegian Military Academy.

In our thematic analysis, we examined the two latest Norwegian doctrines, FFOD (2007) and FFOD (2014), in more detail, as these are the two doctrines all informants have indicated are most often used in education at the Norwegian Military Academy. In FFOD (2007) and FFOD (2014), the terms covering the constructs and concepts of interaction and cooperation are used more or less synonymously. However, the terms appear more often than not when describing military-civilian collaboration. Joint force is, on the other hand, used to describe collaboration within the Armed Forces, indicating that different branches collaborate on joint projects. This is especially present in FFOD (2014) in our analysis.

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1   https://www.oslomilsamfund.no/forsvaret-forsvarets-doktriner/

2   The joint doctrines are also covered by other definitions, such as Joint Publications and Capstone.

3   Norwegian term: *Samvirke*.

Table 8.1 Results from survey and interviews: Doctrines relevant for/used in the education at the Norwegian Military Academy, 2017.

	Name of doctrine	**Description**
Norwegian doctrines	FFOD (2000)	The first joint doctrine.
	Forsvarets Pedagogiske Grunnsyn [The Basic Pedagogical View of the Norwegian Armed Forces] (2006)	The doctrine for a common educational foundation.
	FFOD (2007)	The second joint doctrine, indicating the role of the officer. Describes cooperation but not *samhandling*. Provides a military-theoretical basis.
	FFOD (2014)	Interaction is present as a concept (*samhandling* is mentioned 15 times in a document of 208 pages, main text). Provides a basis for understanding peacekeeping forces and Capstone.
Basic publications for the Norwegian Army	UD 1	Educational directive.
	Doctrine for land operations 2004	High probability that this will be replaced following the review of the Army, Fall 2017.
Doctrines from other countries	Germany's *Truppenführung* 1933–34	The oldest doctrine in use at the Norwegian Military Academy.
	Doctrine of the Netherlands	
	UK Army Operations 2010, (Chs. 2, 3 & 8)	Considered well written by some informants.
NATO-doctrines/ UN	Capstone doctrine UNIBAN 1+2 Stanag APP 6 Stanag AJP 3.2 + ATP-3.2.4 – Land operations Counter ID AJP-3.15	NATO doctrines are used as supporting literature, but NATO terminology is considered important for educational purposes. AJPs are less used.
Field Manuals	FM324 – Counter-insurgency	General doctrine, but largely based on experiences from Afghanistan and Iraq.
	FM 3–24 US Army/Navy Counter-insurgency	General doctrine, based on experiences from Afghanistan and Iraq, 2005. Central in Norwegian higher military education.
	FM100–5 Air/Land Battle	First maneuver warfare.
	FM 100–23 UN Peace Keeping	
	FM part 10 (British doctrine)	

In FFOD (2007), the term *samhandling* (interaction) appears only occasionally. The FFOD (2007) doctrine is considered by our informants to serve educational purposes better than FFOD 2014, because the former provides a more solid military-theoretical basis than the latter. However, even the FFOD (2007) doctrine provides little guidance on *samhandling* as a way of learning. This means that it is does not explicitly address the idea that for interaction to occur, each participant should contribute with their unique situational understanding, and that this is an ongoing learning process in terms of relating interaction to unforeseen situations and risk-oriented educational planning. As claimed earlier in this chapter, for participants to engage in qualified and safeguarded interaction in risk-oriented situations, participants' understanding of terms used to identify comparable and differing constructs and concepts of *samhandling* in doctrines is crucial. The absence of relating the terms identifying *samhandling* to unforeseen situations in both FFOD (2007) and FFOD (2014) may indicate that the Norwegian doctrines do not have a clarified view as to the premises of *samhandling*. Rather, the way the terms are used may be understood as a vague attempt to frame the relationship between different agents on the "same team", rather than providing well-defined terms that would enable the same agents to discuss what *samhandling* means in each unique situation. As such, the thematic analysis indicates that the terms used to identify constructs and concepts covering *samhandling* in the doctrines used in education planning at the Norwegian Military Academy do not focus on the Bow-Tie phases to any great extent (see, for instance, Chapter 1). The terms used for different kinds of collaboration are not sufficiently open to change, neither practically nor theoretically, regardless of whether the topic or situation is related to an assessment of risk in military operations or threat analyses, or whether interactional competence should be used in risk assessment, in operations or in the recovery phase. The doctrines signal the function of the terms, indicating *samhandling* as one and the same thing, even though different terms are used. Hence, the term *samhandling*, as used in both of the Norwegian doctrines relevant in educational planning at the Norwegian Military Academy, does not function as a specific guide in competency development for new Army officers. Terms for different

kinds of collaboration are, however, frequently used. As these doctrines serve as a basis for military officer leadership education, the terms may be both somewhat misguiding when not subject to a concrete analysis, and they may serve as an ambiguous concept in military training. One consequence of this may be, as pointed out by Andersen (2016), that each branch of the Armed Forces adapts its own translation of the concept of *samhandling* into its own context, as the branch-specific interpretations are more context-sensitive than a rationalistic, joint-doctrine understanding that is less clearly defined. This possible consequence is contradictory to the joint doctrine's aim of aligning the military branches in operations.

The term *samhandling* (interaction) is used six times in the Norwegian doctrine, "Forsvarets Pedagogiske Grunnsyn" (FPG, 2006) ["The Basic Pedagogical View of the Norwegian Armed Forces"], and is spread over several chapters. It is therefore reasonable to claim that the term serves as an important basis for education in the Norwegian Armed Forces. *Samhandling* is considered essential to the main message of FPG. The FPG underlines a shift in the educational focus in the Norwegian military, from traditional knowledge dissemination to an ongoing and common development of knowledge unique to different situations. The FPG is based on socio-cultural learning theory exemplified in such topics as communities in practice, experiential learning and Apprenticeship Learning (see Chapter 6 for a further elaboration of Apprenticeship Learning in a military context). The FPG also focuses on role consciousness, leadership identification and leadership development. Finally, the FPG focuses heavily on a professional development of the military profession (regarding military skills, situational awareness, ethical considerations, attitudes and leadership). Our findings indicate an absence of clarified terms used to cover *samhandling*, as well as an imprecise link between interaction and learning, and this may indicate that the FPG has not had sufficient influence as a communicative link between doctrines, curricula and teaching practice. Another question posed by our informants is whether the use of collaboration/cooperation in NATO documents might be interpreted in the direction of interaction rather than collaboration? If that is the case, the challenge may not be in translation or transfer

from NATO documents to Norwegian documents, but rather that the Norwegian doctrine authors have not focused on the main message of the socio-cultural understanding of *samhandling* in the FPG adequately. This may have resulted in unknown consequences in the education of Norwegian Army officers over the past 10 years.

Defining and understanding the distinction between *samvirke* (collaboration) and *samhandling* (interaction)

How do instructors in charge of officer leadership education planning at the Norwegian Military Academy explain how normative understandings of interaction in different doctrines serve to prepare future officers for interaction in unforeseen and risk-oriented situations (Research Question 2)? In our interview study, we find that the terms are understood differently and that they appear to serve different purposes in educational planning at the Academy. Reports from two informants in our interview study indicate that they have different views on how the terms "collaboration" and "interaction" may overlap in daily practice. Informant 1 elaborates on this issue. He explains that *samhandling* is achieved when collaborating in a department to achieve defined effects. It entails practical problem solving where time is essential. Time, and especially achieving something at a greater pace than the enemy, is the most important thing in warfare. 'Self-synchronization', as described in the Defense Chief's view [FSJ-Lead, 2012], means that the less time you use on collaboration management and the more you rely on intuitive action, the more time is saved. There are different effects that contribute to this, but it requires a lot of training together to understand such collaboration in practice; to create a common understanding of the problem and to know how colleagues will possibly react. Informant 1 uses the two terms rather synonymously in this observation.

Informant 2, however, is clear about the different meanings that the two terms may imply. Tactical collaboration is about combining effects. *Samhandling* is, in his view, a more difficult term to get a hold on. It may differ between military units, between the military and civilian sectors,

and between representatives from the tactical and political levels, both nationally and internationally. Collaboration is, from this perspective, more about cooperation before, during and after an operation, and it deals with all the resources that are available. *Samhandling* (interaction), on the other hand, is deemed to be a broader term than collaboration and is thus more difficult to delineate.

It is not our purpose to criticize the two informants, nor to imply that one interpretation of our interview question is more correct than the other. Rather, it is in our interest to illustrate that terms can be understood differently within an organization when not specified in the relevant doctrines they use as a foundation in their educational planning. In the Norwegian language, the words *samvirke* (collaboration) and *samhandle* (interaction) have a very close linguistic similarity. While Informant 1 explains that cooperation is about acting together to reach a common goal and create a unified organism, Informant 2 perceives *samhandling* to be at a higher level than collaboration, and that interaction serves a higher ambition than collaboration. In the interview, Informant 2 also links *samhandling* to officer socialization, thus making the socio-cultural learning aspect more apparent than in the reply given by Informant 1. There may be different reasons for this, but one interpretation is linked to their different backgrounds and roles in the educational planning processes at the Academy, where Informant 1 is in charge of practical tactical topics and Informant 2 is in charge of topics related to strategy development.

Wadel (see Chapter 13) points to the importance of relational skills enabling interaction. He also refers to Anthony Giddens, who describes social interaction as: *"...the process by which we act and react to those around us"* (Giddens, 1997:85). Informants 1 and 3 do not necessarily agree that *samhandling* (interaction) is at a higher level than *samvirke* (collaboration), claiming that the relational aspects are equally strong when using both terms. Informants 2 and 4 point to a need for more clarification regarding the terms in FFOD (2014).

Informant 4 claims that FFOD (2014) introduces differing and somewhat contrasting terms to identify constructs and concepts of *samhandling*. This is a challenge, in his view, because it creates a mental barrier for

students in understanding *samhandling* in practice. Using all three Norwegian doctrines for joint operations in education at the Norwegian Military Academy, however, underlines the importance of better defining the terms used in identifying constructs and concepts of *samhandling* in the doctrines, as they are seen to be vague and somewhat overlapping (Table 8.2).

Table 8.2 Results from interviews: How Norwegian officers in charge of leadership education at the Norwegian Military Academy define the terms *samvirke* (collaboration) and *samhandling* (interaction).

Informant	Term	Explanation
#1	Collaboration	The study of joint efforts. Theoretically about placing the enemy on the horns of a dilemma. Relevant for tactical training more than conceptual understanding.
	Interaction	Internal processes coordinated to achieve the process itself. Requires increased conceptual understanding, preferably at a higher level in the military hierarchy.
#2	Collaboration	Tactical cooperation, combined effects to create a dilemma for the enemy. About military resources within an operation.
	Interaction	Challenging concept to define, requires joint analysis. Relationship between military and civilian resources, and tactical and political levels, nationally and internationally. Rather than tactical efforts, it is about cooperation before, under and after an operation, applying all resources available.
#3	Collaboration	Concept that encompasses leadership, ability to be led, organization, tactics, and synergy across branches to solve missions. A practical concept used in daily communication. Unity of command.
	Interaction	Does not use this specifically. It is a synonym for collaboration.
#4	Collaboration	Tactical. Coordinating effects. Support mechanism to interaction that may be branch-specific.
	Interaction	Cooperating to achieve a common goal. A level above collaboration with a higher ambition. Coordinating actions. Joint leadership across branches.
#5	Collaboration	Used within a branch or across branches, a practical effort to use maximal strength.
	Interaction	Relational, e.g. interaction in networks. Easily misunderstood as related to technology/Mission Type Orders. Cooperation through parallel planning on multiple levels to save time.
#6	Collaboration	Leadership and tactics related to doctrines solving military problems.
	Interaction	Leadership form in daily interactions. The current leadership model in military education requires interaction. A new FFOD should reflect this.

During the interviews, we found that two of the informants interpreted the nuance between collaboration and interaction as useful, while the other two instructors found that the terms covered the same issue. Therefore, we also asked the informants representing the leadership at the Academy about a clarification of how relevant the terms covering collaboration and interaction in FFOD (2007) and FFOD (2014) were in educational planning, seen from their perspective. Informant 5 found the term *samhandling* to be crucial in preparing new officers for handling crises in unforeseen situations. He expressed a need for clarification of the two terms in upcoming doctrines for joint operations. Informant 6 agreed that it is important to define and contextualize how the difference between *samvirke* (collaboration) and *samhandling* (interaction) may be understood in unique situations. Informant 6 underlined that the present educational model at the Norwegian Military Academy demands a common and clear understanding of *samhandling*, such as defined in Chapter 1 and in the introduction to this chapter. In the view of Informant 6, the current doctrines are not sufficiently clear about the terms and how they may be linked to ongoing learning. He assumed that an upcoming FFOD would have to maintain a focus on joint operations and, in particular, how new technology, the new security policy situation and new threats require a clarified view on how *samhandling* is shaped by these factors, and how a focus on interaction rather than collaboration will contribute to a stronger operational force.

We see from Table 8.2 that the four instructors and the two informants representing leadership positions at the Academy define the two terms differently. Some of the instructors viewed collaboration and interaction as interchangeable terms. The higher up in the hierarchy, the more likely it is that the person will interpret the term *samhandling* (interaction) in a similar manner to the definition used in this chapter, i.e. more strategically emphasizing relational aspects, and more strongly related to a discussion about how the terms need to be better explained and updated accordingly in upcoming doctrine developments.

Another important finding in the interview study is that the informants point out what they perceive as crucial differences between Norwegian and US doctrines used in education to prepare officers for the

unforeseen. The Norwegian doctrines are described as serving as a knowledge base for military theory, linked to military theorists such as Clausewitz and to socio-cultural learning theory. The Norwegian doctrines are, however, perceived as challenging and difficult to interpret for students because of their complexity. The US doctrines used in the same education are regarded as more of a template for "normal" training. They are easier to use in education, and are regarded as more adaptable to action. They are, therefore, perceived as less time consuming to use in education. All four instructors do, however, use doctrines to introduce central military theoreticians to students. Two examples mentioned are Hew Strachan's (2008) *Clausewitz's On War: A Biography* and Michael Howard's (1962) *The Use and Abuse of Military History*. Both are regarded as central in teaching new officers an understanding of the history and development of military doctrines, as well as in teaching military ideology and how military leadership might think about current military operations. When it comes to preparing students for unforeseen and risk-oriented situations, military doctrines are seen as a highly relevant teaching tool by all, although they disagree on the quality of the doctrines in this regard.

In the individual interviews, all informants illustrated how they perceive doctrines as a pedagogical (educational or teaching) tool. They underlined the status of the doctrine as a speculation about what is needed in the future – in an unforeseen scenario, as well as pointing out how they are characterized by inertia. The dynamic between understanding a doctrine as a documented tradition as well as a guide for unforeseen situations was described as challenging, but necessary. The aim of using both general joint doctrines and branch-specific operational doctrines is reported to enhance the students' understanding of the ambivalence in the theoretical, cultural and authoritarian aspects of military theory (Høiback, 2012). One informant described a doctrine as a tool to provide form and color to unknown future directions of the Army.

The NATO doctrines were not perceived as being as relevant in education as the Norwegian and US doctrines. Although underlining that Norwegian doctrines are built on NATO doctrines, and that it is important to equip students with the current terminology found in, for example,

STANAG APP 6 and AJP 3.2 + ATP 3.2.4, one of the informants pointed out that the US is, after all, strongest in international operations. This served as an argument for preferring US doctrines to NATO doctrines in an educational setting. Another argument was to use UN doctrines, such as Capstone doctrine UNIBAN 1+2, in education, as they are relevant to peace-keeping operations, an aspect not found in the NATO doctrines for joint military operations. However, when referring to particular aspects of the curriculum, such as preparing for international operations in places such as Afghanistan, informants perceived doctrines to be too generic to serve a meaningful purpose in education.

Overall, doctrines were deemed important in education planning, ensuring that new officers are prepared for unforeseen scenarios. Doctrines were understood as a reference point for developing common concepts and a common understanding of a *why* and *how* in military efforts, but not necessarily as a measuring tool for future operational success. Doctrines were seen as one of several parts of a formal curriculum. The current curriculum includes all three of the Norwegian joint operation doctrines, i.e. FFOD (2000; 2007; 2014). They serve to explain doctrinal development in Norway, and more importantly, concept development related to *samhandling*.

The relevance of military doctrines in educational planning

How does the leadership of the Norwegian Military Academy explain how doctrines may serve as relevant tools in educational strategic planning (Research Question 3)? Both informants representing the leadership in our study viewed military doctrines as especially relevant in preparing future officers for upcoming deployment. In the same line of argumentation, they also found doctrines as relevant in equipping students with an understanding of how future orders are linked to strategies based on national and international doctrines. Informant 3 pointed out that doctrines could be seen as more relevant for the first group going on a new mission. The doctrines were perceived as less important for successive groups, merely "taking over" an ongoing mission, the argument being that they inherit experience from the earlier deployed groups.

Although the doctrines are perceived by all six of our informants as a useful working tool in educational planning, relevant for teaching students how to handle the ambiguity of central concepts in understanding and developing common efforts, the informants representing the leadership also called for a better conceptualization of *samhandling* (interaction) in the Norwegian doctrines and a need to change this in an upcoming joint doctrine. According to the same informants, this conceptualization should be theory-based, such as in FFOD (2007).

The study also indicates a need for better tools, to understand which similarities and differences in terms are more relevant in analyzing the relevant outcome of education. This is crucial when we understand how doctrines are used as instruments for guiding the education of future officers, facing unforeseen scenarios in upcoming deployment and domestic affairs; see, for instance, the Bow-tie Model in Chapter 1.

When understanding *samhandling* (interaction) in the sense that we argue for in this chapter, that each organization (and group) should conceptualize the term individually, in order to understand their own and each other's analysis of an operation in a proficient manner, the lack of a clarified definition of interaction in the current doctrines used in educational planning at the Norwegian Military Academy seems to provide limited guidelines in this case. The informants were, however, divided in their judgment on this issue. The informants who stressed that interaction was a concept encompassing more than the concept of collaboration were also the ones suggesting that renewed interpretations of doctrines, rather than inheriting others' experience, were crucial in educating officers for the unforeseen. In fact, two of the informants (one from the instructor group and one from the leadership group), stressed the need to expose military students to doctrine analyses as early as possible, as they found the analysis of differing terms used to cover similar constructs and concepts to be part of critical training for an officer and for the professional development of the organization as a whole. On the other hand, the informants from the instructor group who viewed experience to be of just as much importance as complex doctrinal analysis in education, argued that military operations have a practical focus. They agreed that doctrines were necessary, but preferably at a higher (and more ideological or political) level in the military hierarchy.

The discussion of theory-based versus experience-based views on the use of doctrines in strategic educational planning was, in fact, the issue that divided the informants' perspectives of the relevance of doctrines in educational matters the most. We have also found the same tension in other studies of the educational relevance of leadership education in the Norwegian Armed Forces (Carlsten et al., 2015; Carlsten et al., 2016).

The hidden military curriculum and *samhandling*

Not everything learned in education is explicitly formulated in a formal curriculum. Each educational program usually follows an established culture, with a set of current values, behavior and thinking that have been developed over time in the organization. This is usually called the "Hidden Curriculum" (including Jackson, 1968; Giroux, 1988; Margolis, 2001). In military leadership education, we recognize this as codes and industry culture related to military branches, among other things. Doctrines are thus read in the light of the Academy's own "Hidden Curriculum", and the formal curriculum can be more or less colored by this. In addition, the "Hidden Curriculum" works partially independent of the formal curriculum when it comes to impacting students' learning. For this reason, it is necessary for instructors, leadership and students to be aware of nuances in key terms in doctrines identifying central constructs and concepts, like *samhandling* (interaction), that are likely to contribute to new officers' competence development in handling complex and risky situations.

The consequences of such differing perceptions as we have identified, at only one military academy in one country, will be even more influential in military action, at a point where officers from different branches and countries, who have completed their education at various defense academies and staff colleges, will meet. If different officers in a joint operation have quite differing understandings of the term "interaction" in the doctrines relevant to their missions, the effectiveness of the joint force could be severely affected.

To ensure that the "Hidden Curriculum" does not control competence outcomes too strongly, doctrines and the formal curriculum should define

and elaborate on these terms thoroughly, and there should be the greatest possible match between them. In our study, we have seen that the central concept of interaction is unclarified, both in the different doctrines and in their interpretation by different informants within the same higher education institution. This may pose challenges, both in educational training and practical *samhandling* (interaction). Even though a doctrine should be open enough to allow for situational judgment, the terms used to cover important constructs and concepts should guide such analysis rather than distract it, as we have seen indications of in this study.

Conclusion

The findings in the current case study indicate that military doctrines are regarded as important in leadership training at the Norwegian Military Academy, especially when it comes to understanding and guiding interaction in unforeseen and risk-oriented situations. The findings indicate that doctrines should be strengthened, and play a more significance role for leadership education in the future. At the same time, the terms used to describe *samhandling* in military doctrines found relevant in education at the Norwegian Military Academy are numerous, vague and somewhat overlapping. Collaboration (*samvirke*) and interaction (*samhandling*) are used interchangeably as terms, without the message being clear about what purpose the terms serve, and what the consequences for strategic planning may be.

More generally, our findings demonstrate that if the concept of *samhandling* (interaction) is brought to the forefront in teaching new officers to handle unforeseen situations through interaction, it is crucial that the terms of interaction and collaboration are better defined, on a continual basis, and made concrete at all levels in the military hierarchy, not only in the doctrine itself. Informants stress that a doctrine should be safeguarded at the top level in the hierarchy, because the military doctrines possess certain qualities of looking ahead jointly, that individualized, experience-based approaches to strategic education planning cannot cover.

The term *samhandling* is not sufficiently related to unforeseen situations and ongoing learning in the doctrines found relevant in officer

leadership education in our case. It is neither sufficiently exemplified, nor clearly based on a theoretical foundation. Thus, we see a tendency in our study that the understanding of one of the main terms in modern military development is given different meanings by different agents in the same organization. Although we have suggested that the relevance of *samhandling* (interaction) needs to be open enough to be context-sensitive, in order to serve the purpose of handling unforeseen and risk-oriented situations, our findings indicate that it might just miss the same context-specific features guiding the training for joint operations. The vagueness may be replaced by opinion and experience-based views in the "Hidden Curriculum," rather than serve as a basis for developing the military profession as a whole, both within and across military branches, nationally and internationally. Our ambition for this chapter has been to lay a foundation for a more nuanced academic and pedagogical (educational) discussion that in turn can contribute to further awareness of the relevance of the concept of *samhandling* in curriculum analyses. In the future, more *samhandling* will be expected with the civil education sector (cf. Carlsten et al., 2016). We therefore believe that this chapter may be relevant for both the military and civil education sectors in order to create awareness and debate.

From a general perspective, these findings may also be of relevance for public strategic emergency-preparedness management, other high-risk emergency organizations, and in educational programs for different professions, in their strategic work aiming to develop *samhandling* competence and in order to handle risk under unforeseen conditions. At the same time, concepts such as *samhandling* and similar expressions may lead users to believe that it covers more than it actually does or covers something different, which may have undesirable consequences for the actual learning outcome. It is therefore important to raise awareness in the organization of the underlying processes and the relational ambition level that will be the basis for and the content of the chosen term (see also Chapter 2). An advantage is to reach a collective understanding of the kind of skills that will be developed and trained. Another gain of such an analysis is to provide a basis for clarified learning goals and concrete scenario development through exercises and other teaching plans

in leadership education, as well as the evaluation of this, both in terms of learning outcomes and the education as a whole. This may facilitate a balance between the hidden curriculum and formal guidelines and tools in order to build competence for *samhandling* and prepare leaders for handling risk and unforeseen conditions.

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Digital *Samhandling* in Education for the Unforeseen Future

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Abstract: This chapter aims to discuss whether digital interaction (*samhandling*) in education requires a new pedagogy, which, to a greater extent than before, takes into account risks and unforeseen events. The major focus is on digital *samhandling* between teachers and students. Future education should prepare students for a world in which *samhandling* between individuals is predicted to be increasingly digital. At the same time, teachers currently refrain from using digital tools in order to interact pedagogically with students. A "mixed methods" survey of 96 randomly-chosen schoolteachers in primary and secondary schools in Norway shows that the respondents give various reasons for using Learning Management Systems (LMS) to a greater extent for administrative purposes than for pedagogical ones. The main obstacle is that teachers do not know exactly how digital *samhandling* should be facilitated educationally and what the consequences may be for the students and education in general. The conclusion is that the future is unknown, and the unforeseen is partly learned through teachers' professional judgment. Therefore, "new" pedagogy need not necessarily consist of more educational models and theories of "what works." Perhaps the "new" pedagogy should be, to a greater extent, based on *samhandling* literacy and problem-based learning?

Keywords: *Samhandling*, digital learning, risk, interaction, learning management systems, teacher education, unforeseen.

Introduction

"The future school" aims to prepare students for a new world, where *samhandling*[1] is crucial for knowledge development (Kunnskapsdepartementet, 2015). In the light of technological development, it is logical to assume that *samhandling* may become increasingly digital in the years to come. The problem is that we do not know exactly how this should be facilitated educationally and what the consequences may be for education in general, although Torgersen and Saeverot (2015) argue that the future, or "unforeseen age", may require a "new" Pedagogy[2]. This may also apply to the concept of *samhandling*, which in itself is quite complex.

Samhandling has had a vital role in the development of interaction and cooperation mechanisms between individuals and organizations in Norway. *Samhandling* is a Norwegian term that we believe has no exact equivalent in English. Originally, the term was used to describe a seamless interaction between humans and computers. It has developed a broader meaning, often understood as an interaction that includes various factors, such as participation, rationality, cooperation, inclusion, involvement and trust, to name a few (Torgersen & Steiro, 2009; see Chapters 1 and 2). *Samhandling* involves not only interaction between individuals, groups and institutions, but also knowledge-sharing and development. In recent years, *samhandling* in education has become increasingly digital. An important objective for *samhandling* in an educational context is to increase the availability of knowledge and enable more efficiency of learning. However, the concept of *samhandling* is complex and may be perceived differently by various parties.

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1   *Samhandling* is a Norwegian term which corresponds roughly to the English "interaction" (Torgersen & Steiro, 2009; see Chapters 1 and 2).

2   'Pedagogy' is perceived here as the Norwegian discipline 'pedagogikk', not the Anglo-American term 'education'. Gert Biesta denotes the following: "[…] the German concept of 'Pädagogik' (and the Norwegian concept of 'pedagogikk'), […] is an academic discipline in its own right, independent of other disciplines" (Biesta, 2011:189). In the Anglo–American tradition, however, 'education' cannot stand on its own, which is why this tradition has introduced such concepts as philosophy of education, psychology of education, sociology of education, history of education, etc." (Saeverot & Biesta, 2013:178).

Consequently, there may be a further need to define what *samhandling* entails in various situations for different participants. Furthermore, digital *samhandling* presents education and society with practical and ethical challenges, and it may also involve various risks for individuals. This may challenge people's trust and involvement in *samhandling* processes. Replacing face-to-face *samhandling* with digital *samhandling* may also have various implications for the *samhandling* itself and for the students' ability to learn and develop. Moreover, there is a high level of uncertainty as to whether digital *samhandling* in education may lead to various types of threats, for example, risk exposure, digital terrorism, and personal bullying (harassment). Other implications may include unwanted digital surveillance, infiltration, use of false identities and hacking, as well as propaganda and indoctrination, for example, in the form of political manifestos, warning signs prior to acts of terrorism and ideological articles from political and military situations. Another type of risk may also occur to a greater extent than before; academic learning may be different to what the education programs have envisaged concerning the curriculum, as digital *samhandling* during the learning process may lead to knowledge-sharing and learning with parties who have other motives and insights than the designations of the curriculum. The question is, should this be seen as an advantage or disadvantage for learning and development? This, in turn, raises the question about the need for control versus freedom, when it comes to using digital and social media concerning academic learning. Future education should, therefore, prepare students to a greater extent for digital *samhandling*. The problem is that we do not know exactly how this should be facilitated educationally and what the consequences may be for education in general. In this chapter, we will examine conditions that may promote and hinder digital *samhandling* between teachers and students, and discuss whether digital *samhandling* requires a new form of pedagogy, which, to a greater extent than before, takes into account risks and unforeseen events. The risk concept is applied here to both the unwanted consequences of digital use and the uncertainty related to the extent in which learning goals are achieved with this use.

The concept of *samhandling* in education

Samhandling involves a meeting between individuals where learning and development are central. A meta-analysis of the concept of *samhandling*, conducted by Torgersen and Steiro (2009), shows that the core of *samhandling* is concurrent learning and the facilitation of competence complementarity, via mutuality. *Samhandling* is a complex term that is often added diverse content in various fields, disciplines, and organizations. Nevertheless, in many contexts it is expected to be perceived intuitively. Such an approach to *samhandling* may cause misunderstandings and quandaries when individuals and organizations that meet have different understandings and views as to what *samhandling* entails. Torgersen and Steiro (2009) demonstrate how the concept of *samhandling* is used in various disciplines, industries, and institutions, and describe *samhandling* as a communication and development process in which participants exchange skills and work towards common goals. Based on various definitions of the concept of *samhandling*, they state that the relationship between participants in the process of *samhandling* is based on "[…] trust, involvement, rationality and industry knowledge" [our translation] (p. 129). This idea of *samhandling* seems to be in line with interaction processes that take place in education. According to Vygotsky (1980), the interaction between teachers (as "significant others") and students may lead to learning and development. Vygotsky (1980) denotes the "space" between established knowledge and new insights as the *proximal development zone*; a "learning zone" that through interaction with others may become established knowledge. This is consistent with sociocultural views of knowledge that Vygotsky is often linked to, where learning takes place through social interaction within cultural contexts. Valsiner and Van der Veer (2000) perceive the sociocultural perspective as learning through social interaction and activity.

In the Official Norwegian Report NOU 2015:8 "School of the Future. Renewal of subjects and competencies" [our translation][3] (Kunnskaps-departementet, 2015), the Norwegian Ministry of Education emphasizes that communicating, participating and *samhandling* in social contexts

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3   *NOU 2015:8 Fremtidens skole. Fornyelse av fag og kompetanser* (Kunnskapsdepartementet, 2015)

will be important and necessary areas of competence in schools of the future. This report discusses *samhandling* between school, education, and the public and business sectors. The importance of *samhandling*, regarding society's needs and the development of democracy, both at a local, national and global level, is strongly emphasized in the report. The report principally points out that students in schools of the future must acquire capabilities such as "*samhandling* skills, metacognition, and self-regulated learning" [our italic and translation]. With regard to *samhandling* skills, the report makes clear that students should "[…] be able to participate in various areas, express their opinions and have positive relationships with others" (p. 29). Metacognition is defined as "[…] being able to reflect on one's own thinking and learning" (p. 25), while self-regulated learning is described as follows: "[…] students learn over time to take the initiative and control parts of their learning process" (p. 27) [our translations]. These learning objectives show that future education will be required to enable students to learn how to acquire knowledge through *samhandling*. In order to do so, students should acquire knowledge about *samhandling*[4] (Kunnskapsdepartementet, 2015:29). Thus, teachers need to gain more insight in how to teach *samhandling* at school.

For various reasons, digital *samhandling* in education may be even more challenging to conduct and teach than face-to-face *samhandling*. Digital *samhandling* is a communication form mediated through technology. In education, the objective of such a practice is for pupils and teachers to acquire digital literacy as a tool for constructing further insights (Kunnskapsdepartementet, 2008, 2015; Uninett-ABC, 2006). The challenge with these goals is as follows: Digital *samhandling* is still a relatively new and untested phenomenon in education, and there are various factors – inside and outside of school – which both promote and inhibit the use of digital means of *samhandling* between teachers and students. As a result of encountering various obstacles, teachers use *samhandling* technology to a greater extent for administrative purposes rather than academic ones (Egeberg et al., 2012; Furnes, 2015; Hatlevik, Tømte, Skaug, &

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4   Refers to the Norwegian term '*samhandling*skompetanse' (*samhandling* competency, a comprehension of *samhandling* as a literacy that may facilitate people's ability to participate and express their opinions in democratic societies (Kunnskapsdepartementet, 2015).

Ottestad, 2011; Kunnskapsdepartementet, 2008). The Norwegian Ministry of Education (Kunnskapsdepartementet, 2008) concludes that despite the fact that the use of new technology has increased greatly at Norwegian institutions, information and communication technology (ICT) has had more influence and application in administrative services and functions than on the educational content (ibid:32). This means that digital *samhandling* that takes place between teachers and students is primarily of an administrative nature (e.g. submission of tasks, registration of absence and grades) rather than learning and development in the form of *samhandling* (e.g. project work and educational forums) (Furnes, 2015).

Learning management systems and *samhandling* in education

How should digital *samhandling* platforms be used for educational purposes? To address this question, we will take a closer look at the use of Learning Management Systems (LMS) in education, a technology that has been implemented in the Norwegian school system. As a part of community development in the late 1990s, the Norwegian government promoted digital *samhandling* between educational institutions and students via LMS, which are web-based systems that are developed to facilitate knowledge exchange, communication, support for learning activities and the management of such activities (Uninett-ABC, 2006). Important goals for the implementation of LMS were also to increase digital literacy among teachers and students, and make school more accessible to students (and their parents or guardians, in addition) (Kunnskapsdepartementet, 2008; Uninett-ABC, 2006). According to the Norwegian Education Directorate (Udir), LMS has had an important role in education as a "catalyst" for digital literacy in education (Utdanningsdirektoratet, 2006b). Despite these goals and visions, LMS did not become the arena for *samhandling* that one had hoped for and expected. On the contrary, this technology has been used primarily for administrative purposes rather than educational ones.

To understand why LMS has not been able to meet expectations as a catalyst for digital literacy, it may be useful to examine factors that influence its use in education. Often, various factors may have implications for

human actions (Foucault, 1972). Schools and education are no exceptions, as they are influenced by conditions both inside and outside of school. If we go to Krüger (2000), in the extension of Popkewitz (1991) and Foucault (1999), teaching is viewed as an "ensemble of discursive practices." Krüger (ibid.) states that standards, rules and "styles of reasoning" may influence teaching strategies. The use of LMS may be seen in light of these ideas. Several factors may affect how this technology is being employed in educational institutions. For example, i) the interaction between the government authorities and educational institutions concerning LMS; ii) teachers' and pupils' perceptions of LMS; iii) functionality and user-friendliness of various brands and types of LMS; iv) how (class) leadership is accomplished on LMS; and v) which risk factors digital *samhandling* in education presents. These factors provide possible explanations for the practice of LMS, but there may also be other explanations as to why LMS has not become the arena for *samhandling* that the government authorities and the educational sector had hoped for. Let us look at each of these factors.

(i) The interaction between the authorities and educational institutions

Policy documents concerning LMS have been published to express the Norwegian government's intentions of implementing this technology in the education sector (Uninett-ABC, 2006; Utdanningsdirektoratet, 2006b). However, the interaction between the government authorities and school seems to have been challenging, which has led to the failure of LMS technology to gain the role it was intended to have – as a catalyst for digital literacy (Håland & Strømme, 2009; Utdanningsdirektoratet, 2006b). A research study of 96 teachers in elementary schools in Bergen (western Norway) in 2015 shows that LMS is perceived to be an administrative tool rather than an educational one. Several respondents said that if LMS had been more intuitive, it may possibly have been used for educational uses to a greater extent. As LMS technology is today, and with the lack of sufficient time at school to explore it, one does not have the opportunity to reveal educational possibilities that may lie in the technology. Furthermore, respondents say that since the administrative

functions of LMS are embedded and compulsory to use, LMS is more widely-used as an administrative tool than an educational one. If LMS is to be used pedagogically, it is up to the teachers themselves to develop it. This is something that many teachers experience as challenging and time-consuming (Furnes, 2015). Despite the fact that the authorities promote LMS as a catalyst for digital literacy in education, a majority of the teachers in the study express that the technology is primarily used for administrative purposes.

There seems to be dissent regarding *what* LMS is. Some describe this technology as an "empty shell" which must be filled with educational content to become an educational tool (e.g. Coates, James, & Baldwin, 2005; Haug, 2012). Also, the use of the term "catalyst" by the government in relation to LMS has been criticized, as one which primarily emphasizes the administrative functions of the technology and not the educational ones (e.g. Håland & Strømme, 2009). When the authorities and the educational sector have not appeared to agree on whether LMS is an educational or an administrative tool, this has sent ambiguous signals to schools, which may have resulted in teachers using LMS mainly for administrative purposes.

The Norwegian government expresses its intentions to the educational sector through policy documents. These documents often contain both political visions and guidelines and may be subject to different interpretations out in the field, which results in a variety of practices. Theorists who are concerned with the relationship between theory and practice in education state that different uses of terms and concepts in these two areas may cause communicational challenges and have implications for practice and praxis (e.g. Carr & Kemmis, 2003; Krüger, 2001; Kvernbekk, 2012; Popkewitz, 1991). This is possibly a factor that has had implications for how LMS has been used for *samhandling* in education. How teachers interpret the authorities' intentions may affect the digital *samhandling* that occurs using LMS. In conclusion, if the government wants LMS to be primarily used for educational *samhandling*, they should focus more on scientific questions such as "what, how and why", rather than emphasizing administrative features and political visions which contribute to undermining LMS's educational potential.

(ii) Digital *samhandling* between teachers and students

Teachers and students have interacted digitally to varying degrees since the 1990s. Studies show that LMS technology is mainly used for administrative purposes (such as submission of tasks, registration of absence and grades) and to a lesser degree, for educational purposes (such as peer-learning, knowledge development and exchange of knowledge) (eg Egeberg et al., 2012; Furnes, 2015; Hatlevik et al., 2011; Håland & Strømme, 2009; Kunnskapsdepartementet, 2008). A probable reason for this practice is that digital *samhandling* for educational purposes is a relatively new phenomenon in education, and there is a limited amount of research on the subject. Also, due to facing unforeseen events while interacting in new ways, one may fail to work on achieving learning goals systematically. New insights may not be the products of good planning and systematic learning. Sometimes one has to gain insights 'along the way' during the learning process (Norwegian: 'underveislæring'). According to Steiro and Torgersen (2015), knowledge may not always be developed prior to *samhandling*; it must also be developed during processes of *samhandling*, through individuals and institutions gaining experience and knowledge from each other. In the school context, teachers and students who interact using LMS may become participants in "communities of practice," where they can construct new knowledge during *samhandling*. Lave and Wenger (2003) argue that "communities of practice" may be used for learning when both the road and probably the end station are unknown. This approach to knowledge construction aims to prepare individuals for encountering the unknown and the unforeseen. Steiro and Torgersen (2015) argue that since we do not know the unforeseen, we cannot "tailor" an education in advance, but that does not mean that one cannot learn along the way.

(iii) Functionality and user-friendliness of different types of LMS

Various types and brands of LMS have built-in functions for administrative purposes, while the educational features are often open to

development and adaptation. The latter is in line with the idea that teachers should have autonomy in regard to teaching methods, which is deeply rooted in the teaching profession. However, studies conducted on LMS's functionality and user-friendliness show that different types of LMS may vary in features and interfaces, and may be experienced as user-friendly to various degrees (e.g. Baltzersen, Tolsby, & Røising, 2007; Nordseth, 2006). The study mentioned previously which examined teachers' use of LMS in Bergen, concludes that if teachers perceive LMS as 'empty shells,' time-consuming, unintuitive and/or old-fashioned, the technology will primarily be used for administrative purposes, and to a limited extent for educational purposes (Furnes, 2015). The paradox here is that the opportunities for development and adaptation that the designers of LMS have opened up for in the technology, have resulted in teachers exercising their autonomy to choose not to use LMS as an educational tool.

(iv) How to enable (class) management and *samhandling* with LMS

Digital *samhandling* and class management with LMS can be challenging. According to Torgersen and Steiro (2009), there are often expectations that communication through digital platforms may be transferred directly from the type of *samhandling* that occurs face-to-face. However, since digital *samhandling* processes take place in areas that do not have an instant self-written core or centerpiece, such as a physical encounter, digital communication may be more complicated than meeting physically (ibid:151). Several challenges may apply, since digital *samhandling* places greater demands on participants' activity and reception. Digital *samhandling* may change the power structures so that teachers' authority may be undermined. Also, digital *samhandling* requires necessary skills for utilizing the technology. Moreover, both teachers and students must find their places and fulfill their roles online, as they do face-to-face. The question is, how should these roles be managed in the unforeseen future, especially when *samhandling* is becoming increasingly digital?

Class management is becoming more and more complex, and even the authorities seem to be uncertain of the implications for education. In the government report, NOU 2015:8 "School of the Future" (Kunnskapsdepartementet, 2015) [our translation],[5] the term "class management" is only mentioned twice, without a sufficient discussion as to how this specifically may be implemented in schools of the future. If teachers experience difficulties leading classes online with the result that they refrain from using LMS for educational purposes, the technology may lose its relevance. Torgersen and Steiro (2009:151) believe that leaders on virtual *samhandling* platforms should be active contributors. The reason for this has two sides; to draw both attention to and influence the development of learning. In a school context, by aiding pupils and using *samhandling* for facilitating learning activities, the teacher is visible and clear on LMS. Hatlevik et al. (2011) conclude that when teachers are active on LMS, students use it more often. For students to perceive LMS as a relevant and dynamic tool, teachers should prioritize activity and *samhandling*. It is important that teachers have appropriate skills in leading classes in virtual environments and that they reflect on the didactics (Didaktik)[6] concerning the "what, why and how" in relation to LMS. At the same time, students should also be given the opportunity to influence their academic progress, in accordance with the Norwegian Curriculum (Utdanningsdirektoratet, 2006a).

When teachers use LMS primarily for submission of tasks, registration of absence and grades, and to a lesser extent for professional development, they send a signal as to the technology's suitability. This practice may have negative implications for students' perceptions of LMS as *samhandling* technology, i.e. using this technology for the construction of knowledge through *samhandling*.

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5   *NOU 2015:8 Fremtidens skole. Fornyelse av fag og kompetanser* (Kunnskapsdepartementet, 2015)
6   The term "didactics" is not in frequent use in the Anglo-American world. It is though within the framework of Nordic and German research traditions concerning the theory of education and instruction, i.e. Didaktik (Uljens, 1997, p. vii).

(v) Which risk factors may digital *samhandling* at school present?

Digital *samhandling* in education is a relatively new phenomenon, and there is a high level of uncertainty as to whether this type of *samhandling* can replace or complement traditional *samhandling*. Moreover, digital *samhandling* can be associated with various risk factors, a fact which can provide a possible explanation as to why teachers may refrain from encouraging students to interact with each other digitally during and after school. We can examine several risk factors here that may apply during digital *samhandling* in education and otherwise in society. Firstly, risk factors may be exposure, digital terrorism, and networking regarding learning processes and online interaction. In addition, 'fake news', 'bots' (robots) and 'troll factories' are used to control public opinion and distort conversations online. Other consequences may be unwanted digital surveillance, the use of false identities and hacking, as well as propaganda and indoctrination, for example in the form of a political manifesto (Torgersen & Saeverot, 2012). These factors can, at worst, undermine opportunities for digital *samhandling* that promote trust and involvement. Such mechanisms are threats to knowledge as we have known it, and they are threats to democracy. Digital *samhandling* that aims to hurt others may be both visible and concealed. It can be visible in the form of messages and images, making it relatively easy to document, although it is not always easy to identify the individuals behind it. The more hidden variant may be excluding people from shared messages and events by either not informing them or misinforming them. This type of *samhandling* is more challenging to detect and may affect both children and adults. Once discovered, this may cause excluded individuals to experience the betrayal of several others in addition to those who have actively excluded them. Exclusion may also be unintentional, when people fail to master the technology adequately or do not have access to digital *samhandling* platforms. This may prevent them from participating in the *samhandling* that occurs, resulting in exclusion. These are factors that teachers must take into consideration to avoid exclusion of already-marginalized student groups. It should be added that self-exclusion may also occur, when individuals opt out of membership in digital *samhandling*

platforms or just fail to attend. This type of decision is made, for example, when people want to make a point about not wanting to participate, or do not want to be associated with various *samhandling* platforms. Refraining from *samhandling* and participation signalizes a point of view. In our understanding, where digital *samhandling* with reciprocity is facilitated, it is possible to create social, technical mechanisms that prevent reciprocity, thus hindering *samhandling*.

Another risk that may occur to a greater extent than before, is linked to knowledge and how it is perceived in the digital age. While knowledge is known to be constructed by interaction (Dewey, 1916; Vygotsky, 1980), it may nowadays be seen as something that can be found online, rather than being constructed and developed. This may pose a threat to "knowledge society" in an unforeseen age, where solutions to as yet unknown problems will need to be created (Kunnskapsdepartementet, 2014–2015, 2015, 2016–2017; Torgersen, 2015). In education, a risk factor might be that students follow knowledge structures found on the Internet and search engines, rather than constructing knowledge by themselves and through *samhandling* with others. The knowledge gained through search engines may be designed by various parties, promoting their own interests and agendas. This type of knowledge may potentially have definitional power and shape how the younger generation understands and constructs knowledge. Other risk factors are "unintentional learning," which may differ from the curriculum. Digital *samhandling* might lead to knowledge being constructed and/or shared with parties who have different motives and insights than the intentions of the school curriculum. The question is whether this should be seen as an advantage or a disadvantage for learning. This, in turn, raises the question of the need for control versus freedom when it comes to using digital and social media for *samhandling* and learning. At the same time, it is important that young people learn to be critical, so that they may "travel" safely online and construct knowledge with others through digital *samhandling*.

Finally, digital *samhandling* may eventually replace the need for direct *samhandling* with other people. This risk can be associated with insufficient, face-to-face social interaction. Our society is built on sociocultural ideas that promote socializing, learning and development through

interaction with other people (Dewey, 1916; Dysthe, 2001; Vygotsky, 1980). Replacing that with digital *samhandling* may threaten these ideas. The question is whether digital *samhandling* should be regarded as a real threat to direct *samhandling*, or whether it should be seen as an extension and a strengthening of direct *samhandling*. Either way, this is an important topic that should be addressed further in the discussion about digital *samhandling*.

To sum up, digital *samhandling* may present education with uncertainty and ethical dilemmas regarding students' safety. This may be a potential explanation as to teachers' hesitation to make use of new technology. Skagen Ekeli (2002) believes that there is a high level of uncertainty as to whether our decisions and activities may harm future generations' interests and living conditions, and he wonders to what extent we can be held responsible for risky activities that can harm generations to come. If we transfer this idea to the use of *samhandling* technology in education, it may be potentially harmful to children and young people, but also to teachers and other parties who interact digitally. This may be due to the risk factors mentioned earlier in this chapter, but perhaps also due to the lack of *samhandling* skills and legislation governing digital *samhandling*. Thus, school activities that are intended to promote knowledge development and exchange of knowledge may potentially harm future generations' interests and living conditions. This is a risk that should be delimited through the use of safer platforms for digital *samhandling* and the development of *samhandling* literacy at school and in the community.

Does digital *samhandling* in education require a new pedagogy?

When teachers and students use *samhandling* technology instead of face-to-face *samhandling*, it is possible that the terms of *samhandling* change, hence influencing the results. This makes demands on teachers to reflect upon how digital *samhandling* should be organized and how to manage their roles as class leaders in a virtual environment. By changing the premises for interaction, one may affect the interaction and communication itself, both regarding opportunities and challenges (e.g. Habermas, 1999;

Hellesnes, 1988). Also, new methods of *samhandling* may cause established knowledge to fall short, requiring teachers to investigate whether, and if so how, such methods may fit into the future school in "the unforeseen age." Torgersen and Saeverot (2015) argue that the unforeseen age requires a new pedagogy. To encourage learning in a new and unknown future, one should, according to Torgersen and Saeverot (ibid.), explore and challenge traditional knowledge, educational models and learning by experience. Kvernbekk (2015) points out that such ideas of learning contradict traditional ideas of predictability regarding aspects such as achievement, including evidence-based research on "what works" (evidence-based knowledge). Biesta (2007) problematizes the "what works" approach to learning, and emphasizes that what works may vary in different situations. He argues that teachers' professional judgment should be the basis for their decisions, in combination with evidence-based knowledge, practical experience and common sense (*phronesis*). As the future school seems to be all the more unpredictable, it is quite logical to assume that improvisation should also be a form of action in education (Werler, 2015). At the same time, improvisation, for example through digital *samhandling*, may pose risks for learners, as we do not know the consequences of it. The fear of potential risks with digital *samhandling* may explain why teachers' refrain from using it. However, if teachers refrain from facilitating digital *samhandling*, this may present a threat to the "knowledge society" in the unforeseen age. This is due to society's need for *samhandling* through various platforms that may enable creativity and problem-solving of as yet unknown issues in the future.

The discussion so far about digital *samhandling* in education in the unforeseen age shows that teachers are vital as class leaders, also in virtual environments. However, they should participate in developing their roles as class leaders in the unforeseen age. This imposes demands on teachers' professionalism, *samhandling* literacy, adaptability, and judgment. Also, educators and educational researchers should develop new approaches to learning, that can open up for the construction of new insights rather than primarily enabling the mediation of established knowledge. Torgersen and Saeverot (2015) suggest that a new approach to learning can be *indirect*; an approach which opens up to new insights to a greater extent

(see also Saeverot, 2013; Saeverot, 2017). Indirect pedagogy enforces more student reflection, rather than seeking established knowledge (Saeverot, 2017). Since digital *samhandling* is mediated through digital tools, it is an indirect form of communication that is also consistent with indirect forms of pedagogy.

Conclusion – strategies for better digital *samhandling* in education

So far, we have discussed several factors that may influence the basis of the digital *samhandling* that takes place in education. Firstly, guidance by the authorities should be clearer and more informative. Secondly, teachers should be professionally acquainted with digital *samhandling* platforms, as well as exploring their educational potential. Gaining digital literacy may enable teachers to act as class leaders while using digital *samhandling* tools. Also, such capabilities may facilitate the creation of better learning environments for both students and teachers. Thirdly, digital *samhandling* platforms that are perceived by their users as safe, dynamic and flexible, rather than restrictive and rigid, are used to a greater extent for educational purposes.

An important aspect of using digital *samhandling* tools in education is linked to reflection and learning during the teaching process. Despite the fact that teachers and students participate in various digital *samhandling* arenas daily, both socially and professionally, many are still relatively inexperienced in using such tools for educational purposes. The objectives of this form of *samhandling* are different in the various contexts, and therefore, so are the results. Moreover, both teachers and students depend on learning along the way, and this process should take place through reflection and continual *samhandling* – which may in turn enable the development of digital *samhandling* literacy and new insights.

As the future is unknown, and the unforeseen is partly learned through teachers' professional judgment and in practice communities with students, "new" pedagogy need not necessarily consist of more educational models and theories of "what works." Perhaps the "new" pedagogy should be, to a greater extent, based on *samhandling* literacy and problem-based learning?

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Section II: Organizational *Samhandling* Structures

This research focuses on different aspects of leadership, innovation, learning and organization in relevant industries, agencies and emergency management, highlighting different research methods, aspects and shades of meaning regarding the concept of *samhandling* competence under unpredictable conditions.

Weltbürger Perspectives and *Samhandling*

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Abstract: The chapter starts with a criticism of management and control concepts that have been rooted in economic or psychological theories and models, although society's complexity and the pace of change will demand a broader and deeper foundation for the development of effective management systems in the future. Other voices need to be put forward. Immanuel Kant (1795/1991) argued for his idea of the *Weltbürger* ("world citizen"), also known as "The Cosmopolitan Ideal". His fundamental philosophy is that all humans are welcome, regardless of time and place, and that all humans are world citizens, regardless of nationality and cultural belonging (Kant, 1795/1991). All people are co-citizens, independent of nationality and cultural affiliation, and the *Weltbürger* is concerned with global problems and solutions. Another central thinker is Jacques Derrida (1930–2004), a French philosopher and writer particularly known for the term "Deconstruction", which is about splitting up words and phrases to find out what they really mean, in the light of the culture and underlying attitudes. Human comprehension requires common words and phrases (language), and a cultural and social context, both of which have formed the basis for conceptual analysis of the terms "hospitality" and "threshold of tolerance". The conclusion is that the concepts of the *Weltbürger* and "hospitality" have important values in and of themselves, and are ideas that are universal and timeless, providing an important compass for *samhandling*.

Keywords: *Samhandling*, *Weltbürger*, Immanuel Kant, interaction, risk, tolerance, international understanding, organizational learning, unforeseen.

Introduction

Samhandling (which roughly equates with "interaction"), can be seen as a deeper form of cooperation and a good way forward, in order to benefit from complementary competency and strive for better services and products (see Chapter 2; Steiro & Torgersen, 2013; Torgersen & Steiro, 2010; Torgersen & Steiro, 2009; Miles & Watkins, 2007). These conditions are not only applicable to complex and flexible multi-national organizations, for example, in the oil and gas industry, and military logistics organizations associated with international operations, but also to national competency-oriented businesses and educational management. The training of managers in contemporary times has been criticized for being too instrumental, narrow and shortsighted; this has created significant debate in recent years regarding the training of managers in business schools (see for instance: Nussbaum, 2010; Ghoshal, 2005; Bennis and O'Toole, 2005; Czarniawska, 2003; Mintzberg, 1989). To a large extent, management and control concepts have been rooted in economic or psychological theories and models, although society's complexity and the pace of change will demand a broader and deeper foundation for the development of effective management systems in future (Torgersen & Steiro, 2009). Here, thinkers such as Immanuel Kant can help us to find the key which underlies relational and social structural phenomena that are otherwise overshadowed by the more applied and instrumental approaches of the field of management. Torgersen and Steiro (2009) argue for incorporating the thinking of Immanuel Kant and Jacques Derrida. In this chapter, these thoughts are re-introduced and elaborated upon.

Risk and *samhandling*

Immanuel Kant (1795/1991) argued for his idea of the *Weltbürger* ("world citizen"), also known as "The Cosmopolitan Ideal". His fundamental philosophy is that all humans are welcome, regardless of time and place, and that all humans are world citizens, regardless of nationality and cultural belonging (Kant, 1795/1991). The world citizen is concerned with global challenges and solutions, and all humans are obliged to maintain

attitudes and values in accordance with these basic assumptions. All nations, states, organizations and humans should include others, which implies unconditional courtesy unrestricted by borders, boundaries and thresholds. This type of thinking demands an awareness of our own tolerance thresholds, values and attitudes. The philosophy of the *Weltbürger* calls for an open exchange of knowledge and values;, Immanuel Kant was influenced by Adam Smith (1776), who perceived specialization as a means for gaining a competitive advantage (Nussbaum, 2011). Adam Smith has been dubbed the founding father of market-economic thinking; greater specialization calls for experts who are willing and able to cooperate and create something new. Better products and/or services are essential for *samhandling* and meeting the unforeseen. Key words associated with the *Weltbürger* are tolerance, trust, equality, respect, coping and learning.

The *Weltbürger* and hospitality

The Greece philosopher Socrates (470 BCE – 399 BCE) is reported to have denied being called a citizen of the Greece state Athens; he would rather be called a citizen of the world (Hale, 2014). Immanuel Kant (1724–1804) was a German philosopher and physicist, whose primary concern in his writings was universal ethical rules, including the universal ethical maxim: "always act in such a way that you can also will that the maxim of your action should become a universal law", which became the foundation for "The Cosmopolitan Ideal" (Kant, 1795/1991). Kant's thinking constituted a new democratic understanding of societies and organizations, as deliberative democracy is about mutual respect for each other's understanding, communication and actions.

The main element in Kant's thinking is that all humans are welcome in the world, regardless of time and place; he called this the *Weltbürgerrecht* or "cosmopolitan right. All people are co-citizens, independent of nationality and cultural affiliation, and the *Weltbürger* is concerned with global problems and solutions. Kant speaks of rights, although duties are perhaps more evident in his thinking. All men are obliged to practice such attitudes and values in their daily lives and to practice human

rights. Originally, Kant stressed that nations and states should be including and not excluding, which has direct implications for management. Several organizations need to think in terms of flexibility and organize themselves to be more flexible, since managers need to interact with a variety of different people. We also see that there is a need for managers to perform what has been termed "T-management" (Hansen, 2009), i.e. managers need to have an overview, while at the same time involving themselves and interacting in projects to help them succeed. Hence, the way we *samhandler* ("interact") becomes of importance. The ideal, effective leader of the 21st century will have to be able to mobilize people in order to undertake tasks in uncertain, rapidly changing environments (Hays & Kim, 2008). Furthermore, it should be noted that the 21st century leader is "whole"; one who leads with his/her heart, head and soul in order to be authentic and touch others, above or below him/her in the hierarchy – both those who work for the leader and partners and stakeholders (Griffin, 2008). Griffin (2008) also uses the word "wholeness", as the whole person takes a holistic view of the world and the people around him/her (English, Fenwick & Parsons, 2005). The responsibility for those who educate managers is to make sure that "the whole person" is educated (Boyatzis & McLeod, 2001).

Another central thinker is Jacques Derrida (1930–2004), a French philosopher and writer particularly known for the term "Deconstruction", which is about splitting-up words and phrases to find out what they really mean, in light of the culture and underlying attitudes. Human comprehension requires common words and phrases (language), a cultural and social context, both of which have formed the basis for the conceptual analysis of "hospitality", and a "threshold of tolerance" (Derrida, 2005a; 2005b; 2000). Hospitality is unconditional kindness that is not restricted by a limit or threshold, and there are no assumptions or prejudices in the invitation offered to the other party: *"I invite you unconditionally – welcome to my home"* (figuratively speaking). People should be included, regardless of sex, sexual orientation, religious beliefs, nationality, culture, position or socio-economic status. Pure tolerance is to accept the unacceptable, as well as accepting that which goes against common sense and may cause discomfort and tolerance problems; this applies to both

individuals, organizations and states. Furthermore, such thinking and action requires an awareness of one's own tolerance thresholds, values and attitudes. This can be achieved through a joint deconstruction of the necessary basic concepts.

Communication and *samhandling*

Samhandling depends upon individual characteristics and skills, structural and cultural components and an awareness that such expertise is a necessity. If participants actively contribute with their expertise to the community, not least by actively listening to each other, this in turn makes them conscious of the necessity. It confirms the importance of involvement and awareness in working together, in addition to being sensitive to each other, so that interactions can be achieved. We see facilitation skills as being important aspects of management, and in a well-recognized book on facilitation by Schwartz (1994), concrete examples are given showing how to interact with openness, "*How come I am right? How come you are right? Maybe we are both right?*". Schwartz (1994) does not refer to Immanuel Kant and Jacques Derrida, but builds heavily on the thoughts of Chris Argyris and Donald Schön (1996; 1978). This form of communication does not put one above the other person, but it opens up for seeing differences as a resource. Quite clearly, the examples of Schwartz provide good, sound examples of hospitality and recognition of the other person ("I welcome you unconditionally"). This is a central fundament for deliberate democracy (Kant, 1795/1991). The Greek philosopher was known to ask questions rather than providing his opinion and forcing it on others. Schein (2013) also advocates the importance of asking questions rather than telling the truth. We further believe that in addition of asking questions and approaching other humans in that sense, also is about the view of humans and interaction between humans is important, since there are some elements of self-fulfilling prophecies, as pinpointed earlier by McGregor (1960) and later reinforced by several authors (i.e. Ghoshal, 2005; Birkinshaw 2012; Steiro, 2015). We need to be aware of our assumptions and be able to integrate and tolerate opposing and conflicting views (Steiro, 2015).

Weltbürger and hospitality as a means of opening up for different perspectives

The well-recognized Harvard researcher, Theresa Amabile, writes that pluralistic thinking and being able to see different perspectives are important for creativity (Amabile, 1996; 1989). Creativity is more and more important for the survival of organizations and in order to succeed with new products or services. Creativity, as we see it, is a key factor in both reducing and mitigating risk after an accident or a deliberate attack. By being open and offering hospitality, the *Weltbürger* puts him/herself in a position to get to know the unusual, the strange and the contradictive better. *Samhandling* has been defined as *"… an open and mutual communication and development between players, in terms of expertise that complements each other and develops skills, directly face-to-face, or mediated by technology or by hand power, working towards common goals. The relationship between players at any given time rests on trust, involvement, rationality and industry knowledge"* (Torgersen & Steiro, 2009:130). *Samhandling* is seen as a key in focusing on complementary skills and knowledge (Miles & Watkins, 2007). Granovetter (1973) writes about the strength in weak ties, which are people or relations that are not very well known to us and that we are unfamiliar with. However, getting in contact could open up for new ideas, thoughts, questions and even criticism. On the other hand, strong ties are family, close friends and colleagues who possess very important values for us, but here the information tends to be known already. In contrast, the unknown and nonhomogenous tend to be unfamiliar to us (Granovetter, 1973). Here, the opportunities for exploration and new possibilities are greater.

Some preliminary conclusions and a brief look ahead

In a more dynamic and complex world, we need some guiding principles in order to ensure mutual respect and understanding. Communication and interaction should be deeply rooted in ethical thinking, and we need to communicate in a way that does not create unnecessary distance.

A stronger focus on communication and interaction between people is needed. Hence, we suggest an approach that uses humanistic knowledge and training, not only through cases but also looking beyond them, to a more holistic approach to the formation of leadership in our society. We think that this will help improve project managers and strengthen their competence, so that they possess and exercise better leadership skills under unpredictable and unforeseen conditions. Key words associated with the *Weltbürger* and hospitality are tolerance, trust, equality, respect, coping and learning, with the difference lying in competence. The *Weltbürger* could be the answer to the challenges of a more globalized world; in that sense, we think that Immanuel Kant and Jacques Derrida will make a vital contribution to the execution of leadership. The concept of the *Weltbürger* and hospitality have important values in and of themselves, and are ideas that are universal and timeless, providing an important compass for human interaction. A manager with an awareness and attitudes in accordance with these values will be better at meeting different people and cultures, which is also important in that it distinguishes more clearly between people and competence. The "World Citizen Idea" and "World Hospitality" require an open exchange of knowledge and values between citizens, in order to "reach" the way forward to something "new" in regard to inclusion, with the differences being seen as contributing competence. They will assist in the facilitation of experience, knowledge, exchange of values and learning within the organization – the gain is in the "difference", which is consolidated to create a new and stronger power (complementary power) to meet the unforeseen.

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The Triad of Uncertainty – The Interaction Between Scientists and Politicians

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Abstract: This chapter sheds light on interaction (*samhandling*) between scientists and politicians. What happens when the latter gives the former a role in an effort to ensure that society is not exposed to an unforeseen calamity? The chapter has two objectives – one conceptual and one pertaining to the analysis of public policy in a particular context. First, distinctions are drawn between three dimensions of uncertainty about the consequences of action. The aim is to create a clearer understanding of what is meant by assertions that policy is made under conditions of uncertainty. Secondly, the political implications of uncertainty are charted with particular reference to the choice of climate policy. The analysis targets the way the Intergovernmental Panel on Climate Change (IPCC) has handled the task of publicizing the effect that anthropogenic emissions of greenhouse gases have on the atmosphere. The conclusion is that the IPCC's communication with politicians and the public has contributed to, rather than ameliorated, the problem of uncertainty that stands in the way of resolute political action.

Keywords: *Samhandling*, interaction, decision making under uncertainty, scientific disagreement, unforeseen.

Introduction

Normative questions about what we ought to do bring descriptive questions about matters of fact in their wake. This is because the consequences of our actions depend, to a greater or lesser extent, on what goes on elsewhere, outside our control. Uncertainty about such matters is apt to stand in the way of resolute action.

In this chapter, I shall first argue that the problem of uncertainty has several aspects. Indeed, it is no single problem, but a triad of what I shall call bewilderment, ignorance and scientific inconclusiveness. Secondly, I shall discuss the role of science in dealing with bewilderment and ignorance. I pay particular attention to research into the cause of climate change. The aim of the article is to shed light on the interaction between scientists and politicians. What happens when the latter gives the former a role in an effort to ensure that society is not exposed to an unforeseen calamity?

A brief introduction to the issue of climate change and the choice of climate policy is in order. Political authorities would like to know how human activity affects the earth's climate in order to decide whether anthropogenic emissions of greenhouse gases should be reduced or allowed to continue at, or above, their current level. What is achieved by adopting one or the other course of action depends crucially on what goes on in the atmosphere. On the one hand, the effect of doing nothing, or not much, to lower emissions may be grave. The greenhouse theory says that greenhouse gases have an appreciable effect on the climate of the earth. If so, continued emissions at the current level are dangerous. On the other hand, reducing emissions may be costly, too. This, at any rate, is the opinion of many economists. If they are right, there is good reason to dispense with reductions unless they will contribute to stabilizing the climate. Let us assume that they are right. Let us also assume that the consequences of climate change may turn out to be far worse, at least in certain parts of the world, than any economic hardship anyone will suffer owing to reductions of emissions. Most of the subsequent argument will be unaffected if we drop the latter assumption, but it plays a crucial role towards the end of what follows.

An important conclusion is that scientific opinion about climate change has influenced parts of political opinion in a way that belies the scientists' best intentions. Their presentation of results from research was

meant to counteract the reluctance of political agents – leaders as well as people at large – to do something about the dangers of climate change. This may well have produced the opposite effect.

Bewilderment

We – or those of us who are not well versed in atmospheric chemistry – do not know what to believe about anthropogenic emissions of greenhouse gases. We are uncertain in the psychological sense of the word. Uncertainty, thus conceived, is a state of mind – a doxastic attitude – and it amounts to the absence of wholehearted belief. With regard to the matter at hand, we cannot judge that things are definitely thus or so. I shall call it *bewilderment*.

To arrive at a more precise definition, consider an episode in Shakespeare's *Othello*. Night falls on Venice and Brabantio, a nobleman, is at home. So, he believes, is his daughter; indeed, he is certain that she is at home. He has a *full belief*. Then consider Hamlet. In the tragedy that bears his name, he has just lost his father, who was King of Denmark, and he suspects murder was committed at the behest of the Queen and the late King's brother. But he is by no means sure. After all, the body was found lying in a garden where poisonous snakes live. Hamlet has no full belief, only a *partial* one. In general, to have a partial belief in a proposition, P, is to attach greater likelihood to P than any contrary proposition – i.e. any proposition that entails the denial of P – but some likelihood to at least one contrary proposition. As Hamlet sees it, murder is the likelier of two explanations that both have some likelihood.

Partial belief can border on full belief. Suppose, for example, that I peer out of the window and see people in their shirtsleeves. This gives me reason to believe that the weather is warm. As it happens, however, the past week has been unseasonably cold and perhaps these people have taken off their jackets in protest against the weather, as it were. What I see favors the first hypothesis, but does not rule the latter out of court. I have a partial belief that is nearly full.

Partial belief can also be distant from full belief. Let's say that I wonder whether my daughter will go right home after school to take our dog out for a walk. She said she would, but it is a beautiful day, so perhaps she will

succumb to the temptation of hanging out with some friends. Only by a small margin does one proposition ("she will go right home") surpass its negation ("she won't") in terms of likelihood. My partial belief borders on refusal to accord the former a higher probability than the latter. I am, in other words, on the verge of *suspending judgment.*

In view of these distinctions, we may refine the account of bewilderment. To be bewildered about something is to have a partial belief about it or, at the limit, no belief at all. The latter amounts to suspension of judgment. Short of that, bewilderment comes in degrees. The further we are from full belief, the greater our bewilderment. In the second last paragraph, I invoked a case of mild bewilderment, whereas the last paragraph portrayed me as very bewildered.

Bewilderment is a problem from a practical point of view. It is apt to stand in the way of resolute action. One is naturally reluctant to choose an alternative that does not match up with a clear-cut consequence. Reluctance is apt to vary with the distance from full belief. The more unsure one is about what a given alternative leads to, the less keen one is to choose it, all things being equal. Reluctance fostered by uncertainty presumably reaches its highest level when judgment is suspended.

Ignorance

Suppose someone has a full belief. She may, for example, stand before a choice and feel certain about what an alternative has in store for her. There is no doubt in her mind. All the same, she can be out of her depth. Certainty, to quote Wittgenstein (1972:6e), is "a tone of voice in which one declares how things are, but one does not infer from the tone of voice that one is justified." To be certain but not knowledgeable about a certain subject at the same time is no feat (not, at any rate, if experience from my life is anything to go on).

Being knowledgeable is no state of mind, but an epistemic position. It consists in being aware of how things really are. This, too, is a kind of certainty. Similarly, being unknowledgeable is a kind of uncertainty. Call it *ignorance.* I shall offer a more refined account of it after briefly digressing on the topic of truth.

The term "truth" stands for a relation between a representation and some matter of fact. Say the representation is verbal – a written account, for example. It is true if, and only if, it depicts things as they are. In particular, the assertion that X causes Y is a true explanation of Y, provided Y really owes its occurrence to X. David Hillel-Ruben (1991:210) makes the point cumbrously: "Explanations work, when they do, only in virtue of underlying determinative or dependency structural relations in the world." Jon Elster (2017:24) puts it pithily: "A genuine explanation accounts for what happened, as it happened."

Elster (ibid.:25) adds, "Why would anyone want to come up with a purely conjectural account of an event?" This statement, however, is apt to invite misunderstanding. Nothing contrasts more starkly with guesswork than truth revealed, but mere conjecture and certified truth are extremes. Between them is the immensely important category of representations that are conjectural but credible. They constitute promising candidates for truth. Their importance derives from the fact that we do not search for truth the way we search for, say, a word to rhyme with another. One can tell whether words rhyme by comparing them to one another, but no proposition permits straightforward comparison with reality. Going after truth is a more roundabout matter.

In Colin McGinn's words, there is "no more to the injunction to seek the truth than to respect the evidence", not because "there is no distinction between evidence and truth", but because "our position as cognitive agents is confined to that of evaluators of evidence" (McGinn 2003:72). This dictum needs some fleshing out. I take it that "evidence" stands for information, in particular, perceptual information.[1] Not for nothing, McGinn speaks of the evaluation, rather than collection, of it. We do not just register bits and pieces of evidence; we scrutinize information before it can serve as a cue to the truth. Documents, for example, are assessed for authenticity. A further and more notable complication is that informational value can be boosted by means of reasoning. Here is an illustration

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1   "Evidence" sometimes has a more inclusive meaning. It may stand for what I will soon talk about under the head of "epistemic considerations". McGinn's use of "evidence" seems to be in line with mine rather than the more inclusive meaning, but it does not matter if I am wrong on this score. The substance of what I am going to say will be unaffected.

of how this works. After Beethoven had lost his hearing, he carried note-books about with him, in which people he met wrote down what they said to him. His own contributions to the conversations are mostly unre-corded, but the written record, together with background knowledge of the life and times of the composer, permit credible conjectures. We may fill out the blanks by asking what Beethoven is likely to have said that elic-ited the responses he got. Similarly, to turn to science for an illustration, we can figure out the chemical composition of stars by inference, from observations of the frequency and pattern of light rays. It is a question of *abductive* inference, which, schematically put, goes like this: (i) there is evidence that Y is the case; (ii) the best explanation of Y is that X is the case; hence (iii) X is the case. Evidence is one kind of pointer to truth and abductive inference is another. There are yet others, notably inductive inference. We can call them collectively *epistemic considerations.*

Now we are equipped to restate McGinn's dictum. In practice, there is no more to the injunction to seek the truth than to respect epistemic considerations, not because there is no distinction between propositions that rest on epistemic considerations and propositions that are true, but because there is no better way of getting at the truth than respecting epis-temic considerations. This, in turn, equips me for refining the definition of ignorance. To be ignorant about something is to form a belief about it without paying sufficient attention to epistemic considerations. Like bewilderment, ignorance is a matter of degree, running the whole gamut from a mild lack of attention to epistemic considerations to pronounced inattentiveness. In other words, the evidence for, and the reasoning behind, a certain belief can leave a little or a lot to be desired.

Consider Brabantio again. He is certain that his daughter is at home. Enter Iago and Roderigo, who tell him that the girl has eloped with a lover. Brabantio does not believe what they say, but searches the house and then realizes that he is wrong: "It is too true an evil, gone she is." (Shakespeare *Othello* scene 1, act 1) Both before and after the search, Brabantio has a full belief. Beforehand, he is certain that his daughter is at home; afterwards, he is certain that she is not. Psychologically speaking, the two states of mind are akin to one another. Both bespeak confidence. But epistemologically speaking, they differ. The original belief is, if not

flippant, at least careless. It is replaced by one that rests on a propitious way of getting at truth – or, more accurately, a well-suited way of inquiring into someone's whereabouts. It is not that by going and looking for a person at a certain site one is certain to find out whether or not she is there, but the procedure is promising to a tee.

Then consider Hamlet for a second time. The basis for the partial belief he holds when the play begins is flimsy. What makes him suspect that his father was murdered is the hasty marriage between his uncle and his mother. (I disregard the nightly appearances of his father's ghost.) It may well have been improper of the two to wed so soon, but it hardly indicates that they are murderers. Hamlet is on thin epistemic ice; his case is a paradigm of ignorance. Later, however, he conducts an ingenious experiment. He arranges for a group of travelling actors to stage a tragedy about regicide in the presence of his uncle. The new King reacts with evident horror when the players enact the murder scene. This fortifies Hamlet's suspicions. His doxastic attitude still falls short of a full belief, but now reflects attentiveness to epistemic considerations. He is no longer ignorant.

Scientific inclusiveness

It is in the nature of scientific inquiry to help with the problem of ignorance. I take this claim to be uncontroversial. Not only will I refrain from defending it; I will give it a rhetorical lift by borrowing a couple of felicitous phrases from Jonathan Bennett. Ordinary, untutored belief about matters of complexity tends to be based on "scanty reasoning about a small set of empirical data", whereas science offers "thorough reasoning about a rich set of empirical data" (Bennett 2016:15).

In contrast, it is not in the nature of science to help with the problem of bewilderment. The transition from untutored belief to belief that takes its cue from scientific inquiry is as likely to exacerbate as alleviate that problem. When we are presented with a rich set of varied evidence and become privy to ingenious reasoning, we may not be capable of forming a full belief or retaining one we had in advance.

In view of this, I shall define one more conception of uncertainty. Suppose that no full belief emanates from scientific inquiry about some

matter of fact. Science warrants only partial belief of what takes place or no belief at all. Then there exists *scientific inconclusiveness*. Conversely, when science puts doubt to rest, scientific conclusiveness is achieved. In the previous paragraph, I suggested that both upshots of enquiry are normal, which is not to say that they are equally welcome. The purpose of science is, after all, to get at truth. Only scientific conclusiveness bespeaks success in this respect (but does not, of course, guarantee it). Scientific inconclusiveness does away with ignorance, which is fine, but leaves us in a state of bewilderment, which is not so fine, as it is apt to hinder resolute action.

Combatting and exacerbating bewilderment

In the remainder of the article, I shall turn to research on climate change in order to extract some more specific lessons about the role of science in dealing with ignorance and bewilderment. Political authorities have engaged scientific experts to help with the question of whether or not anthropogenic emissions of greenhouse gases affect the climate in ways that are dangerous. The *Intergovernmental Panel on Climate Change* (IPCC) is a network of scientists whose task is, among other things, to sort this question out. What have these scientists done for us?

To all appearances, the IPCC has helped with the problem of uncertainty-cum-ignorance. Quibbles about the quality of its successive reports notwithstanding, they firmly belong to the category of thorough reasoning about a rich set of empirical data. It appears, moreover, that the IPCC is also intent on helping with the problem of uncertainty-cum-bewilderment. Consider a statement by John Houghton, who has been chairperson of Working Group 1 – one of the three constituent working groups:

> … our work was rather like the making of a weather forecast. It is of little help for a forecaster to say that the weather will change tomorrow but that he is unwilling to say in what way. The forecaster also needs to give his best estimate of the detail of that change. (Houghton 1990:6)

To be sure, the statement is ambiguous. On the one hand, Houghton urges scientists to be precise and not to tell things approximately when exactness

is feasible. Saying simply that the weather will change is inadvisable, if not irresponsible, if one has reason to believe that incumbent change will take this or that particular shape. This is a pertinent but trite admonishment. On the other hand, Houghton also admonishes that scientists commit themselves to a full belief. He suggests that a weather forecast is useless for practical purposes unless the forecaster comes up with a definite prediction. Heeding the first admonishment will not help with the problem of bewilderment, but heeding the latter obviously puts an end to it.

As it turns out, the IPCC goes a long way towards committing itself to a full belief about the cause of climate change. In the first report, Working Group 1 offers the following summary of its findings:

> *We are certain of the following:* … emissions resulting from human activities are substantially increasing the atmospheric concentrations of greenhouse gases … These increases will enhance the greenhouse effect, resulting on average in an additional warming of the Earth's surface. (IPCC 1990: xi)

This is said in the Executive Summary, which directs itself to political decision makers and the public at large. However, the commitment to full belief is something of an intellectual exaggeration. In the "supporting material" provided by Working Group 1, we read that, "Poor quantitative understanding of low frequency climate variability (particularly on the 10–100 year time scale) leaves open the possibility that the observed warming is largely unrelated to the enhanced greenhouse effect." (IPCC 1990:254) There is, accordingly, a discrepancy between what some scientists (at least) believe about the effect of greenhouse gas emissions and what those who penned the executive summary communicate to politicians and the public. The formulation I quoted from in the "supporting material" is indicative of only partial belief in the greenhouse theory. Two hypotheses – an enhanced greenhouse effect and natural variability – appear to be good candidates for truth, contrary to what the IPCC states in the summary.

In the report of 2007, the summary of the contribution from Working Group 1 contains many formulations that signal, if not full belief, at least nearly full belief in the greenhouse theory. It is said, for example, that "[m]ost of the observed increase in global average temperature

since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations." Moreover, it "is *very unlikely* that climate changes of at least the seven centuries prior to 1950 were due to variability generated within the climate system alone." (IPCC 2007:10 and 12) The IPCC goes as far as alleging that there is a chance of 9 in 10 that human activity is the cause of climate change. This, however, seems exaggerated in the light of what the scientific proceedings say. Qualifications and reservations are voiced. They have to do with the models that underlie the estimate I just cited. In particular, the role played by clouds and oceans in the causal chain between greenhouse gas emissions and climate change remains to be sorted out (ibid.:592–593).

It appears, then, that the IPCC tones down scientific inconclusiveness about the cause of climate change. The results it reports are inconclusive. Epistemic considerations support only partial belief and we are closer to suspension of judgment than full belief. Yet, in statements that direct themselves to political authorities and the public, a nearly full belief is voiced.

Why does the IPCC speak with two tongues? I venture the hypothesis[2] that it does not confine its attention to epistemic considerations when it passes a judgment on the greenhouse theory before us, its non-scientific audience. Considerations of a practical nature enter the picture. They have to do with what can go wrong if we – or politicians who act on our behalf – adopt a climate policy that reflects false belief about the cause of climate change. Two errors, in particular, are conceivable. One is to take costly steps to reduce greenhouse gas emissions that actually have very little or no effect on the climate. Call this the error of *redundancy*: making (significant) sacrifices to no avail. The other error is to refrain from reductions in the false belief that anthropogenic emissions are inconsequential, whereas they substantially affect the climate. Call this the error of *complacency*. On the face of it, the two errors are equally regrettable. The first consists in wasting resources that society

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2   It is inspired by an argument of Michael Bratman (1999:22–24). His thoughts are on other matters and I do not know whether my inspired use of them will be to his liking.

might have put to good use, the second in wasting an opportunity to avert adversity.

We have seen that the findings of the IPCC warrant a partial belief as to the effect that climate change will have unless reductions are undertaken. This belief is close to suspension of judgment. Now, suppose scientists are not reporting the result of their research to us, but to someone who is about to place a bet. Suppose their task is to enlighten a gambler about the value of two lottery-tickets: one says that cuts will stave off climate change and the other that they won't. Suppose, moreover, that scientists know that this gambler is not fully rational, but liable to make an unwise decision. Then they may reinterpret their task as a dual one: both telling the gambler about the risk of, respectively, redundancy and complacency, and helping her to make a rational choice. What, apart from doing their best on the first score, might they do to forestall irrationality? It is natural to think that the *presentation* of their findings might be more or less suited to the purpose of priming the gambler for a rational choice. Will it help, for example, to inflate the estimate of one or the other risk? No, because the error of redundancy and the error of complacency are equally undesirable. If the gambler bets on the need for cuts when cuts are redundant, she loses her money; *ditto* if she wagers that it is safe to abstain from cuts that are actually needed. In view of this, the best scientists can do with a view to promoting rational choice on the part of the gambler, is to straightforwardly convey their findings to her.

The predicament we – all of us, but political authorities in particular – are in differs from that of the gambler. From our perspective, there is an asymmetry in the costs of error. The alternatives of either cutting or not cutting emissions are not on a par when it comes to how badly things may go. The consequence of complacency is worse than that of redundancy. However adversely cuts in emissions will affect the economy of this or that country, the consequences of climate change are far worse, at least in certain parts of the world. Failing to make necessary cuts could be disastrous. In contrast, the risk of making cuts to no avail is worrying, but not nearly as much. So, at any rate, I assumed at the outset.

In view of this, one would expect that scientists who let practical considerations into their reasoning behave otherwise than they would have

done if they had only reckoned on epistemic considerations. If, in particular, they are concerned about imperfect rationality on our part, it will be a concern about complacency. Considering the asymmetry in the costs of error, redundancy is, in comparison, a lesser worry.

In the case of the hypothetical gambler, I simply postulated that the hypothetical scientists worry about her lack of rationality. It will not do to argue this way when it comes to the way scientists in the IPCC behave towards us. There has to be some justification for assuming that they suspect we may not be up to the task of making a wise decision. The justification is not hard to find. On the one hand, the cost of cutting greenhouse gas emissions will be borne whether or not cuts do any good. On the other hand, the cost society will incur if cuts are needed but left undone lies in the future. This is a classic setting for myopia. The error of redundancy may make an impression that is out of proportion to the real cost of undertaking redundant cuts. It is apt to be the other way around with the cost of complacency. Under these circumstances, it is not surprising that the IPCC ratchets up the estimate of the risk that greenhouse gases cause climate change.

Suppressing doubt is a kind of manipulation. The IPCC would have us believe that the development will definitely go in the wrong direction unless emissions of greenhouse gases are cut significantly, whereas inquiry indicates only that disaster *may* happen. They encourage a nearly full belief, in spite of the fact that the epistemic considerations warrant a partial belief that is closer to suspension of judgment.

I do not think such manipulation of belief is necessarily wrong. Suppose people are prone to take uncertainty as an excuse for living dangerously. Suppose, moreover, that lecturing people on the folly of this attitude will not have much of an effect on their behavior. Neither assumption is far-fetched when, as in the case of climate change, it will be costly to deal effectively with the danger in question. In such a case, when people are dragging their feet, those who are aware of the danger at hand may be justified in covering up uncertainty in order to discourage indecisiveness in the face of danger.

In practice, however, there is a problem. Manipulation of belief by scientists may easily turn out to be counterproductive. It is apt to push scientific debate in a direction that makes people less, rather than more,

prepared to do something about the danger. The root of the problem is that scientists rarely agree on matters relating to risk. When someone expresses greater confidence in their predictions than evidence permits, those who disagree will not remain silent. The scientific debate that follows is likely to be loud and livid, and as the heat turns up inside the scientific community, people on the outside may come to believe that disagreement runs deeper than it actually does. Scientific communication that is aimed at covering up scientific inconclusiveness will rather contribute to making a major issue out of it.

In the case of climate change, a large part of the public debate revolves around the question of whether or not things are *certain* to end in disaster unless something drastic is done to reduce greenhouse gas emissions. This has set the stage for bickering and postponement of political decisions. Responsibility for this state of affairs lies largely with scientists who have used their position as public experts to argue that the greenhouse theory is the only viable explanation of climate change. It is not, and scientists who subscribe to other theories have raised their voices in protest. As a result, scientific inconclusiveness has come to be perceived as a major problem and a good reason not to do anything before scientists agree – which, of course, is unlikely to happen soon.

Conclusion

Discord among scientists has not gone unnoticed among those who, for some reason or other, want to dismiss the dangers of climate change. They have been able to defend their position simply by pointing out that there is still disagreement among scientists. A telling illustration is a memo that came from the Republican Party in the United States, when George W. Bush was President. It was meant to back up the President's resistance to greenhouse gas reductions, and it said:

> Should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly. Therefore, you need to continue to make the lack of scientific conclusiveness a primary issue in the debate. (Quoted from Lanchester 2007:5)

Scientists who try to pass the greenhouse theory as certified truth open the door to this kind of argumentation. They play into the hands of those who are struggling against reductions of greenhouse gas emissions, allowing them to harp on about the margin of error in the greenhouse theory.

I shall close on a note of political engagement. Uncertainty is pronounced and resilient even in the best parts of science, and scientists should not cover it up. They should rather acclimatize people to the idea that most of time, even the best estimate is an unsure estimate. The fact that we do not know for sure, but only suspect, that greenhouse gas emissions are causing climate change is not a good excuse for inaction.

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CHAPTER 12

Social Innovation and Collaboration. Identifying and Engaging Stakeholders with Power, Purpose, Passion and Presence

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Abstract: This chapter explores the link between social innovation and collaboration among change agents and stakeholders. Social innovation is a field on the rise, both practically and theoretically (Cajaiba-Santana, 2014), and involves new ideas for tackling unmet social needs and solving current social problems (Mulgan et al., 2007). Even though social innovation has great potential, confronting uncertainties, risks and resistance are inevitable when engaging in this type of endeavor. Consequently, it may be challenging to mobilize key stakeholders to commit to and engage in relevant actions and collaborative processes (Marcy, 2015). The problem that will be addressed in this chapter concerns how to identify, target and mobilize key stakeholders to collaborate in social innovation initiatives. It is viewed from the vantage point of those initiating and leading social innovation efforts and aims to point out some factors that must be overcome and others that may foster constructive collaborative processes among change agents and stakeholders.

Keywords: *Samhandling*, stakeholder, innovation, social interaction, collaboration, leadership, uncertainty, organizational learning, unforeseen.

Introduction

In this chapter, I explore the link between social innovation and collaboration among change makers and stakeholders. Social innovation is a field on the rise, both practically and theoretically (Cajaiba-Santana, 2014), and involves new ideas for tackling unmet social needs or solving current social problems (Mulgan, Tucker, Rushanara, & Sanders, 2007). Even if social innovation has great potential, confronting uncertainties, risk and resistance are inevitable when engaging in this type of endeavor. Consequently, it may be challenging to mobilize key stakeholders to commit to and engage in relevant actions and collaborative processes (Marcy, 2015). The problem addressed in this chapter concerns how to identify, target and mobilize key stakeholders to collaborate constructively in social innovation initiatives. It is viewed from the vantage point of those initiating and leading social innovation efforts, and aims to point out some factors that must be overcome and others that may foster constructive collaborative processes among change makers and stakeholders.

Social innovations involve collaboration

Social innovation is a research field on the rise (Cajaiba-Santana, 2014:42), with the potential to resolve pressing social, economic and environmental challenges (Windrum, Schartinger, Rubalcaba, Gallouj, & Toivonen, 2016). Social innovation can be defined as the development and implementation of new ideas to meet previously unmet social needs or solve current social problems (Mulgan et al., 2007). The European Commission (2010, 2013) perceives social innovation as a way to address societal problems like unemployment, poverty, demographic shifts and climate change with innovative solutions of social inclusion and empowerment (Lindberg, Forsberg & Karlberg, 2016). As such, these innovations are social, in terms of both ends (coming up with innovative solutions to social problems) and means (developing innovative solutions in a social way).

Some specific examples of social innovations are the development of online education, neighborhood renewal programs, and efforts to enable elderly people to stay longer in their homes (Sørensen & Torfing, 2014:3). Lindberg et al., (2016) studied how women's networks may contribute

to social innovation. Drake, Ballangrund, Svenkerud & Ulvestad (2017) employ action research to mobilize more women professors at a Norwegian higher education institution, contributing to the promotion of social innovation in academia (see also Ulvestad, 2017).

While social innovation as a way to resolve current social inequalities and unmet needs of groups of individuals appears promising, there are certainly challenges and obstacles that may interfere with and decrease the likelihood of such processes and outcomes. One particular challenge relates to the fact that most social problems and solutions involve multiple stakeholders and a network of people. While change makers and change agents initiate and drive innovation processes (McCalman, Paton, & Siebert, 2016), they depend on other people to contribute, engage and collaborate in various roles and processes along the way (Cels, de Jong & Nauta, 2012). Successful social innovation requires stakeholder acceptance and collaboration, state Herrera (2015).

What, then, is collaboration? Some definitions are comprehensive and describe all the components that are ideally involved in collaborative processes. For example, Torgersen & Steiro (2009:130) define *samhandling* [collaboration] as an "open, equal communication and developmental process that occurs between participants with compatible competencies and who exchange competence, directly face-to-face, mediated via technology, or by hand, work towards common goals, and where the relationship between the participants is built on trust, engagement, rationality and sectorial knowledge". At the other end of the spectrum are definitions that view collaboration as occurring as soon as there is an action and a response to that action. For example, Wadel (2012) leans on Asplund (1987) when stating that interaction occurs when a person responds to what another person does. Behaviors and outcomes are 'produced' as sequences of acts interact with each other. This thinking is in line with Schein (2016), who claims that leaders can never *not* communicate, for even the lack of response is a response. As such, interaction is evident when more than one person is present in any situation and someone takes an initiative to communicate and/or engage with someone else in a conversation or other actions. In contrast, the term *samhandling* implies a more cooperative and socially constructive mindset, approach and relationship between actors

(Gergen, 2015). In the social innovation literature, the terms 'engagement' and 'co-creation' are used alongside collaboration to denote constructive collaboration between change makers and stakeholders.

If social innovations are viewed as a value chain, where change agents with ideas to address and improve a specific social problem represent the start (Young, 2011), there may be numerous stakeholders involved along the way towards implementation. Stakeholders are anyone who in some way has a stake in the success of the social innovation (Cels et al., 2012:13). Razali & Anwar (2011) emphasize that stakeholders can be positive or negative *influencers* and define stakeholders as "all those who have a stake in the change being considered – those who stand to gain from it and those who stand to lose (Macaulay, 1993)". These *influencers* can be external and internal authority persons, decision makers, employees, professional colleagues and clients, those who control material and immaterial resources, critical information and the like. Clearly, from the point of view of change makers, it will be advantageous to have proactive and collaborative relationships with ones' stakeholders (Sørensen & Torfing, 2014:4).

A first step, then, is to identify and discover key stakeholders. Empirical research has found that identifying and discovering stakeholders represents a core problem for practitioners (Alexander & Robertson, 2004). This is not surprising, as other research has found more than 100 stakeholder categories in use (Fassin, 2009). Stakeholders are typically identified via broad roles, such as distributors, suppliers, customers, owners and so forth (Freeman, 1984). Researchers have pointed out, however, that this is an insufficient approach (Fiedler & Kirchgeorg, 2007; Wolfe & Putler, 2002). The argument is that people do not behave as representatives of broad group categories, but as individuals with unique preferences, interests, perspectives and needs. Consequently, McVea and Freeman (2005:57) suggest that stakeholders should be treated as "individuals with names, faces and families". How this is to be done, is however not explained or elaborated on in the article, and has only to a limited degree been addressed in other contributions (Drake, 2014).

Social innovations offer meaning and purpose to those who are personally or professionally engaged in the problem at hand. However, they are also risky, uncertain and likely to evoke resistance and even hostility

among others. How to overcome such obstacles and engage key stakehold-ers in constructive collaborative processes, including those who might otherwise be motivated to refrain from engagement or actively resist pro-gress, is a key question. This is particularly so in light of the recent trend of "innovating the innovation process" (Darsø, 2012), where stakeholders are being involved and engaged at a much earlier stage in the innovation process than previously. Frow, Nenonen, Payne & Storbacka (2015:3), for example, state that the role of customers has evolved from 'passive audi-ences' to 'active players'. From this perspective, identifying, onboarding and engaging key stakeholders, may represent both an opportunity as well as a challenge.

The problem

On this background, the problem that will be addressed in this chapter concerns how to identify and attract key stakeholders to engage in col-laborative processes in any given social innovation initiative. It is viewed from the vantage point of those initiating, coordinating and leading social innovation efforts, who will be referred to as change makers or change agents. The literature reviewed ranges from contributions around social innovations, stakeholder identification, engagement and collaboration.

The chapter has the following structure: First, I describe in more detail why social innovation may be perceived as both risky, uncertain and unjust from a stakeholder perspective. Next, I explicate why targeting and attracting the right stakeholders are so important for constructive, col-laborative processes. I propose that attracting stakeholders with *power*, *purpose*, *passion* and *presence* may provide change makers with a broad scope of influencers who may move the innovation process forward in a socially responsible way.

Viewing social innovation from a process ontology (Hernes, Hendrup & Schäffner, 2015), may add further meaning to such ambitions. It gives rise to actions and relationship building between change makers and potential or current stakeholders, not only with short-term outcomes in mind, but over the long haul as well. These ideas are briefly mentioned in the last section of the chapter.

What is risky about engaging in social innovation?

Since the premise of this book is to explore conditions for effective collaboration under situations of uncertainty and risk, it may be fruitful to be more explicit about what kinds of risks and uncertainties that may impose challenges in terms of attracting stakeholders to social innovation efforts.

Firstly, all innovation processes are of their very nature uncertain, as they involve creating something new (Cels et al., 2012). This 'newness' may involve new ways of doing things, as well as new outcomes[1]. Clearly, engaging in something without knowing what will come out of it, if anything at all, may lead some stakeholders to resist getting involved in the first place.

Uncertainty may be particularly profound at the outset of an innovation process. Viewing innovation processes in terms of stages is quite common in the literature (Kezar & Eckel, 2002). Herrera (2015:1469), for example, addresses the various stages involved in issue of 'corporate social innovation'. At the initial stage, the core tasks are about active problem sensing and idea generation. More specifically, this include exploring and identifying the problem, necessary input and resources, processes and stakeholders, probable by-products, variations in outcomes and so forth. All of these may involve blurry perceptions, multiple interpretations and unclear goals which in sum creates a high level of uncertainty. At later stages, such as the implementation stage, the level of uncertainty is substantially reduced and may appear less daunting. It may therefore be useful to keep in mind that individual stakeholders may be more or less tolerant and anxious about uncertainty (Moxnes, 2012). Those with low tolerance of ambiguity, should probably not be targeted at the earliest stages of the innovation process.

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1   The differences between change, invention and innovation are often addressed in the literature. Sørensen & Torfing (2014:2) explain that all innovations involve change, but not all changes qualify as innovation. Only those changes which disrupt existing practices and the common wisdom in a particular area, should be considered innovations. The difference between inventions and innovations, is that inventions are 'new to this world', but innovations are only new to the local situation (Cels et al., 2012:4). Hence, it is not the source of innovation but the local context of implementation that determines whether something can be considered an innovation or not (Roberts & King, 1996).

When it comes to problem identification, a particular kind of uncertainty is pivotal to address, namely, whether there actually is a problem that must be dealt with in the first place. "The problem is that people don't notice the problem," stated Deborah Rhode, in a panel debate on women and leadership at a global leadership conference in 2016[2]. When it comes to social inequalities or situations where minorities experience unequal or insufficient circumstances compared with the majority, it may not be easy for those who do not themselves confront the problem, to see that there actually is one (Drake et al., 2017).

Another challenge relates to the fact that in order to restore equality between certain groups of individuals, some individuals must be provided advantages, and not others. In fact, when solutions to social problems are implemented inside current organizations, the effect may be that some employees win at other employees' expense (Cajaiba-Santana, 2014:44). Thus, social changes may be seen as an improvement by those who support or belong to the favored group and as a regression by others. Stakeholders who are affected negatively or who do not receive the same advantageous treatment as their co-workers, may build up resistance and eventually decide to sabotage the initiative. Others, who are not negatively affected themselves, but foresee such resistance from other powerful participants or stakeholders they positively identify with, may refrain from supporting the initiative.

The possibility of such a response may be partly explained by the fact that social problems primarily become visible and are accrued at the collective level, while solutions often must be instigated at the individual and organizational levels (Phills, Deiglmeier & Miller, 2008). Those having to give way to underprivileged group representatives may thus lack the motivation to do so.

Taken together, even if not all of these forces come into play during one particular social innovation initiative, resistance and hesitancy by potential and actual stakeholders should be expected when embarking on a social innovation process (Marcy, 2015).

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2 Global International Leadership Association, 18th Annual Meeting, Nov. 2016, Atlanta USA. The author was present at the panel debate and took notes.

At the same time, when stakeholders do become engaged in such projects, there may be plenty of upside. Finding meaning, purpose, taking responsibility, and participating in mutual collaboration and co-creation of new solutions to unmet needs, underline why individuals may be motivated to engage in social innovations at a personal level.

Identifying and discovering stakeholders

Before engaging in problem identification and exploring solutions to current social problems, stakeholders who may influence or be influenced by the initiative should be identified (Wagner, Alves, & Raposo, 2011). As already mentioned, the most common approach to stakeholder identification is the application of a 'role-perspective' (Freeman, 1984; Fassin, 2009). One tries to identify, through either empirical analysis or theoretical reasoning, which are the most central roles influencing, or being influenced by, an issue or problem in question. This point to the importance of the *power* of stakeholders (Mitchell, Agle, & Wood 1997). Let us look a bit more into this notion, followed by the issues of stakeholders' purpose, passion and presence.

Stakeholders with power

In practical terms, identifying stakeholders may start with those formal roles, which have the power to influence or be influenced by an issue in question (Power, 2010). In some cases, these may be formal gatekeepers who control access to information, decisions or other resources necessary to move an idea forward. Young (2011) provides an illustrative example: an individual who invents a new form of legal contract cannot simply institute it on his/her own. Rather, the implementation process is dependent on involvement and coordinated efforts among stakeholders who have the authority to accept and instigate the application of the legal contract in a particular domain or in society in general.

Investigating leadership constructions within a corporation, Drake (2011, 2014) suggests that combining *functional role* and *hierarchical level* may lead to a more refined and practically applicable classification

of stakeholder groups. Those who have similar roles, such as leaders, HR staff and labor union representatives, but operate at different hierarchical levels, may exhibit quite different levels of decision-making power, social capital, and strategic concerns (Hooijberg & Denison, 2002; Tsui, 1987). Thus, it may be useful to ensure representation from stakeholders who function at appropriate authority levels in the organizational hierarchy.

Stakeholders may have access to power in more indirect ways than functional roles, for example via ones' networks, reputation, experience, competencies and so forth. Young (2011) emphasizes how power may derive via networks, and suggests that both *social capital* and *relational abilities* are important when identifying which individual stakeholder representatives to invite or attract into a social innovation process. Not only are people's first-level connections important (so-called 'strong ties'), but their 'weak ties' (the people their contacts are in contact with) are also relevant (Granovetter, 1973). If the change agent or change maker herself does not have the decision-making or informational power needed to move a project forward, it may be sufficient to mobilize the engagement of stakeholders in ones' network who do.

Networks can be valuable in ways that are more indirect and provide necessary legitimacy to an initiative (Cajaiba-Santana, 2014:47). This is particularly relevant in public-sector innovations, as legitimacy involves securing support for the initiative in one's authorizing environment (Cels et al., 2012). In practice, this may be done by involving stakeholders more explicitly in the project as a form of sponsor, ambassador or mentor. Empirical research has, for example, demonstrated how successful social innovators typically reach out to people with a certain status or power. By creating some kind of role for powerful people in their project, they hope to generate necessary credibility and legitimacy from other key stakeholders (ibid.:30).

Stakeholders with purpose

What makes someone see something as a problem worth engaging in? As Weick (1995:9) points out, problems do not present themselves as givens.

They must be perceived or constructed from problematic situations that seem worthwhile to look into. When a problem or a problematic situation has gained the attention of someone, there may be sufficient motivation to engage in collaborative processes to help fix it. If so, one becomes a stakeholder through one's purposeful engagement.

Oftentimes, however, needs are not so blatantly obvious, and may in fact not be recognized by stakeholders at all (Mulgan et al., 2007). In these situations, argue Cels et al., (2012), the change maker should not aim to create an overall purpose that all stakeholders must share or agree with. Instead, one should explore what key stakeholders find meaningful and important at an individual level, and address how the problematic situation relates to these concerns. In other words, one should try to carve out a clear purpose, which will resonate with individual stakeholder concerns and values. McCalman et al., (2016) note that as long as all parties with a stake in the change see a mutual benefit in moving the project forward, it is not necessary that they all share the same perception about why this is a good idea.

Combining information about stakeholder power with exploration of stakeholder purpose, may help change agents in deciding where to put in sufficient time and energy in terms of onboarding the right mix of stakeholders. In stakeholder analysis, one tries to map the degree of interest as well as the power/influence each stakeholder has regarding a project/initiative (Kuenkel, Gerlach, & Frieg, 2011). This becomes input for developing strategies of stakeholder engagement. People with high power and high interest in an issue should be managed closely and given a lot of attention, as they represent a high potential stakeholder group (Muhammad & Mustafa, 2013). Another important stakeholder group are those with low interest in an initiative, and at the same time high influence/power to affect its success. Finding ways to activate a sense of meaning related to tackling a specific social problem, may help moving stakeholders from low to high interest stakeholders.

One way to increase the likelihood that stakeholders will find it purposeful to engage in a particular social initiative, is to appeal to the notion of becoming your neighbor's ally. Young (2011) found that the value of the adoption of an innovative idea by a given individual increases according

to the number of his 'neighbors' who adopt it. In other words, there is likely to be a mechanism of contagion involved, where people see the value of valuing what the people close to them value. To this end, it may be useful to attract potential stakeholders by pointing to the social commitments by their colleagues and acquaintances.

Another strategy could be to appeal to the potential of developing a team spirit among stakeholders who may otherwise not see themselves as part of a group or team. While knowledge workers are often sufficiently self-leading and operate quite independently in contemporary workplaces (Kristensen, 2011:130), they may nonetheless be highly motivated by being part of highly engaged teams that are collaborating on a shared, social cause (Kuenkel, 2016).

Stakeholders with passion

Identifying stakeholders who feel a *passion* or *compassion* related to the problem at hand, involves recognizing emotional aspects of stakeholder engagement. Solem & Pedersen (2016) state that engagement involves the investment of (personal) physical, cognitive and emotional energy (Kahn, 1990, 1992; Rich, Lepine, & Crawford, 2010). Physical energy points to the 'hands' of the individual (their behavior), cognition to the 'head', and emotions to the 'heart' (Ashforth & Humphrey 1995:110).

The topic of 'heart' is, however, not much understood nor researched in the field of social innovation, in spite of the fact that passion is deeply embedded in the practice of entrepreneurship (Cardon, Wincent, Singh, & Drnovsek, 2009), as is compassion in social entrepreneurship (Miller, Grimes, McMullen & Vogus, 2012). Dating back to Schumpeter's (1942) early writings, researchers and practitioners have pointed to passion in order to explain innovative behaviors that cannot be explained by rationality and reason, such as unconventional risk taking, intensity of focus, and believing in a dream in spite of setbacks and resistance.

Mulgan et al., (2007) write about how personal motivations play a critical role in social innovations, particularly in the sense that people want to solve their own problems or are motivated by the suffering of their friends, family or fellow citizens.

Gouillart & Hallett (2015), who describe a successful co-creation effort that took place at an employment office in the United Kingdom, offer an illustrative example. The new leader of the office had envisioned it as a venue where employees and outside service providers, along with the constituencies that they served, would develop new community-based approaches to the challenge of unemployment. Because the rate of unemployment among young Somalis was particularly high in the region, and many of the advisers were eager to support young, at-risk Somalis, they decided to target the Somali community. However, the suggestion that this subgroup might get special treatment caused some people in the bureaucracy to raise objections. Staff members, therefore, had to campaign for the right to tailor a specific approach to young Somalis. Ultimately, they received permission to proceed with a five-step co-creation project, of which a core idea was to mobilize and facilitate community members' engagement with each other. The authors write (ibid.), "Passion is the currency of co-creation, and the energy that comes with allowing employees to engage with members of a specific community can be powerful".

Passion is not only a positive driving force, as illustrated above, but can also be activated by negative emotions and intentions. When someone is passionately negative about tackling a social problem, or feel negatively about a specific solution that is being developed, they may seek to sabotage or prevent it from coming to fruition (Huxham, 1996). Occasionally, such negative forces may cause a preliminary delay to or completely terminate a social initiative.

However, if handled constructively, negative resistance may come to play a productive role in co-creational, collaborative processes (Huddart, 2010). Nilsen, Dugstad, Eide, Gullslett, & Eide (2016) identify various forms of resistance that appeared after the implementation of new technology in a healthcare setting, such as resistance against participating in collaborative processes, resistance connected to the IT infrastructure, and resistance arising from ethical concerns. However, the study showed that resistance changed character over time and that it was not solely a negative phenomenon. When viewing implementation as a co-creation process, note the authors, resistance may contribute positively to the development and innovation process through the friction it creates.

In other words, negative feelings and active resistance may provide energy that can strengthen a change effort or help reframe it, if only managed wisely. Tapping into negative energies and voices as early as possible, may enable change makers to embrace and/or reframe opposing viewpoints that might otherwise come to create obstacles, setbacks or lead to a final stop of the innovation process.

Stakeholders with presence

Being present to engage in social innovations has to do with both a willingness to prioritize and invest one's time and physical energy into it, as well as the ability to be alert and cognitively and emotionally present in collaborative processes as they occur. Kahn (1990, 1992) addresses engagement relative to work roles, and as noted above, he suggests that engagement is related to the following three types of energies; physical, cognitive and emotional. Full engagement requires mobilizing all three simultaneously, such as in the case of experiencing flow (Csikszentmihalyi, 1990). However, all three conditions are also important in and of themselves. When it comes to presence, the following three questions may tap into the concerns that stakeholders may have prior to personally engaging or disengaging in a problem situation (slightly adapted from Kahn, 1990:703);

- How meaningful is it for me to bring myself into this?
- How safe is it to do so?
- How available am I to do so?

In reference to the latter question, it may be crucial for the change maker to determine whether stakeholders in fact intend to and have available time to engage in the project, or if they only pay 'lip service' to it. Muhammad & Mustafa (2013) suggest that one way of ascertaining this information is to study carefully whether there is convergence in what stakeholders say and do. For instance, a stakeholder may be verbally supportive of the project in numerous project meetings, but does little in between projects meetings to aid the project in practical terms. If so,

the stakeholder may lack cognitive and/or emotional commitment to the project, even if he/she is physically present.

Being willing to spend time and energy on a social innovation effort does not entail being available at all times; it can vary from a one-off effort, to infrequent encounters or a more continuous role (Frow et al., 2015). Being present can indicate physical presence or virtual presence via technology. It may also be an option to delegate occasional meetings to another person or stakeholder representative.

Presence can also refer to the qualitative dimensions of a situation, aka *mindfulness*. Fairhurst (2011:132) define presence as the ability to connect authentically with the thoughts and feelings of others. When individual stakeholders are authentically present and engaging in constructive collaboration with others, a collective intelligence may emerge that is far beyond what may be otherwise planned for (Kuenkel, 2016; Wheatley & Frieze, 2006).

Summary

This review has attempted to offer a broad, but by no means exhaustive perspective on how to identify and engage stakeholders in any given social innovation effort. In sum, stakeholders may be targeted and attracted from amongst those who: i) hold functional and/or hierarchical roles with the power, authority and networks to influence or be influenced by the problem in question, ii) see the purpose of engaging in collaborative processes that may propel the initiative forward, iii) feel passion and/or compassion related to the issue, and iv) offer their presence to the process; physically, cognitively and/or emotionally.

Stakeholder engagement and collaboration: A long-term perspective

My idea in this chapter is to link social innovation with research related to stakeholder identification, engagement and collaboration. Social innovation is a promising field with great potential to contribute to positive

social changes and/or alleviating current social problems. However, social innovations are also challenging, complex and uncertain endeavors. On this background, the overall problem that is addressed involves how to identify and engage stakeholders in social innovation initiatives and efforts.

Onboarding the right stakeholders from the outset may be the most important of all thresholds. Early identification and ownership tends to increase the probability that a change will be seen in an opportunistic and therefore, less threatening manner (McCalman et al., 2016). Thereafter, it may be more a matter of escalating and accumulating commitment (Hernes et al., 2015; Kezar & Eckel, 2002; Weick & Quinn, 1999) and providing the necessary means to allow for collaborative and co-creational processes underway (Gouillart & Hallett, 2015). If a strong enough *why* is established in the case of each individual stakeholder, the remainder of the innovation process may be more concerned with the ways in which stakeholder engagement may follow (Cels et al., 2012). As Wheatley & Frieze (2006) assert, "…the world doesn't change one person at a time. It changes as networks of relationships form among people who discover they share a common cause and a vision of what's possible."

The roles of change makers are undoubtedly demanding, and are likely to change throughout the process. Change makers may assume functions as communicators, facilitators, teachers, catalysts, conveners, and more (Darsø, 2012; Klev & Levin, 2009; Sørensen & Torfing, 2014:6). Laying the grounds for constructive collaborative processes among stakeholders may take (more) time and creativity in the initial phases of social innovation initiatives. Some people onboard easily while others need time to process arguments, assess risks and uncertainties and become acquainted with the other people involved. If a process-ontology is adapted (Hernes et al., 2015), there is never wasted time or 'failure' incurred – only new learning and experiences that can benefit future encounters and lead to more advanced collaborative relationships over the long haul (Torgersen & Steiro, 2009).

Social innovations appeal to people's desire for progress, combined with their longing for meaning (Kuenkel, 2016:265). The magic that may arise as change makers and stakeholders engage with each other and

contribute to help solve the current social problems of our times, may serve as a valuable source for continued relationship building and collaborative efforts. This may also explain part of the *why* that keeps change makers finding meaning in maneuvering through the resistance, hesitancies and uncertainties that are bound to be a part of any social innovation effort. What it is that motivate change makers to take on the role of problem owner, and becoming the driving force vis-à-vis stakeholders, is an interesting question that may be the topic of a continued conversation about social innovation, stakeholders and collaboration.

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CHAPTER 13

Interaction and Risk Management in Shared Leadership

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Abstract: The chapter presents a case from a government agency in Norway, where two assistant directors share a leadership position and must interact extensively. The main purpose is to highlight some benefits and challenges related to shared leadership when it comes to risk prevention and handling unforeseen events. The analysis is based on a relational perspective that emphasizes that successful interaction between people requires complementary skills, conceptualized as relational skills. The chapter concludes that the patterns of interaction and relational skills that develop during shared leadership can help prevent undesirable events. This is partly because shared leadership can provide increased capacity in identifying risks. Common experiences in handling risks and unforeseen events may contribute to learning that in turn provides the potential for further development of the interactional and relational skills in shared leadership. At the same time, shared leadership entails some risks that may impact on the prevention and handling of such events. For instance, interactional challenges that may arise in a shared leadership may prevent leaders from discovering potential hazards.

Keywords: *Samhandling*, interaction, shared leadership, identifying risks, organizational learning, unforeseen.

Introduction

This chapter focuses on interaction between formal leaders who practice what is referred to in the literature on shared leadership as "joint leadership" (Wilhelmson, 2006; Döös et al., 2013; Döös, 2015). "Joint leadership" means that the leaders have the same leadership position and share responsibility and authority. In order for this type of shared leadership to function, extensive interaction between the leaders is required. The leaders must succeed in leading together; that is, succeed in co-leading. To do so, they have to form a common management practice and appear as unified. Shared leadership can have several advantages but may also entail various challenges, not least with regard to achieving the interaction required for effective co-leading, and may therefore represent a risk. At the same time, shared leadership, in various ways, may affect how the leaders handle risk.

This forms the basis for addressing possibilities and challenges related to collaboration associated with shared leadership, and for asking what impact shared leadership can have when it comes to preventing and handling risk and unforeseen events. These questions are discussed on the basis of empirical material from an ethnographic fieldwork carried out in a government agency in Norway over a period of 10 months in 2013 – 14. In this project, several leaders at different organizational levels were followed. This chapter concentrates on two assistant directors who shared a leadership position. The directors were followed throughout the fieldwork period. The analysis of the assistant directors' interactions is based on observations from internal meetings between them and meetings between them and employees. Some meetings were followed up with informal conversations with the assistant directors. Furthermore, five formal interviews were conducted with one of the assistant directors and two with both directors together.

One case cannot give a complete picture of shared leadership, but it does provide a good basis for exploring the topics in this chapter. The case presented intends to give insight into the kind of interaction that leaders who share a leadership position have to engage in, the importance of this interaction for their leadership practice, and what appear to be important prerequisites for achieving successful co-leadership. The main

purpose of the chapter is to highlight and discuss some benefits and challenges related to shared leadership when it comes to risk prevention and handling unforeseen events. Risk is understood as something negative and potentially dangerous that one wishes to avoid. Unforeseen events are unexpected and unusual events that occur which require handling beyond the usual, everyday operations.

Perspective and key concepts

The analysis in this chapter is based on a relational perspective, where relational concepts are applied to capture central aspects of situations in which individuals enter into interaction and relationships with each other (Wadel & Wadel, 2007). Social interaction is understood as "the process by which we act and react to those around us" (Giddens, 1997:85). Based on Mead (1934), we can say that the act of one person represents a gesture that depends on being received and responded to by interactive partners, in order to become a meaningful act and give grounds for talking about interaction. Thus, interaction can be said to refer to the partial acts of various persons who are interdependent. These partial acts may be performed simultaneously or sequentially. When looking at interaction, we are not only interested in capturing individual acts but also *co-activity*; in other words, acts that individuals perform together. In interaction, individual acts can be seen as partial acts that are part of something larger.

All interaction requires skills, including communication skills. For individuals to be able to interact successfully, complementary skills are required. Skills that two or more people possess together can be conceptualized as *relational skills* (Schou Andreassen & Wadel, 1987). Each person's individual skills thus represent partial skills that are incorporated into the skills that the interacting people possess together. When it comes to shared leadership and risk management, the relational skills that the leaders have developed and possess together will be of crucial importance for how they react to, and handle, risks and unforeseen events.

While interaction is a value-neutral concept, collaboration is a concept with positive connotations. Collaboration consists of interactions that are rewarding and lead to personal development, rather than interaction that

is suppressive or characterized by competition and conflict. Collaboration means that the participants work together to reach common objectives, such as when the members of a band collaborate to play music that sounds as good as possible (Schiefloe, 2011:311). Collaboration is a type of interaction characterized by generalized exchange, in which transactions do not depend on immediate returns. Collaborative relationships are characterized by trust (Schiefloe, 2011:353) and incorporation; in other words, a "give and take" relationship, and acts such as providing support and showing concern (Wadel & Wadel, 2007:92). Collaboration requires making the effort to establish and maintain relationships, and to build and maintain mutual trust, motivation and deference (Wadel & Wadel, 2007:75). A well-functioning, shared leadership will be characterized by collaborative interaction between the leaders.

Shared leadership

A number of concepts have emerged that conceptualize leadership as something that is divided and shared, and as something individuals perform together or jointly. "Shared leadership" is one of these concepts. Shared leadership originates from the literature on teamwork (Fitzsimons et al., 2011), where the concept is used to describe how leadership functions are shared among the members of a team (Drecsher et al., 2014). The concept has also been applied to situations in which two, or sometimes more, formal leaders share a leadership function, have joint responsibilities and lead together (Crevani, 2011). Döös et al. (2013) emphasize that shared leadership entails close and extensive collaboration among the leaders.

Shared leadership can be the result of a formal decision, as in the case described in this chapter. However, shared leadership can also emerge as a practice without being based on a formal decision. The literature contains a number of concepts used to describe different categories of shared leadership. For instance, "functionally-divided leadership" and "dual leadership" are concepts used for leaders at the same hierarchical level, who have equivalent responsibilities in the business but who carry out different tasks (Döös et al., 2006; Döös et al., 2013; Döös, 2015; Fjellvær, 2010). We also find that leaders at different organizational levels choose to

share leadership responsibility. "Joint leadership" has been used for situations in which two full-time leaders at the same hierarchical level occupy a leadership position together, have shared responsibilities and both formally and practically share tasks, responsibilities, power and authority (Wilhelmson, 2006; Döös et al., 2006). This is the form of shared leadership that is most extensive when it comes to leading together, and is therefore the focus of this chapter.

In the literature, shared leadership is described as both something new that is expanding (Döös & Wilhelmson, 2003; Döös et al., 2006; Döös et al., 2013) and as a phenomenon that has existed for a long time (Sally, 2002). In a survey conducted in Sweden, 41 % of the leaders responded that they practice one form or another of shared leadership. Joint leadership is practiced by 5 % of leaders in Sweden (Döös et al., 2006; Döös et al., 2013).

The occurrence and prevalence of shared leadership in our society today has been linked to a number of factors: the growth of new organizational forms; knowledge workers that must be led differently than traditional workers; the need for a way for leaders to handle an ever-more demanding, exhausting and unpredictable work situation; and the desire to make leadership less lonely (Wood, 2005; Crevani et al., 2007; Döös et al., 2013). In the Nordic countries, shared leadership may also be associated with a working life and leadership model that is characterized by a relatively-flat hierarchy, co-determination and a long tradition of autonomous and self-governed work groups (Döös et al., 2006).

The literature on shared leadership generally does not provide the sort of detailed descriptions and analyses of the interaction between leaders practicing shared leadership that would allow readers to see how the leaders perform shared leadership together in practice. Crevani et al. (2007:60) is an exception; they use concepts such as "consulting each other," "exchanging information" and "exchanging ideas," to describe shared leadership at a school. Several authors have emphasized that we need more knowledge about how leadership and managerial work is exercised in practice (Crevani et al., 2007; Tengblad, 2012). This includes more knowledge about how leaders who share leadership responsibility interact and lead together (Crevani, 2010; Döös et al., 2013). How do the leaders

interact with each other, what does their interaction consist of, what is the purpose of their interaction, and what impact does the interaction have on how they lead?

Interaction in a shared leadership

To show the type of interaction that leaders in a shared leadership engage in, and to gain insight into how the leaders lead together and manage to co-lead, we shall present empirical material from a study of a public agency. The agency is one of 40 Norwegian government agencies which supervise the compliance of private and public enterprises with laws and regulations. We focus on two assistant directors in a joint leadership who share the responsibility for the agency's supervisory activities. Together, the two assistant directors are responsible for six teams, which are involved in supervising the industry that the agency is responsible for. Shared responsibility means that the two assistant directors must interact extensively.

The two assistant directors interact in several different arenas. They interact in connection with a number of regular management meetings, and in meetings with the teams and co-workers they are responsible for. They also regularly meet with each other in connection with their shared area of responsibility, which they refer to as "coordination meetings". These meetings act as a kind of "backstage arena" (Goffman, 1959:112), where the directors prepare their leadership, mark out a course, and ensure a coordinated and professional outward appearance. They also hold pre-meetings ahead of external meetings. Face-to-face interaction also takes place when they contact each other in their offices or run into each other in the hallway, at the coffee machine or in the cafeteria. They also communicate frequently by email.

What does the interaction consist of?

At an overarching level, much of the interaction between the two assistant directors relates to keeping an overview of the industry they supervise and the supervisory activities that the agency plans and implements. More specifically, their interaction relates to the planning of activities

and meetings, discussions about the need for enhanced knowledge development, the management and distribution of resources, etc. Much of the interaction focuses on the allocation of tasks between them, such as who is to be listed as responsible for specific projects and who should participate in the various types of external meetings. Sometimes they choose to appear in meetings together, to mark the seriousness of the meeting or to be able to support each other in difficult matters.

If we look more closely at what the interaction between the two assistant directors consists of, we find that it is focused on *informing* and *briefing* each other about various issues and keeping each other up to date. This interaction is due to the fact that the directors have had to divide work and responsibilities between them. The interaction is highlighted as absolutely necessary for them to fulfil their shared responsibilities. Furthermore, they say that one of the most important things that they do in relation to leading together is to *discuss* an issue, look at what and who it affects, and exchange viewpoints. These discussions often include what they refer to as *reflecting together.*

The interaction between the assistant directors is also associated with *acquiring ideas* or *input,* or concrete *suggestions* in relation to something they are working on, or a problem that they must handle. Some of the interaction between them consists of *thinking aloud together* or *brainstorming.* The brainstorming often takes place in the initial phase of the work on a case or issue, at a moment when they are very open to all kinds of ideas. Some of the interaction between them relates to s*eeking and giving advice* about cases they are working on. The assistant directors also talk about using each other as *sparring partners*, for example, when preparing a difficult case for presentation to the executive management. In some instances, the interaction is about *getting feedback* on whether something one has been working on looks good or can be done a certain way, or it is about *seeking and securing support* from the other person. When a case has reached the point where one has a suggestion of how to respond and act, they tend to seek both feedback on, and support for, the suggestion.

Another aspect of their interaction is illustrated by the statement that: *"We use each other to air things."* This is often about needing someone to

talk through an experience with or express frustration to. Much of the interaction between the assistant directors is about brief *checks* and *clarifications.* For instance, they may check whether they acted in accordance with previous practice. The interaction is also about *coming to an agreement* and *making decisions.* One expression that the assistant directors use when talking about their discussions and forming the basis for decision-making is *talking things through.* "Talking things through" means talking together until one has reached a shared understanding or agreement about the issue. The assistant directors emphasize the importance of talking things through to reach agreement and present a united front when one of them is to meet with co-workers or external parties.

The interaction that the leaders need to achieve in order to lead together, have a common leadership practice and appear as unified even though they are two individuals, can be termed "co-leading". To ensure that things have been talked through appears to be central to co-leading. Co-leading is most clearly expressed in their interaction when the assistant directors succeed in talking things through, thereby ensuring that they have a joint practice and succeed in appearing as unified. This does not mean that other forms of interaction do not play an important role in co-leading. For example, the exchange of information is an important prerequisite for successful co-leading. If the leaders have not exchanged information and interpreted information together – and thus have no clear sense of what the other person is thinking – co-workers will get the impression that there is no joint leadership. This would make it easier for the co-workers to play one leader off against the other.

What significance does the interaction have?

The interaction between the assistant directors is important in order for them to establish a *shared understanding* and a *common standpoint.* The assistant directors must establish a shared understanding of how they will lead the area they are responsible for and what is important to prioritize. They emphasize that their interaction is important to ensure that they are coordinated. In other words, the interaction "ensures that they convey the same message" and it is "important in order to be able to stand together".

The interaction ensures that they do not develop divergent practices, such as which means and sanctions to use in the agency's supervisory activity. The interaction also helps to ensure a just and equal treatment of the co-workers, and is important for them to be perceived as one leadership. Furthermore, the interaction between them is important to ensure that they have thought about all aspects of an issue and have considered it from every angle. It becomes apparent that they are creative together and that new ideas emerge when they talk with each other. The assistant directors also emphasize that the interaction helps establish trust between them and gives them a sense of confidence in their leadership role.

Prerequisites for collaborative interaction and co-leading

It is possible to identify various aspects that can help explain how the two assistant directors succeed in their interaction and co-leading. These aspects are not necessarily absolute requirements for success in shared leadership, but are factors that help make interaction and joint leadership easier, and appear to be important in creating a well-functioning joint leadership in practice.

The assistant directors talk about their interaction using the term "collaboration," emphasizing that they enjoy a close and well-functioning collaboration. They explain this by stating that they find it very rewarding to work together and that they both benefit from collaborating closely. Furthermore, they emphasize that they have good personal chemistry and that this helps them to collaborate well. Another important prerequisite that they underscore is that they do not have the same skills but have similar knowledge about the area they lead. They complement each other in that they have different experiences from previous work and have different strengths and weaknesses in terms of knowledge about the industry that they supervise. The assistant directors point out that it is important to experience collaboration as being personally beneficial, and that it would otherwise be difficult to maintain. They also believe that if they had been very focused on possessing and exercising power, their collaboration would have been arduous, and this would have destroyed their

partnership. The literature on shared leadership has highlighted similar premises as necessary for shared leadership to function (Döös et al., 2013).

In summary, the interaction between the assistant directors can be said to be characterized by generalized exchange and incorporation, based on mutual trust and respect. It is also clear that the assistant directors have complementary knowledge and skills related to the field they lead, and that they have developed relational skills. These relational skills are evident in their close and effortless collaboration, helping each other to improve, and succeeding in leading together and appearing as a unit.

Shared leadership and risk

Risk is inherent in all inter-personal interaction. Collaborative interaction is often built on trust. Placing trust in others always entails a risk that the trusted persons do not behave as expected (Misztal, 1996). There is often a possibility that something unforeseen may occur when interacting with other people that will have an impact on the interaction and the trust between the parties involved, and in turn, lead to other interactional terms or place new demands on the interaction.

Shared leadership may entail a risk that the leaders do not succeed in achieving the interaction that is necessary for being able to co-lead, and there is always a risk that the interaction between the leaders will fail in one way or another. These risks are related to various interactional challenges associated with shared leadership.

The assistant directors in the government agency emphasize several challenges in their joint leadership. They stress that it is often difficult to find the time to meet and have enough time for required interaction. They note that at times it is cumbersome to have to discuss many issues with a co-leader. There is also a risk that confusion may arise in relation to their informal division of responsibilities and that, as a consequence, some cases can fall between the cracks. Furthermore, they believe that confusion can easily arise over who actually decides what, and that remaining unified in cases where they have disagreed can be quite challenging. They also see a significant risk of conflict and power struggles related to shared leadership in situations where the leaders are not pulling in the

same direction, and create confusion by sending different messages. In these situations, there is a great risk that co-workers may try to play the leaders off against each other. If the leaders develop a close friendship, they may find it challenging to address difficulties with each other.

Many similar challenges are described in the literature on shared leadership (Döös et al., 2013). Wilhelmson (2006) mentions the risk that leaders in a shared leadership may be too strong together and create an imbalance in the organization. A strong bond of trust that develops between the leaders may also become dysfunctional, leading to blindness and a lack of vigilance (Tharaldsen, 2011). In the literature, the most significant reason for skepticism towards shared leadership relates to whether the leaders can make quick and clear decisions together when necessary (Crevani et al., 2007; Crevani, 2011; Döös et al., 2013).

Many of the challenges that can arise in a shared leadership may increase in situations that are unpredictable, and include unanticipated events in which communication and interaction are often more challenging, leading to increased levels of stress. Not least, this relates to the challenges of making necessary decisions quickly. When an unforeseen event occurs, the opportunities for exchanging information and talking things through may change, and then the character of the interaction can also change. Therefore, the possibility that the leaders convey different messages and appear as if they are not in accordance with each other will increase, making it more difficult for the leaders to achieve the respectful interaction between them that is necessary for maintaining each other's trust.

Shared leadership and risk prevention

While shared leadership may entail different risks, it may also help to reduce some leadership-related risks. Shared leadership may prevent the leaders' work from becoming too demanding. The leaders can relieve each other and step in for each other. The organization becomes less dependent on the individual leader and thus, less vulnerable. It can maintain activities even if one leader is absent or indisposed. According to the experiences of the assistant directors in the Norwegian government agency, the fact that they are two people working closely together helps

them to make decisions that are more well-founded, in part because they have different and complementary knowledge and experiences, and thus can see multiple aspects of an issue. It also helps to ensure a better focus on issues that are important to keep track of in the sector for which they are responsible, thus reducing the risk of overlooking or failing to address something that might lead to an undesirable situation.

Well-functioning interactions between leaders in a shared leadership can often contribute to prevent risks and undesirable events. The leaders can make each other aware of what they should be alert to. Together, they can identify signs, analyze situations, take precautions and think through how best to handle potential events. The assistant directors in the government agency emphasize that the fact that they are careful to keep each other informed, take time to discuss issues together and exchange viewpoints means that they generally have looked at and thought through all aspects of an issue. That they check issues with each other, look to each other for advice and place emphasis on having talked things through together, has preventative effects. That the assistant directors develop a shared understanding, establish trust and develop confidence as leaders through their interaction helps to prevent potential risks, such as the risk that co-workers will try to play them off against each other or that enterprises will react extremely negatively to a decision made by the agency.

However, it is also the case that the patterns of interaction that develop between leaders in a shared leadership may have a negative impact on the ability to predict an event or potential crisis, and to handle a crisis, because the leaders think too similarly and thus do not see dangers or challenge each other's understanding of the situation.

Shared leadership and handling risks and unforeseen events

Leadership generally entails much uncertainty. Studies show that the leaders' everyday life consists of a constant stream of inquiries and new challenges (Mintzberg, 2009; Tengblad, 2006; 2012). Shared leadership can be a way to handle aspects of the unpredictability that leadership entails. A well-functioning, shared leadership may have many advantages

when handling undesirable or unpredicted events, and leaders can seek advice and support from each other.

In situations where a serious event occurs, there is often a great need for efficient and good communication and interaction. Yet it is precisely in these situations that the conditions for interaction are the worst. When leaders who do not know each other from previous interactions have to handle a challenging situation together, confusion and uncertainty may easily arise that make handling the situation more difficult. Knowing each other well, having experience in communicating and interacting with each other, and having a clear division of responsibility may be crucial in a critical situation or when something unforeseen occurs. The relational skills the leaders in a shared leadership have developed through their interaction may be of great significance when they must handle crises or unpredicted situations.

We can assume that the assistant directors in the above case have created a basis for handling undesirable and unpredictable events – including situations where they do not have the opportunity to talk things through with each other in the actual situation – because they know what their partner is thinking and know that they have the support of their partner. This means that interaction in "normal" situations helps to form the basis for the interaction necessary when something unforeseen, unusual or difficult arises. Through their previous interaction, the leaders know each other, have established ways of communicating and interacting and have developed relational skills that they can draw on to handle unforeseen events. Thus, for example, the leaders will be able to respond quickly to each other's actions and statements, and they will be able to spontaneously provide each other with the emotional support that is important when handling difficult and challenging situations.

The impact of unforeseen events on shared leadership

The interaction and co-leading that characterizes a well-functioning shared leadership may also be challenged when something unforeseen occurs and quick decisions and actions must be taken. In addition, the

conditions for interaction will tend to change in these situations. It may be more difficult to find opportunities to talk together, and provide confirmation and support for each other. In these situations, it may be that established patterns of interaction, shared understandings, agreements and practices are insufficient or do not provide adequate guidelines for handling the situation. The situation may require that one moves beyond the established patterns of interaction. Decisions must often be made without first having an opportunity to talk things through. The challenges related to interaction in a shared leadership will, in other words, increase in situations that are unpredictable or involve unforeseen events.

In a challenging and pressed situation, with little time for interaction and talking things through and a need for quick decisions, it will be more difficult for the leaders to appear unified, and there is a greater risk that they will send conflicting messages. A pattern of interaction characterized by collaboration, mutual exchanges and incorporation may be challenged, easily developing into conflict and interaction characterized by the exercise of power.

Handling an undesirable or unforeseen event may also contribute to further developing and strengthening the relationship and interaction between leaders in a shared leadership, in part because leaders in these situations must interact to handle new problems and may learn from this (Torgersen, 2015:17). The relational skills of joint leaders may be challenged when something unforeseen arises. Furthermore, these situations may require relational skills beyond those the leaders have developed and which apply under normal circumstances, such as making quick decisions together in a pressured and complex situation. The leaders may also develop their relational skills in handling the situation and through the shared learning that may occur in the situation. Thus, they may form a better basis for handling future challenges related to possible risks, and unforeseen and undesirable events.

Conclusion – a model

In summary, shared leadership and the patterns of interaction and relational skills that are developed during such a leadership, provide some

opportunities in terms of preventing and handling undesirable events that were not foreseen. At the same time, shared leadership entails some risks that may impact on the prevention and handling of such events. Experiences in handling events may contribute to learning, that in turn provides the potential for further development of the interaction and relational skills in a shared leadership. We can illustrate this as in figure 13.1.
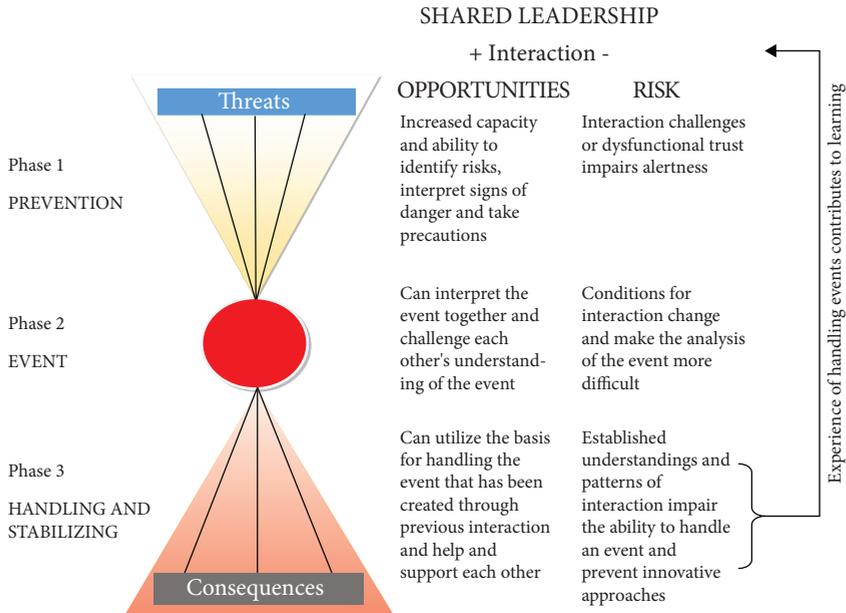
Figure 13.1 Interaction in shared leadership through the Bow-tie phases.

The figure is based on the Bow-tie model and shows the key opportunities and risks of shared leadership in terms of preventing, interpreting and handling an undesirable event. By providing increased capacity in identifying risks, shared leadership can help prevent undesirable events. On the other hand, interactional challenges that may arise in a shared leadership can prevent the leaders from discovering potential hazards. When an event occurs, shared leadership can provide opportunities when it comes to interpreting what is happening, but can also make it more difficult to achieve a common understanding of the situation. When it comes to handling events, earlier interaction between the leaders may give the basis for effective handling, but established interaction and thought patterns can

also impair the leaders' ability to handle the event and prevent them from seeing alternative approaches. Experiences from the handling of an event may contribute to learning that impacts on the leaders' future interaction, related to the prevention and handling of undesirable events.

This chapter has focused on shared leadership and has intended to provide insight into the interaction that a well-functioning shared leadership requires and implies, pointing to the importance of this interaction for a good and unified leadership practice. This has formed the basis for discussing the role that shared leadership can have when it comes to anticipating and preventing risks, and dealing with unforeseen and unwanted events that may occur in an organization. We have pointed to challenges and risks related to shared leadership that could affect how leaders manage to prevent or reduce risk, hinder unwanted events and handle such incidents when they occur, and we have underlined benefits and strengths related to shared leadership in relation to preventing and handling serious and unwanted events. A main point that we wish to emphasize in this chapter is that the relational interactional skills that leaders in a shared leadership manage to build up through their co-leading under normal circumstances, can form a foundation that makes it possible for them to achieve coordinated and collaborative interaction also in an unusual and demanding situation, even though the leaders are unable to communicate directly with each other in this situation.

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Samhandling Under Risk: Applying Concurrent Learning to Prepare for and Meet the Unforeseen

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Abstract: This chapter aims to examine how *samhandling* and concurrent learning work together. "Concurrent learning" is a form of simultaneous learning, where many learning processes related to *samhandling* take place at the same time. *Samhandling* and concurrent learning are also functional processes, in the sense that learning also occurs through daily interaction activities or actions. At the same time, concurrent learning and *samhandling* are interdependent and they are, therefore, in a sense part of the same process (hence *concurrent* learning). The chapter identifies five factors identified as important to *samhandling* and concurrent learning. These are: (1) Awareness of basic assumptions regarding people; relations and teamwork are essential; (2) Space, (3) Giving of themselves, (4) Making processes transparent and addressing problems as early as possible, and (5) Reflection as a key to *samhandling* and concurrent learning. *Samhandling* and concurrent learning represent a mindset, a way of working and a form of learning, which together help to meet and/or develop the skills needed to tackle the challenges of flexible organizations.

Keywords: *Samhandling*, interaction, concurrent learning, leadership, preparedness, organizational learning, flexible organizations, unforeseen.

Introduction

In this chapter, we want to examine how *samhandling* (interaction) and concurrent learning work together. Concurrent learning is a comprehensive concept as we use it. Therefore, in this chapter we carry out an elaboration of the concept and the processes that this term is intended to cover, and further demonstrate the impact these processes have on *samhandling* under unpredictable conditions. Relationships play a crucial role in achieving this interaction and are significant in all of the phases in an unforeseen situation, as illustrated in the Bow-tie Model presented in Chapter 1 (Torgersen, 2018). *Samhandling*, as we see it, is a deeper form than collaboration, based on complementary skills; therefore, relationships and the way they are formed and developed, are of such great importance. This requires a strong focus on relational aspects. Another important concept is concurrent learning, as a means of increasing efficiency in strengthening relational aspects. Using several examples, we will argue that concurrent learning is, in many ways, crucial for *samhandling* at risk, where the conditions along the way are unpredictable – both dangerous/undesirable and harmless/desirable situations. Based on these examples and our definitions, we develop five aggregate approaches that can help to promote awareness and implementation of concurrent learning in practice under the assumed conditions. Some of the examples are from high-risk industries. Others are not, but nevertheless have important attributes that can help us understand *samhandling* and learning under uncertainty. Lagadec (1993) points out that foundations (patterns of *samhandling*) need to be established before a crisis appears.

The definition and the construct of concurrent learning

Concurrent learning means that participants learn from one another in the *samhandling* process, like footballers who are familiar with each other's strengths and build on these so that mastery is achieved in common (Eggen & Nyrønning, 1999). Seligman (2003) calls this signature strengths. In this context, signature strengths should make each participant better. During the process, participants use each other and build

on each other for learning. Concurrent learning involves not only being familiar with one's own competence, but also learning so that individuals can connect to their own expertise and thus develop this further with the others to create something new. This learning process takes time – it *needs* to take time, and the process must be deliberate and organized.

> *"A deliberate and continuously functional and interacting learning process among actors that occurs simultaneously with the interaction".*
> Steiro & Torgersen (2013:335)

This kind of learning is not accidental; it is intentional and purposeful, in the sense that stakeholders or participants need to be both aware of this process and focus on the relationship between one's own and others' expertise and diversity. *Samhandling* and concurrent learning is also a functional process, in the sense that learning also occurs through daily interaction activities or actions. At the same time, concurrent learning and interaction are interdependent and they are therefore, in a way, a part of the same process (hence *concurrent* learning). *Samhandling* and concurrent learning represents a mindset, a way of working and a form of learning, which together help to meet or develop the skills needed to tackle the challenges of flexible organizations. Arrangements, the development of training and management, and the utilization of complementary expertise and concurrent learning, are all important strategic measures for the efficient development of flexible features for organizations (Steiro & Torgersen, 2013).

The Mann Gulch Disaster revisited

During a wildfire in California, a quickly-assembled team of firefighters came under pressure and were trapped inside the forest fire. The fire took place between the 4th and 5th of August, 1949. This is an outdated example and the context regarding firefighting and hierarchy should be taken into account. However, it has been argued that the example also provides an important lesson for contemporary management in a dynamic society (Torgersen & Steiro, 2009). The group shared a meal and a plane flight before they were parachuted into the area. Weick (1993) writes that

according to their sources, it looks as if there was little dialogue between members. After landing, the team leader wanted to make contact with a forest ranger that knew the area. He left the group alone, apparently with few instructions, nor that it seems that the second leader in command made any effort. The team consumed a meal by themselves while the leader had a meeting with the forest ranger and was updated on the situation in the area. Eventually, the team leader returned to the group and they moved into the burning area together. Gradually, the wind changed direction, putting the fire team at risk. The team leader gave orders for the team to drop their equipment, in order to move away from the fire more quickly. This created unrest and confusion; it is not unreasonable to suggest that this is the first sign that the group was beginning to fragment and presumably questioned the team leader's authority. Eventually, the group was caught between a wide river and the forest fire. When they realized they were trapped inside the forest fire, the team leader ordered them to start a protective fire and then to lay down inside the burnt-out area. The proposal must have appeared to be an act of desperation to the members of the team because the team leader was the only one who followed the plan. This meant that the team disbanded. Two members of the group managed to get across the river and escape to a hillside. The leader survived. The other members who fled all perished (Weick, 1993). We have used this example several times in teaching about understanding human interaction, group dynamics and trust between people (Steiro & Torgersen, 2015). It also serves as an illustration of the challenges that temporary organizations can experience. A project which we can mention is this fire team, which is an example of a dynamic structure (Mintzberg, 1979; Torgersen & Steiro, 2009). But that does not imply that this structure can automatically operate dynamically. There must be some conditions in place. The Mann Gulch Disaster is often used today as an illustration of the challenges that dynamic organizations, such as a rapidly-reduced project, can meet (Torgersen & Steiro, 2009). In this context, the authors has told the story of the Mann Gulch Disaster for learning purposes and challenged officers in training to think through what could have been done differently. A key point is that they are often section leaders, so the level of abstraction is not too high. They could get

into a situation where time is limited and they receive either a new team to lead or a new composite layer. We assumed that firefighting competence and skills were in place. They were also a heterogeneous group and assumed that they might take the relationship for granted. The suggestions that students and cadets come up with after hearing the story are as follows: the firefighters could have been introduced to each other, presenting their expertise and skills; they could have held a pre-job meeting; "what-if" analysis could have been used; the assistant squad leader could have been sent to obtain information from the ranger; the team could have had a joint briefing with risk assessments; everyone could have eaten a meal together. Such organizations are typically very dependent on trust (Torgersen & Steiro, 2009; Sørhaug, 1996). Another point is that, in hindsight, it would have been possible for this group to create more concurrent learning and thus improve *samhandling*. It also shows that through reflection, solutions come quickly. The final point is that the Mann Gulch Disaster stresses the importance of establishing *samhandling* patterns, ideally beforehand. Antonsen, Skarholt and Ringstad (2012) claim that what is needed in a crisis must be present in some form in a normal operation. They refer to Lagadec (1993): *"The ability to deal with a crisis situation is largely dependent on the structures that have been developed before the chaos arrives."* (Lagadec, 1993:54) In a crisis situation, Weick (1993) pinpoints the concept of "bricolage"; that is, the ability to *"create order out of whatever materials are at hand."* (Weick, 1993:639) This brings us to the next paragraph, which is not an example of a crisis organization, but perhaps the best example of developing *samhandling*, at least in Norway. Football coach Nils Arne Eggen made it a part of everyday language. But as we shall examine, it does not come for free.

Samhandling in Rosenborg Football Club under Nils Arne Eggen's leadership

Nils Arne Eggen was very preoccupied with collective issues and his philosophy is best illustrated in the following quotation: "The highest form of collaboration is when the player moves away from 'must do' to 'want to do the same'. The basis lies in the individual player's educational skills;

that is, the ability to make others good, take responsibility for others' development and performance, and take responsibility for the team's performance. In other words, to use his own skillfulness to make others good and the team good." (Eggen & Nyrønning, 1999:143–144, authors' translation). It is interesting to note that Nils Arne Eggen uses an example from jazz, claiming that "…not until common ground is established does the creative improvization provide meaning and development." (Eggen & Nyrønning, 1999:125, authors' translation) Rosenborg Football Club (RBK) managed to win the Norwegian National League for 13 years in a row. Between 1995–2002, they qualified for the Champions League tournament every year. In addition, they qualified for the quarter final in season 1996/1997 and won in their group in the 1999/2000 season. Løfdali (2014) points out the importance of interaction in RBK during coach Nils Arne Eggen's reign. He writes, *"Eggen's explanation of what made RBK's success possible can be summarized in one word – samhandling [interaction]. The players display a distinct image of how football should be played, and his unique ability to transmit this to the players."* (Løfdali, 2014:29, authors' translation). It is important that those who have a role also receive clear instructions regarding what is lying in it (Katzenbach & Smith, 1993). Rosenborg's way of playing was based on coach Nils Arne Eggen's clear picture on how to play and the players ability to reproduce and transfer it to new players (By Riise, 2016; By Riise, 2014; Fredriksen & Moen, 2013). This would not have been possible if it was not backed up by the clear assumptions of Nils Arne Eggen, *"You get good by making others good,"* and *"it's about channeling ego forces"* (Hoff-Leirvik, 2009:232). The system is important but it is also important that the players actually want to interact, rather than having to interact. In this way, they place the interests of the community above their own abilities.

RBK focused heavily on training. Typical of this was high intensive training and focus on "simultaneous movements" and "creating plural situations". It was important that the intensity level was high, while at the same time, it had to be done right. Nils Arne Eggen would shout, "Stop!" When the game stopped, the coach demonstrated how it should be done (Hoff-Leirvik, 2009). We see that the principle of subsidiarity was important educationally for Eggen; i.e. feedback closely linked to

action, thus creating learning in action (concurrent learning), not in a conference room after the training session but in a spontaneous meeting on the field.

Dynamic interaction in a software firm

Chmiel (2000) has argued that we need to research organizations that are typically at the forefront of technology in order to learn and understand more about organization. Such organizations may be software-developing companies, as suggested by Chmiel (2000). Therefore, we have studied a software-developing firm which applies agile methodologies (Steiro & Torgersen, in press). Agile methods were originally developed when people realized that the development of software had to be dynamic, when the customer wants it and the market appears to be changing. They can be seen as a reaction to plan-based or traditional methods, which emphasize "a rational, engineering-based approach" (Dybå, 2000). The new focus is on methods which sorts under the umbrella of Agile methods and leanness (Dingsøyr, Dybå & Moe, 2010). Williams and Cockburn (2003) state that agile software development is about feedback and change, where short feedback-loops are necessary to achieve a desirable and predictive outcome. The agile manifesto prioritizes the following:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

(From the "Manifesto for Agile Software Development" authored by Beck, Beedle, Bennekum, Cockburn, Cunningham, Fowler et al. 2001)

This makes software development an interesting case for this book. Steiro & Torgersen (in press) sees an open and inclusive environment that is very mutually attentive. During this study, there was a change of leadership. The initial department leader was strongly inspired by the idea of building on processes and interpersonal resources. This was expressed both normatively and in practice. It was expected that one should offer

his or her competence, aim to go home at four p.m. and only occasionally work overtime, and be ready to perform the following day. Humor, a good mood and social activities were also emphasized. This particular leader was keen not to focus too much on individual performance or ego boosting. The department leader appointed his own successor. The new manager was more academically specialized in the field than his predecessor, but shared the same general ideas with regard to organizing and would continue to follow the main essence. At the time when the data was collected, there was no indication of any major changes. Minor adjustments were found but they did not seem to unsettle the main features. "Stand-up" meetings were held inside the manager's office, where there was plenty of space for grids and charts that showed how they were performing and the challenges ahead. The room was bright and airy. Each employee was given a minute to explain what had been done, what was looking ahead forward and whether there were any challenges. This meant that each person was given a minute in the limelight, giving the manager a good idea of the current status. Typically, those that shared challenges and others came to "the rescue", either by giving tips and advice or by putting their own tasks aside to help. One could use "programming in pairs" both for support, learning and to reduce stress (Steiro & Torgersen, in press).

Relational aspects in the Royal Norwegian Air Force

The Royal Norwegian Air Force is characterized by having a relatively flat hierarchy and is competence-based, meaning that the person who has the most expertise leads a mission, not necessarily the person with the highest rank (Maaø, 2005). It is further characterized by numerous specializations that must interact to solve missions (Maaø, 2005). The Royal Norwegian Air Force Academy, which is responsible for officer training, emphasizes deep reflection as an instrument (Steiro & Firing, 2009; Moldjord, Arntzen, Firing & Laberg, 2007; Firing, Gudmundsdottir & Karlsdóttir, 2004). A heavy emphasis is placed on interpersonal relationships and this is given a great deal of attention. Steiro, Moldjord,

Firing & Fredriksen (2010) point out that debriefing has a long history in the Air Force. Traditionally, it has focused on operational and technical aspects. This is well incorporated. By also focusing on the emotional and interpersonal, new perspectives are opened up, allowing for increased and different kinds of learning (Fredriksen, 2015; Owesen, 2015; Steiro et al., 2010; Folland, 2009). Knowing each other's strengths and weaknesses, and adding uncertainty can contribute to concurrent learning (Steiro & Torgersen, 2015). A more holistic view of debriefing includes more of the emotional and relational aspects, important not only for learning but also for becoming better acquainted with each other's strengths.

Concurrent learning in an oil rig company

In this study, informants aboard the rig were interviewed regarding what makes them avoid accidents, focusing on factors in normal or successful operations (Steiro, Thevik & Albrechtsen, 2017; Thevik, 2014). The rationale for the study is that, with regard to safety, too much focus has been on accidents and accident investigation and too little focus on normal operations, recovery or successful operations (Rosness, Haavik, Steiro & Tinmannsvik, 2016). The informants pointed out that good following-up, good control and reporting procedures, collaboration between different levels in the hierarchy and different jobs, good notification procedures, are special factors of significance. That the rig is well organized, everyone "pulls in the same direction" and that they think ahead in all operations were also mentioned as important factors. A good working environment and collaboration on board were often mentioned when explaining factors that make operations go well. Safety culture, support, job satisfaction, meeting points, low thresholds for input, good evaluation practices, learning from mistakes, less pressure, more understanding of operators – these were all cited as key aspects of successful operations (Thevik, 2014). Several informants pointed to important learning arenas and ways of learning, such as pre-job meetings, handover meetings, briefings, log, lessons learned, training programs and being able to stop up along the way. It appears that the rig is characterized by a culture of acceptance if someone needs to stop up and discuss something, or is experiencing

uncertainty or risk, so this is done. One manager put it this way, *"If we all get home from sea, the mission is successful."* Open communications, which allow participants to address issues related to the task in hand and give the inexperienced and uncertain participants an opportunity to ask questions, should be independent of rank (Steiro, et al., 2017).

Recurrent themes that were highlighted as important to ensure safety were well-being on board, the psychosocial environment, being familiar with the colleagues and teamwork (Thevik, 2014). Investing in a good working environment appears to be important to several of the informants, and leaders on board are prominent exponents of this. Experienced managers on board emphasized the same values. On offshore drilling rigs, there may be a difference between suppliers with regard to inclusion and respect for their knowledge (Steiro et al., 2017). An employee from a service company compared the difference between this rig and foreign rigs, saying *"Here, I am not just the guy sitting in the cage. Here, I am respected as an engineer and get help."* This quote demonstrates how important assumptions about other people are. Respect for others is a key concept in this assumption. It appears to be important to follow up this dialectic when we discuss *samhandling* and concurrent learning. An organization that opens up and includes different perspectives, by applying the ideals of the "World Citizen" and "World Hospitality", gains power from exploiting the "difference" and may use complementary skills and knowledge more effectively.

Some steps towards increased *samhandling* and concurrent learning - a model

We have been able to extract some generic lessons from the examples highlighted in this chapter should not be regarded in any way as blueprints. The context in which various organizations operate does not allow debriefing to be implemented without taking the organization's history and context into account. This chapter has identified five factors that affect *samhandling* and concurrent learning, especially under unforeseen conditions, and that can contribute in preventing undesirable outcomes. These are presented in Table 14.1.

Table 14.1 Five factors identified as important to *samhandling* and concurrent learning

Factors	Elaboration	Examples
1. Awareness of basic assumptions regarding people; relations and teamwork are essential	*Basic view of people and interaction is important.* *Respect for others' expertise and strengths is important.*	Rosenborg Football Club (RBK) demonstrates the importance of having a clear and compact philosophy (Hoff-Leirvik, 2009). Nils Arne Eggen in RBK formulated the principles "it's about making others good" and "channeling ego forces" clearly stated (Hoff-Leirvik, 2009; Eggen & Nyrønning, 1999). This is of particular importance before an incident occurs. Respect for others' competence and regarding diversity as a strength are important. This is perhaps the most important condition – that one is aware of what others stand for and how this actually affects interaction with others. You see that there is a mutual influence. This is of particular importance before an incident occurs. It is not very likely that this will occur during a crisis.
2. Space	*Create space* *Use space for wondering and reflection*	It's about creating space, even though the situation is marginal cf. examples from Weick (1993) and Folland (2009). This space can be created or time is scarce. Doing something rather than nothing seems urgent. The space must be used for learning if possible. *The space can be used for wondering.* Has anyone been in a similar situation before? What are the lessons learned from this job? Is there something we can use to advantage? By communicating their own wonder or questions, a leader can more easily open up for more questions but also different perspectives. The space should be used for learning – to bothexploit and develop knowledge and skills. What can possibly be achieved? What are the obstacles to this space of action?
3. Give of themselves	*Provide and offer something. which makes it easier to get something in return*	*It is about giving of themselves.* By providing, it is also easier to get others to open up more. This then enables the others to follow after. Again, the leader seems to be a crucial factor. This could be seen as similar to Points 1 and 2. However, the unforeseen, as illustrated in the Bow-tie Model in Chapter 1 (Torgersen, 2018), might demand new skills and competence that were not planned ahead, since the model assumes that we will usually lose control. This means that being open about our own uncertainty or fear, for example, might create new possibilities. As a leader, one cannot depend on demonstrating mastery of everything but rather, one should be open and curious about others' competence and skills.
4. Make processes transparent and address problems as early as possible	*Address the problems early* *Gain insight into the basis for decisions, in order to verify and/or challenge these*	The example from the software firm demonstrates this well. Regular stand-up meetings as a way of doing business make it less imposing to flag challenges. One can also draw parallels to Nils Arne Eggen and RBK, using other people's strengths and competence to prosper mutually.

Table 14.1 (*Continued*)

Factors	Elaboration	Examples
5. Reflection is a key for *samhandling* and concurrent learning	*Pre-brief and "what if" analysis* *Time out. Stop, reflect and share* *Debrief to learn and improve*	*Pre-brief and "what if" – analysis.* In the Mann Gulch Disaster case, the team could have used a pre-briefing to prepare. "What if" – analysis could have been used to plan in advance. The team leader, as we have seen, had some ideas about what could be done in a similar situation, but did not address them before it was too late. In retrospect, he should have asked what they would do if they were trapped, so they would at least have been better prepared mentally. Would that have helped? It might also have laid open the team leader's competence, and allowed trust to be built and developed before entering the operation. *Time-out as a means to stop, reflect and share.* Football coach Nils Arne Eggen often stopped training and drew attention to learning. A central point was the proximity in time as a pedagogical principle. Time-out, as we see it, is perhaps the most important tool for concurrent learning as with debriefing. *Debriefing is an important way to sum up and to proceed.* It is important to be concerned not only with the technical and tactical dimensions but also to devote attention to interpersonal relationships. It is important that the organization trains reflection skills.

Conclusions

Concurrent learning means that participants learn from one another in the interaction process. *Samhandling* and concurrent learning represent a mindset, a way of working and a form of learning that also help to strengthen relational aspects. Groups and organizations that build on and apply concurrent learning will accomplish more and do it earlier. They will build more trust and thereby create more of the reciprocity that is essential for developing and maintaining relationships. Respect for others' expertise and regarding diversity as a strength is central to interaction and concurrent learning, in order to fully gain benefits from complementary skills and competence. A central premise here is that you need to be conscious of what you actually stand for and how this assumption regarding yourself and others influences relations. Such evolving relationships are central to all work processes. Groups and organizations that build on and apply interaction and concurrent learning will

accomplish several things. They are also more likely to be receptive to change and able to adjust their course to accommodate change. We also assume they have the ability to be more proactive.

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Competence for the Unforeseen – The Importance of Human, Social and Organizational Factors

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Abstract: This study examines self-assessment of preparedness for unforeseen events and how it varies between groups and individuals according to roles and functions within an organization. The study has two objectives. The first is to analyse the relationship between general self-efficacy, perceived competence in demanding situations and social support, and based on this, to assess the efficiency of interaction (*samhandling*) in organizations and preparedness for the unforeseen. The second aim is to examine how these factors vary according to professional experience. A survey questionnaire was completed during winter 2016/2017. All 624 respondents were male or female employees of the Norwegian Armed Forces, based in different units, with different levels of competence, and included commissioned and non-commissioned officers, officer cadets and conscripts. The response rate was 77 percent, and a total of 810 personnel were approached. This study incorporates central concepts of individual and social resources that could permit the prediction and understanding of resilient behaviors in complex and demanding situations. Interaction was found to be the most important predictor of preparedness for the unforeseen. This study also shows that interaction combined with general self-efficacy and social support can account for a considerable proportion of the variance in preparedness for the unforeseen. The results indicate that it is possible to prepare for unforeseen events by implementing measures that improve social factors in particular.

Keywords: *Samhandling*, interaction, preparedness, social support, competence, leadership, organizational learning, unforeseen.

Introduction

Organizations rely increasingly on their ability to adapt to and manage multifaceted, demanding situations (Brozus, 2016; Roux-Dufort, 2007; Weick, 2015), particularly when facing sudden and unexpected risk events (Barnett, 2004; Bechky & Okhuysen, 2011; Cunha, Clegg, & Kamoche, 2006; Fornette, Bourgy, Jollans, Roumes, & Darses, 2016). These types of events accentuate the importance of identifying the individual, social, and organizational factors and their capacity to promote or reduce preparedness for unforeseen events.

The crises of our time entail high risk organizations, such as the Armed Forces, investing substantial levels of resources in preparation for these complex challenges. The future cannot, however, be predicted and the real outcomes of this preparation are very uncertain (Cunha et al., 2006). An unforeseen event is "a relatively unknown event or situation that occurs relatively unexpectedly and with relatively low probability or predictability to the individual, group or community that experience and manage the event." (Kaarstad & Torgersen, 2017:1). Unforeseen events cannot be controlled (Tsoukas, 2005). Little is also known about how an organization can methodically identify relevant factors that influence the outcome of an event (Kaarstad & Torgersen, 2017). How individual humans in organizations manage the unforeseen will, on the one hand, depend on factors that relate to the individual (Larsen, Buss, Wismeijer, & Song, 2017; Staw & Ross, 1985). On the other hand, the individual is also affected by the dynamics between social and organizational factors, which are strong (Davies-Blake & Pfeffer, 1989; Smith, Benight, & Cieslak, 2013).

Interaction between people, groups and organizations is reported to be of great significance in demanding and complex situations (Griffith & Vaitkus, 1999; Kramar, 2014; Delahaij, Kamphuis, & van den Berg, 2016). Interaction (*samhandling*) has therefore been introduced as a factor that can be a valuable antecedent to adaption to unforeseen events (Kaarstad & Torgersen, 2017). The term "interaction" is often used when referring to traditional notions of collaboration, coordination, interplay and cooperation. Interaction has, however, a different qualitative meaning, emphasizing open and equal communication, development, competence complementarity, common goals, trust and knowledge. A collective

definition of interaction is "an open and equal communication and development process between parties whose competencies complement each other, who exchange competence directly face-to-face, via technology or manually, who work towards a common goal and whose relationship is based on trust, involvement, rationality and industry knowledge." (Torgersen & Steiro, 2009:130).

Perhaps the key lesson that has emerged from multivariate studies is that there is no single dominant determinant that can predict the outcome of demanding and unexpected events (Bonanno, Brewin, Kaniasty, & La Greca, 2010; Milgram, Orenstein, & Zafrir, 1989). It is therefore important to study the interplay of those risk and resource factors that are considered to have the potential to predict outcomes, such as self-efficacy (Aizen, 1991; Bandura, 1997; Delahaij et al., 2016; Schwarzer & Jerusalem, 1995; Shuffler, Pavlas & Salas, 2012), and social support (Procidano & Heller, 1983; Ryan & Burrell, 2012; Schwarzer & Luszczynska, 2012). People who are highly self-efficacious have a strong belief in their ability to manage challenges and threatening situations. Self-efficacy is usually understood as being either task-specific or domain-specific (Bandura, 1997; Leganger, Kraft & Røysamb, 2000). However, several researchers have developed the notion of self-efficacy as a general construct, which refers to a broad and stable sense of personal competence to perform across a range of challenging situations (Judge, Erez, & Bono, 1998; Leganger et al., 2000; Scherbaum, Cohen-Charash, & Kern, 2006). Social support, on the other hand, refers to the impact that networks of people have on the individual. Perceived social support is defined as the extent to which someone believes that their support, information, and feedback needs are met (Cobb, 1976; Procidano & Heller, 1983). Specific competencies for demanding situations – personal experience, age, gender and realistic training, could also be potential predictors of preparedness for unforeseen events (Gal & Jones, 1995; Holen, Sund, & Weisæth, 1983; Solberg, Laberg, Johnsen, & Eid, 2005). However, results of the existing research of socio-demographics are less conclusive (Leganger et al., 2000; Scholz, Doña, Sud, & Schwarzer, 2002).

The aim of this study was, therefore, to examine differences in how groups and individuals in the Armed Forces view preparedness for unforeseen events based on their role and function within the organization. The

main objective was to examine the effect of interaction, social support, general self-efficacy and competence in demanding situations on perceived preparedness for the unforeseen. We also examine differences in these factors due to professional experience, age and gender.

Organizations and competence

The effective utilization of people in an organization has, for several decades, been an important field of interest (Schein, 1980). Organizations are understood to be open and complex social systems in which the people and the organization itself affect each other and interact with the environment (Daft, 2015; Jacobsen & Thorsvik, 2014; Kaufmann & Kaufmann, 2015). Many academics believe that human resources are of strategic importance to an organization's success (Armstrong, 2011; Kramar, 2014; Noe, Clark, & Klein, 2014). This is based on the view that an organization's people are a unique internal resource and that this resource can represent a competitive advantage (Barney, 1991; Salaman, Storey, & Billsberry, 2005; Wright, Dunford, & Snell, 2001). The competence of the employees is a resource that can enhance an organization's performance (Wright, Warner, Moynihan, & Allan, 2005), thus making competence a particularly important factor (Delary, 1998).

Knowledge is, in general, important for the sustainable development and growth of an organization (Law & Chuah, 2015; Nonaka & Takeuchi, 1995). The ability of an organization to maintain knowledge and skills that are up to date, both at the individual, group and organization level, therefore represents a significant challenge (Noe et al., 2014). Continuous learning, interaction and sharing of knowledge between employees is required in a knowledge society, in which knowledge and technology develop quickly (Armstrong & Taylor, 2017; Von Krogh, Ichijo, Nonaka, 2000). Knowledge management, resilience, self-leadership, empowerment, team building and creating flexible and network-based forms of work are examples of measures and concepts that can be implemented to meet these challenges (Armstrong & Taylor, 2017; Linkov et al., 2013a). Organizations and individuals must not only be skilled at utilizing the full potential of existing knowledge, but also be skilled at creating

new knowledge and questioning basic premises (Argyris, 1977; Argyris & Schön, 1996; March, 1991; 2006). Peter Senge (1990) highlights three important elements of this: the ability to develop personal self-efficacy, to develop complex understandings of how organizations function and to develop learning in groups and teams. Social learning in communities of practice is characterized by closeness, trust and active participation (Wenger, McDermott, & Snyder, 2002). Consequently, the understanding of interaction between people, groups and organizations is becoming increasingly important (Kaufmann & Kaufmann, 2015:59). Much of the research into interaction is, however, based on more predictable and known preconditions (Torgersen, 2015).

The high degree of unpredictability and complexity associated with unforeseen events increases the need to prepare for the full spectrum of stressors (Linkov et al., 2013b). An individual's response to an unforeseen event depends on the individual's appraisal, interpretation, and coping behaviors, as in any other stress-response process (Lazarus & Folkman, 1984). Individual psychological resources, such as self-efficacy, and social resources, such as social support, appear to be beneficial when dealing with challenges and adversity (Delahaij et al., 2016; Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003).

Self-efficacy has been linked to performance (Chen, Gully, & Eden, 2001; Eden, 2001; Shuffler et al., 2012), decision making (Hepler & Feltz, 2012), training, adjustment to new tasks (Robbins et al., 2004; Saks, 1997), coping behavior when facing challenges, environmental demands and collective traumatic events (Liang & Su, 2011; Luszczynska, Benight, & Cieslak, 2009; Schwarzer, 1999; Solberg et al., 2005). Most of the research on self-efficacy has focused on the expectancy to succeed in a particular domain or task in a given situation (Leganger et al., 2000). The context of unforeseen events is characterized by being less situation-specific (Kaarstad & Torgersen, 2017; Scherbaum et al., 2006). Hence, it might be adequate to extend the operationalization of task-specific self-efficacy to explain a broader range of competence beliefs (Luszczynska, Scholz, & Schwarzer, 2005; Schwarzer & Jerusalem, 1995). Perceived general self-efficacy can therefore be considered to be competence-based, prospective and action-related in less specific contexts (Luszczynska, Gibbons, Piko, & Tekozel, 2004; Luszczynska et al.,

2005). On the other hand, the ability to deal with difficult situations based on personal experience, realistic training and individual task-focused coping capacities may be operationalized as domain-specific self-efficacy.

In addition, personnel who must deal with uncertainty and demanding situations often seek support from their supervisors and colleagues. So, when there's a threat to which one must respond, information or help is needed to adequately deal with the threat, and aid is perceived to be available within one's support network (Procidano & Heller, 1983). Previous research has shown that military units and garrison social environments and leadership foster social support, and that this social support helps individuals to cope with stressors, manage high job demands and adverse conditions (Bliese & Britt, 2001; Cohen, 2004; Delahaij et al., 2016; Stetz, Stetz, & Bliese, 2006). It has also been found that there is a positive relationship between social support and readiness, performance and personal well-being (Armistead-Jehle, Johnson, Wade, & Ecklund, 2011; Griffith, 1989; 2002; Ryan & Burrell, 2012). Both social support and self-efficacy are resources that have been studied for many years in military organizations (Andres, Moelker, & Soeters, 2012; Bartone, Snook, & Tremble, 2002; Delahaij, Theunissen, & Six, 2014; Weins & Boss, 2006). They have, however, not often been studied concurrently. Nevertheless, several scholars argue that these factors may have a buffering effect (Delahaij et al., 2016).

The above outcomes show that more research is needed into factors associated with preparedness for the unforeseen. Preparing and learning from highly infrequent and unknown events represents a contradiction (Barnett, 2004; Lampel, Shamsie & Shapira, 2009). How can you train and prepare for something when you do not know what it is? Existing research indicates that there is a lack of a conceptual framework (Bundy, Pfarrar, Short, & Coombs, 2016; Lampel et al., 2009), that a semantic escalation exists (Roux-Dufort, 2007), that there is an educational challenge when dealing with the unknown (Barnett, 2004; Torgersen & Saeverot, 2016), and that there is a need to rework the senses and grasp ambiguity (Weick, Sutcliffe & Obstfeld, 2005; Weick, 2015). Furthermore, most organizations learn from repeated successes rather than from exceptional events or failure (Starbuck, 2009). Rare events may, however, trigger learning through exposing weakness and revealing unrealized behavioral

potential (Christiansson, Farkas, Sutcliffe, & Weick, 2009). Unforeseen events therefore represent a challenge that requires numerous levels of competence to be mobilized for the challenge to be met (Argyris & Schön, 1996; Mathieu, Maynard, Rapp, & Gilson, 2008).

The enmeshment of individual, social and organizational factors highlights the need to explore and understand the consequences of their interaction. To our knowledge, few or no empirical studies have been carried out on this topic. Investigations that examine the joint role of interaction, general self-efficacy, perceived competence in demanding situations, and social support are important, as combinations of these factors may have a protecting and effect on preparedness for the unforeseen. Based on this reasoning, the main research question was: Do individual differences in general self-efficacy, belief in military skills and abilities, social support, personal experience and interaction predict the evaluation of preparedness for the unforeseen? In addressing this, we assume that interaction plays a key role in preparing for the unforeseen, with the potential to enhance an organization's capacity to optimize their performance.
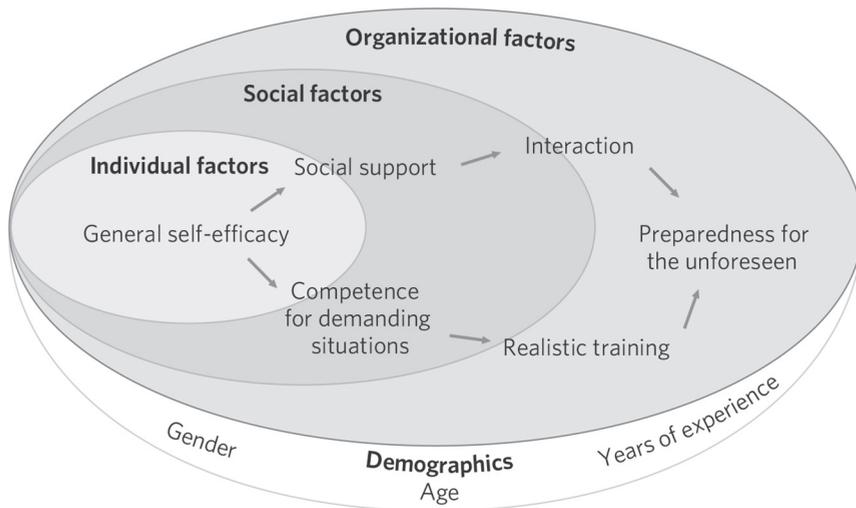
Figure 15.1 The Predictive Model of Preparedness for the Unforeseen, showing selected indicators at each competence level.

The Predictive Model shown in Figure 15.1 integrates our main research question of how interaction directly affects preparedness for the unforeseen. This is substantiated by the social resources of social support

affecting interaction, the individual resources of general self-efficacy affecting competence for demanding situations and social support, and the competence in demanding situations affecting emergency exercises and social support.

Method

Participants and procedures

The study data was collected using a self-completion questionnaire, answered by male and female employees of the Norwegian Armed Forces. Personnel from all branches of the military, including commissioned and non-commissioned officers, military academy students and conscripts participated in the study. The study results are based on a survey carried out over a three-month period during winter 2016/2017. The questionnaire was distributed to 16 units, departments and military academies throughout Norway. Study participants held a range of competence levels, were responsible for a range of functions and were based in a range of units. A total of 624 personnel participated in the study and the response rate was 77%. The sample consisted of 525 male (85%) and 92 female (15%) respondents, with a mean age of 25.7 years (standard deviation (SD) = 8.2). Average military experience was 5.5 years (SD = 6.9). Most of the questionnaires were completed in plenum with the researcher present. Some questionnaires were supervised by a dedicated department contact. All participants were, however, given the same introduction to the survey. The study was advised by the Norwegian Centre for Research Data (NSD).

Measures

General self-efficacy (GSE) was measured using a Norwegian translation of the General Perceived Self-Efficacy Scale (GSE) (Leganger et al., 2000; Schwarzer & Jerusalem, 1995). The scale is uni-dimensional and consists of 10 items. It taps information about the respondents' perceived capability to handle new and difficult tasks in a variety of domains (Scherbaum,

et al., 2006). Sample items include: "I am confident that I could deal efficiently with unexpected events," and "If I am in trouble, I can usually think of a solution." Respondents responded using a 4-point scale, from 1 = "not true at all" to 4 = "completely true". The scale is reported to have satisfactory psychometric characteristics, high levels of internal consistency (α = .76–.91), and cross-cultural and criteria validity (Scholz et al., 2002). The scale had a Cronbach's alpha (internal consistency) of α = .83 in the current study.

Competence in demanding situations (CDS) was measured using 17 items from the Military Skills and Ability Scale (Moldjord, Laberg & Rundmo, 2015). Studies have used this scale to measure individual coping capacity, cooperation in demanding situations, and general knowledge and skills when handling difficult and stressful situations (Moldjord et al., 2015; Solberg et al., 2005). This scale could be argued to measure domain-specific self-efficacy. Items include: "My ability to act whilst feeling threatened is …", "My ability to cooperate in difficult situations is …", and "My skills at the individual level are …". A Likert type scale, ranging from 1 (very good) to 5 (very weak) and 6 (do not know), was used to record responses. Previous studies have revealed satisfactory internal consistency with Cronbach's alpha above .70 (Moldjord et al., 2015, Solberg, 2007). The internal consistency of the scale was α = .85, and for each dimension, the results being α = .84 for individual coping capacity, α = .63 for cooperation in demanding situations, and α = .81 for general knowledge and skills.

Social support (SS) was measured using a Norwegian translation of the Perceived Social Support (PSS) Scale by Procidano and Heller (1983). It was designed to assess the functions of social networks in which an individual perceives that his/her needs for support, information, and feedback are fulfilled by colleagues and leader, especially emotional support. The scale is comprised of two 10 item self-reported measures. Examples are: "I rely on my colleagues for emotional support", "My colleagues give me the moral support I need", and "My leader is sensitive to my personal needs". Respondents used a 5-point scale, from 1 = "strongly disagree" to 5 = "strongly agree". The scale is reported to have demonstrated good internal consistency (α = 83.–.90) (Eskin, 1993). The scale had a

Cronbach's alpha of α = .84, and for the dimension social support colleagues α = .78 and social support leader α = .78.

Interaction (I) and preparedness for the unforeseen was measured by UN-ORG (UNforeseen Organization questionnaire). The scale consists of 98 items, where the component Interaction is represented by 7 items. It was developed within the Strategic Institute Initiative at IFE (Institute for Energy Technology), IO EPO (Integrated Operations in Emergency Preparedness Organization). The purpose of the questionnaire is to allow employees in an organization to assess to what extent their organization has emergency preparedness that can handle the unforeseen (Kaarstad & Torgersen, 2017). The entire UN-ORG scale was not analyzed in this study. Items in the Interaction component include: "My organization has developed good faith in the employees", "My organization has the ability to exchange and complement the staff's competence during training", and "My organization creates a mutual sense of understanding internally within the organization during an exercise or event". An analysis of Cronbach's alpha of the UN-ORG scale has resulted in a value of .90, which indicates a rather high degree of internal consistency between the items (Kaarstad & Torgersen, 2017). The scale for Interaction had a Cronbach's alpha of α = .78.

Statistical analysis

The data was optically read and transferred to SPSS (version 24.0) and LISREL 8.72 for statistical analyses. The inter-correlations of all independent variables were calculated to test the significance of the correlation coefficients. Confirmatory factor analysis (CFA) was performed to evaluate the fit of the internal and dimensional structure of general perceived self-efficacy (GSE), competence for demanding situations (CDS), perceived social support (PSS) and interaction (I) and to test whether measured items reflect the latent constructs they were designed to measure (Hair, Black, Babin, Anderson, & Tatham, 2006). The fit between the model and data was assessed using the χ2/df (df-ratio) and root-mean-square-error of approximation (RMSEA), with a 90% confidence interval (CI) (Boosma, 2000). RMSEA values up to .08

correspond to an "acceptable" fit (McDonald & Ho, 2002). Adaptability was tested using comparative fit index (CFI), critical N (CN), standardized-root-mean-squared residual (SRMR) and goodness-of-fit index (GFI). Traditionally, most authors who use an index scaled up to unity for "perfect" fit regard these fit indices as acceptable if they are greater than .90 (Jackson, Gillaspy & Purc-Stephenson, 2009; McDonald & Ho, 2002), and SRMR less than .06 (Hu & Bentler, 1999). Cronbach's alpha was also calculated to examine scale reliability and the internal consistency of the indices (Cortina, 1993). Average corrected item-total correlation and factor-loading range were determined to provide important information on the scales' factorial structures (Boomsa, 2000).

A multivariate analysis of variance and covariance (MANOVA/ MANCOVA) was conducted to examine differences in general self-efficacy, competence for demanding situations, social support and interaction, due to demographic variables such as gender, age and years of professional experience (Tabachnick & Fidell, 2012; Warne, 2014). From this, we can obtain a multivariate F value and adjust for differences in one or more covariates (Mehmetoglu & Jakobsen, 2016).

A hierarchical multiple regression analysis was carried out to identify factors that can explain individual variations in preparedness for the unforeseen. Predictive values were reported with R^2 values. The five proposed predictors were entered block-wise in the following order: (a) demographic variables (gender, age, years of experience), (b) general self-efficacy (GSE) and competence for demanding situations (CDS), (c) social support (SS), (d) training and exercise, and (e) interaction (I). Gender, age and professional experience may also be related to preparedness for the unforeseen. They were therefore entered first, to rule out alternative explanations for the observed findings. The other predictors were grouped into blocks and entered on the basis of competence level: individual, social and organizational.

A structural equation model (SEM) was finally used to assess whether the specified model "fits" the data (Yuan, 2005). Single dependent measures rarely capture the phenomenon being studied completely. The SEM approach, however, estimates the variables in the study simultaneously

rather than assuming independent equations (Boomsma, 2000; Jöreskog & Sörbom, 2004).

Results

Reliability, fit indices and parameter estimates of measures

The confirmatory factor analysis (CFA) results are given in Table 15.1. They show that the internal structure of general self-efficacy, competence for demanding situations, social support and interaction were consistent with respondent data (Leach et al., 2008). This fit indicates support for the measurement model. The parameter estimates in Table 15.1 of Average Corrected Item-Total Correlation and Factor Loading Range were reasonable and in support of the predicted model. The results also confirm that each component was well defined by its items. However, when determining the number of factors that best describe the underlying relationship among the variables, some items were taken out. The cut-off value was set at .40. First, three items from the Military Skills and Ability Scale were left out, due to fit and low rotated factor loadings. Second, two items from the Perceived Social Support (PSS) Scale were removed on each of the dimensions, due to low factor loadings and factor structure (Costello & Osbourne, 2005).

The reliability and internal consistency of the psychological and social variables are also shown in Table 15.1. The reliability and internal consistency of all scales are shown to be satisfactory. One dimension of the competence in demanding situation scale showed α= .63. This value is considered to be satisfactory, based on the small number of items (four) in the scale (Cortina, 1993; Panayides, 2013).

A series of Pearson product-moment correlation coefficients were computed (Table 15.2) to assess the relationship between study variables. Overall, most of the dependent variables were positively correlated with each other in the moderate and weak range (Mehmetoglu & Jakobsen, 2016). The two demographic variables, age and years of experience, were strongly correlated, $r = .75$, $p <.01$. However, no symptoms of multicollinearity or very high inter-correlations among the variables were detected (Broomsa, 2000).

Differences in psychological variables and social variables due to demographic variables

A multivariate analysis of covariance (MANCOVA) examined the eight latent variables being dependent variables, years of professional experience being an independent variable, and age and gender as covariates. Years of experience was recoded into three groups: novice, intermediate and experienced. Table 15.3 shows a statistically significant overall difference in years of experience on general self-efficacy, competence for demanding situations, interaction and preparedness for the unforeseen. Wilks' Lambda = .95, $F_{(16,1134)} = 2.04$, $p < .01$, $\eta2 = .03$. The multivariate effect was significant on the individual factors of general perceived self-efficacy $F_{(4,574)} = 9.65$, $p < .001$, $\eta2 = .06$, and on all the three components of competence for demanding situations (CDS); individual coping capacity $F_{(4,574)} = 22.34$, $p < .001$, $\eta2 = .14$, cooperation $F_{(4,574)} = 3.88$, $p < .01$, $\eta2 = .03$, knowledge and skills $F_{(4,574)} = 13.29$, $p < .001$, $\eta2 = .09$. There was, however, no significant effect between years of experience and social support colleagues $F_{(4,574)} = 0.90$, $p > .05$, $\eta2 = .01$, and social support leader $F_{(4,574)} = 1.12$, $p < .05$, $\eta2 = .01$. On the other hand, the effect of years of experience on interaction $F_{(4,574)} = 4.46$, $p < .01$, $\eta2 = .03$, showed significant differences. Years of experience finally demonstrated a significant effect on preparedness for the unforeseen $F_{(4,574)} = 2.86$, $p < .05$, $\eta2 = .02$. Only the covariate gender significantly influenced the combined dependent variables, Wilks' Lambda = .91, $F_{(8,567)} = 7.45$, $p < .001$, $\eta2 = .10$.

However, a multivariate analysis of variance (MANOVA), including the three demographic variables, demonstrated significant interaction effects between gender and age, Wilks'` Lambda = .95, $F_{(16,1116)} = 2.06$, $p < .01$, $\eta2 = .03$, gender and years of experience, Wilks' Lambda = .94, $F_{(16,1116)} = 2.20$, $p < .01$, $\eta2 = .03$, and age and years of experience, Wilks' Lambda = .91, $F_{(24,1619)} = 2.30$, $p < .01$, $\eta2 = .03$, and between gender, age and years of experience, Wilks' Lambda = .95, $F_{(8,558)} = 3.67$, $p < .01$, $\eta2 = .05$.

Univariate testing (ANOVA) and post hoc tests were conducted as follow-up tests. ANOVA results in Table 15.3 indicated significant differences in the effect of years of experience on competence – individual coping capacity, $F_{(2,574)} = 4.85$, $p < .01$, $\eta2 = .02$, interaction $F_{(2,574)} = 5.80$, $p < .01$, $\eta2 = .02$., and preparedness for the unforeseen, $F_{(2,574)} = 5.64$,

p < .01, η2 = .02. Tukey HSD and Bonferroni post hoc results for general self-efficacy and all dimensions of competence for demanding situations indicated that novice individuals significantly differ from intermediate skilled and experienced personnel. Results for interaction showed that novices differ from intermediates, and that experienced people differ from both novices and intermediates on preparedness for the unforeseen. Finally, Table 15.3 presents the group means of the dependent variables by years of experience. A comparison of the three levels of experience indicated that years of experience increased the level of general self-efficacy and competence for demanding situations. A similar analysis of social support colleagues, social support leader, interaction, and preparedness for the unforeseen suggested that years of experience decreased the levels or made them more inconsistent.

Predictors of evaluation of preparedness for the unforeseen

A multiple hierarchical regression analysis was carried out to examine whether preparedness for the unforeseen is predicted by general self-efficacy, dimensions in competence for demanding situations, social support, training and exercise, and interaction. Gender, age and professional experience were entered as demographic variables. Table 15.4 shows that the predictor variables in Block 5 (Block 1: Demographic variables, Block 2: Individual resources, Block 3: Social support, Block 4: Exercise and training, Block 5: Interaction) explain a significant amount (43% – respectively .00, .03, .09, .02, .29) of the variance in preparedness for the unforeseen, $R^2 = .43$, $F (11, 564) = 38.77$, $p < .001$. Interaction (ß = .61, p < .001) was the component which significantly added most variance to preparedness for the unforeseen.

Experience with emergency exercises (ß = .13, p < .001), social support colleagues (ß = -.14, p < .001), and social support leader (ß = .12, p < .01) did significantly predict the variance in preparedness for the unforeseen. The analysis shows that neither gender (ß = .00, ns), age (ß = .01, ns), years of experience (ß = -.02, ns), general self-efficacy (ß = .07, ns), competence – individual coping capacity (ß = -.04, ns), competence – cooperation

(ß = -.02, ns) nor competence – knowledge and skills (ß = .03, ns), displayed any significant relationship to preparedness for the unforeseen.

We expected interaction to be positively related to preparedness for the unforeseen, controlled for gender, age and experience. The regression analysis supports this expectation. Gender, age and years of experience, general self-efficacy and competence in demanding situations did not, however, explain the variance shown in preparedness for the unforeseen. We therefore turned to SEM to examine the relations of relevant variables in the context of our predictive model.

Structural Equation Model (SEM) for predicting preparedness for the unforeseen

Structural equation modelling is presented in Figure 15.2. Gender, age and experience were left out, in view of the fact that they did not obtain any significant effect. The results of the structural equation model ($\chi 2$ (24) = 107.16, p < .001; RMSEA= .076, 90% CI [.062, .091]; CFI = .95; Critical N= 235.07; SRMR= .055; GFI = .96.) indicate a good fit with the data (Hu & Bentler, 1999).

The total explained variance percentage of preparedness for the unforeseen was 41%, and Figure 15.1 shows two positive and significant paths. General self-efficacy positively affected both social support (ß = .35, p < .001) and competence in demanding situations (ß = .59, p < .001). The percentage of explained variance for social support was 17%, and it was 35% for competence in demanding situations. Social support was positively associated with interaction (ß = .54, p < .001) and the explained variance was 29%. The other pathway, competence in demanding situations, contributed to emergency exercises (ß = .15, p < .001). The explained variance was at the ratio of 2%. Furthermore, interaction demonstrated a positive and significant effect on preparedness for the unforeseen (ß = .61, p < .001). Emergency exercises were also positively and significantly connected to preparedness for the unforeseen (ß = .17, p < .001).

The explained variance in preparedness for the unforeseen therefore essentially depends on interaction. We also found support for the predicted relationships between general self-efficacy, social support and

competence in demanding situations. Likewise, for social support and interaction, and between competence in demanding situations and participation in emergency exercises. This indicates that social resource factors have a direct and resilient effect on preparedness for the unforeseen, and that individual factors play an indirect role. The results of the indirect, direct and total effects are shown in Figure 15.2, and suggest that an integrative approach to preparedness for the unforeseen is a valid one.

Discussion

The purpose of this study was to identify the individual, social and organizational factors that are associated with preparedness for unforeseen events. The study examined the effect of interaction, social support, general self-efficacy and competence in demanding situations on preparedness for the unforeseen. It also examined differences in these factors due to professional experience, age and gender. The results are based on responses from individuals with different roles and functions in the Norwegian Armed Forces. We expected, based on previous research, that interaction would play a key role in preparing for the unforeseen (Delahaij et al., 2016; Kaarstad & Torgersen, 2017; Kaufmann & Kaufmann, 2015; Kramar, 2014). This expectation was confirmed by the results. SEM analyses showed that interaction was the most important predictor of preparedness for the unforeseen, and that social support was a significant predictor of interaction. General self-efficacy and competence in demanding situations and social support also showed a significant positive relationship. Experience with emergency exercises, though low in effect, also contributed to the explained variance in preparedness for unforeseen events.

In summary, our findings suggest that there is no single dominant determinant that predicts outcomes of demanding and unexpected events (Bonanno et al., 2010). The results, however, indicate that it is possible to prepare for unforeseen events by implementing improvement measures, particularly measures aimed at the improvement of social factors. The results therefore represent a positive contribution to preparedness knowledge.

The authors are not aware of any previous studies that have concurrently examined the factors investigated in this study. This study uncovers

relations and factors which might explain preparedness for the unforeseen and therefore clarifies and supplements existing research.

Implications

The results may have implications for predicting and enhancing preparedness for unforeseen events. They show, for example, that interaction between people, groups and organizations is the most significant antecedent of adaption to disruptive incidents. The results also suggest that interaction is an essential factor in explaining preparedness for an event that occurs unexpectedly, is unknown, and has a low probability of occurrence. Individuals and social processes are considered to play an important and active role in preparedness, particularly when organizations and people are confronted with an unfamiliar event that is unexpected and confusing and that must be interpreted in the context of the strategic environment (Weick, 1995; 2015; Weick & Sutcliffe, 2015). This indicates that interaction can be used to predict future military performance at the individual, group and organization level, where interaction is viewed as a generic core competence that is found at several levels in an organization. This is particularly appropriate where the sum of the competencies at these levels determines the Armed Forces response time, combat power and sustainability when facing unforeseen events (Mathieu et al, 2008).

Weick (2015) argues that organizations faced with ambiguous information tend to look for assurance in what they already know. All organizational capabilities are relatively rigid when facing unfamiliar problems, despite the prevalence of the concept of change (Ritala, Heiman, Hurmelinna-Laukkanen, 2016). There is, furthermore, no large body of theory and research on organizational effectiveness and organizational learning in abnormal events, such as crises and unforeseen events (Lampel et al., 2009; Roux-Dufort, 2007). Recent incidents of terror and crises have, however, demanded that high risk organizations such as the Armed Forces invest substantial resources in preparing for these very complex challenges. The future cannot be foreseen. Such investments are therefore associated with great uncertainty (Cunha et al., 2006). The Armed Forces may, even so, see the findings of this study as a basis for developing and

adjusting their recruitment and selection process, and their educational, exercise and training programs, and as a basis for focusing on ways to enhance interaction and the organization's resulting performance.

The results also show how the interplay of risk and resource factors, including factors such as general self-efficacy, social support, competence in demanding situations and experience with emergency exercises, directly and indirectly contributed to explaining interaction and preparedness for unforeseen events (Delahaij et al., 2016; Ryan & Burrell, 2012; Solberg et al., 2005). It was, nonetheless, surprising that personal and military experience had little value as a predictor of preparedness for the unforeseen. This question the traditional military assumption that there is a close relationship between experience (number of years of professional service) and increased coping capacity (Solberg et al., 2005). Self-evaluation of general self-efficacy and competence in demanding situations did, however, prove to be indirectly associated with preparedness for unforeseen events. This indicates that officers and soldiers primarily base their evaluation of preparedness for unforeseen events on their evaluation of social factors, such as social support and interaction. Establishing suitable settings for social learning and communities of practice, where personnel can feel confident about meeting and sharing experience and knowledge, may be required to facilitate preparedness (Wenger et al., 2002). Leadership that shows a willingness and ability to organize such venues is also essential (Moldjord et al., 2015).

Perceived personal efficacy and competence in demanding situations indicates coping skills that might be generalized across different stressors and situations (Scherbaum et al., 2006; Schwarzer & Jerusalem, 1995). General self-efficacy and competence in handling demanding situations should therefore enhance preparedness, even in situations involving a high degree of unpredictability. It seems reasonable, given the uncertainty associated with unforeseen events, that a belief in one's personal resources, skills and abilities represents a readiness indicator and a sense of having faith in oneself.

Those who believe in their own ability to handle difficult situations, increase their ability to seek social support, which in turn explains their ability to interact socially. This represents an interplay between essential

factors in the ability to handle unforeseen events. From a competence perspective, this shows the relevance of focusing on the interaction between different competencies. How unforeseen events manifest in each organization may depend on personnel differences and social factors within the framework of an organization's structure and culture (Cunha et al., 2006). However, the complex nature of unforeseen events requires knowledge, skills and abilities beyond those of single individuals (Shuffler et al., 2012). The results of this study show that social dimension factors directly explain the ability to handle unforeseen events, while individual factors indicate an indirect effect. Future research should, therefore, further investigate these relationships.

Strengths and limitations

This study has significant strengths and limitations. The sample size (N=624) should be sufficient to detect large effects (Cohen, 1992). The respondents represent a varied sample of Armed Forces personnel, within a range of units, functions and roles and with a range of experience, ages and genders. However, the use of self-reported data is susceptible to common method bias and social desirability (Podsakoff, MacKenzie, & Podsakoff, 2003). This may introduce a degree of uncertainty into the results and limits generalizability, especially to other populations.

The assessment of general self-efficacy, competence in demanding situations, social support and ability to interact could reflect general and biased intentions, rather than real perceived capacity, when confronted with an unforeseen event. Global measures, like general self-efficacy, often have weak predictive power on specific behaviors due to their high generality. Thus, self-efficacy measured at a more task and domain-specific level might have revealed other results. Competence in demanding situations, though, can be reckoned as a kind of domain-specific self-efficacy. However, certain types of performance may well be related to multiple aspects and levels of self-efficacy (Leganger et al., 2000). The fact that the respondents are selected, trained and experienced should, nonetheless, contribute to a realistic evaluation of preparedness for unexpected, complex and demanding situations.

This study examined the effect of personal, social and organizational factors on preparedness for the unforeseen and the relationships between these factors. These determinants might influence each other bidirectionally. A future study may conduct a longitudinal survey to examine the interactive relationship among these competence levels and determinants. Another possible methodological approach could be a qualitative study to explore these phenomena and relations. Such explorations could uncover how organization members classify, prioritize and understand unforeseen events before responding to them.

Conclusion

In conclusion, this study incorporates central concepts of individual and social resources that could permit the prediction and understanding of resilient behaviors in complex and demanding situations. This study also shows that interaction combined with general self-efficacy and social support can account for a considerable proportion of the variance in preparedness for the unforeseen. Interaction was the most important predictor of preparedness for the unforeseen. The results indicate that it is possible to prepare for unforeseen events by implementing measures that improve social factors, in particular. Organizations can apply these findings by developing a work environment where managers and colleagues provide moral and emotional support and listen to each other. We also suggest building trust between employees and nurturing good forms of communication. Furthermore, we believe it is important to create a common understanding of the situation and to have well-functioning routines with partners. Finally, a focus on exchange and the complementation of employee skills and knowledge may be of benefit to organizations. The results therefore make a positive contribution to preparedness knowledge. There are, however, many issues that remain unresolved. There is plenty of evidence of significant relations between these concepts, but the exact form of these relations is still uncertain.

In a world of rapidly-changing activities and unpredictable events, it is neither possible nor sufficient for individuals, groups and organizations to prepare for every potential incident. Organizations, rather than insisting

on the prediction of unexpected events, should therefore investigate how resilience to deal with unanticipated events can be developed. A change in focus and mind-set should highlight the relevance of interaction as a basic and generic core competence. In line with previous research, the results for gender, age and experience were inconclusive. The results showed significant differences between men and women, different age groups and levels of experience, due to the outlined individual factors: general self-efficacy and competence in demanding situations. On the contrary, this was not the case for the indicated social and organizational factors: social support, interaction and preparedness for the unforeseen. The existing findings should therefore encourage more research, that may help to clarify why and when gender, age and experience differences emerge. Future research could also include the investigation of other promising and relevant elements such as trust, decision making, improvisation, organizational learning, structuring and dynamic adaptive capabilities. This study may be particularly relevant to those involved in acquiring, mobilizing and developing competence at different levels in educational, crisis and military organizations.

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Appendixes

Table 15.1 *Confirmatory factor analysis including maximum likelihood estimation, Cronbach's alpha, Average Corrected Item-Total Correlation and Factor Loading Range for dependent variables*

Variables	α	C-ITC	FLR	χ^2/df	RMSEA	CFI	CN	SRMR	GFI
General self-efficacy	.825	.51	.36,.71	162.30/35	0.077	0.96	233.99	0.044	0.95
Competence in demanding situations	.847	.50		340.27/74	0.077	0.95	188.66	0.062	0.93
Competence – individual coping capacity	.837	.57	.49,.76						
Competence – cooperation	.629	.56	.26,.74						
Competence – knowledge and skills	.812	.68	.73,.92						
Social support	.841	.46		550.04/103	0.084	0.95	163.21	0.046	0.90
Social support colleagues	.775	.51	.56,.77						
Social support leader	.780	.51	.47,.82						
Interaction	.767	.51	.51,.73	28.05/8	0.064	0.98	425.55	0.035	0.98

Note. N = 603, α = Cronbach's alpha, C-ITC = Corrected Item-Total Correlation, FLR = Factor Loading Range, RMSEA= Root-mean-square error of approximation, CFI = Comparative fit index, CN = Critical N, SRMR = Standardized-root-mean-square residual, GFI = Goodness-of-fit index.

Table 15.2 *Correlations for study variables*

Variables	1	2	3	4	5	6	7	8	9	10	11
Demographic variables											
1 Gender											
2 Age	.14**										
3 Years of experience	.13**	.75**									
Predictor variables											
4 General self-efficacy	.21**	.19**	.17**								
5 Competence – individual coping capacity	.27**	.26**	.27**	.54**							
6 Competence – cooperation	-.01	.15**	.15**	.23**	.42**						
7 Competence – knowledge and skills	.21**	.22**	.22**	.35**	.53**	.29**					
8 Social support colleagues	-.04	-.01	-.03	.34**	.19**	.27**	.09*				
9 Social support leader	.08	.07	.04	.30**	.20**	.26**	.12**	.50**			
10 Participated in emergency exercise	-.00	.29**	.29**	.10*	.12**	.02	.19**	-.08	.10*		
11 Interaction	-.01	-.11	-.10*	.15**	.12**	.20**	.07	.34**	.44**	-.01	
Outcome variable											
12 Preparedness for the unforeseen	.01	.03	-.02	.14**	.09*	.10*	.09*	.13**	.34**	.17**	.62**

Note. N = 597–617, **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). Gender was coded 1 = female, 2 = male.

Table 15.3 *Group means and differences in general self-efficacy, competence in demanding situations, social support, interaction and preparedness for the unforeseen due to years of experience*

	Mean (SD)			F value (corr. model)	F value (exp.)
Years of experience	*Novice*	*Intermediate*	*Experienced*		
General self-efficacy	3.18 (.39)	3.24 (.33)	3.34 (.35)	9.65***	0.81
Competence – individual coping capacity	3.47 (.71)	3.60 (.59)	3.91 (.51)	22.34***	4.85**
Competence – cooperation	3.52 (.76)	3.62 (.59)	3.77 (.48)	3.88**	2.42
Competence – knowledge and skills	3.61 (.83)	3.75 (.54)	3.98 (.64)	13.29***	1.68
Social support colleagues	3.76 (.52)	3.78 (.46)	3.71 (.49)	0.90	0.61
Social support leader	3.32 (.61)	3.28 (.53)	3.39 (.59)	1.12	0.93
Interaction	3.80 (.54)	3.60 (.54)	3.69 (.51)	4.46**	5.80**
Preparedness for the unforeseen	6.28 (1.80)	5.72 (1.80)	6.22 (2.10)	2.86*	5.64**

Note. N = 579, Novice; N = 182, Intermediate; N = 236, Experienced; N = 162, * = p < .05, ** = p < .01, *** = p < .001, Wilks' Lambda = .95, F (16,1134) = 2.04, p < .01, η^2 = .03. Standard deviations (SD) appear in parentheses besides unadjusted means. Listwise deletion.

Table 15.4 *Prediction of preparedness for the unforeseen*

	β	β	β	β	β
Predictor	*Block 1*	*Block 2*	*Block 3*	*Block 4*	*Block 5*
Block 1: Demographic variables					
Gender	.01	-.01	-.02	-.01	.00
Age	.01	-.02	-.03	-.06	.01
Years of experience	.02	-.04	-.03	-.04	-.02
Block 2: Individual resources					
General self-efficacy		.14**	.07	.06	.07
Competence – coping capacity		-.03	-.02	-.02	-.04
Competence – cooperation		.09*	.02	.03	-.02
Competence – knowledge and skills		.05	.06	.04	.02
Block 3: Social support					
Social support colleagues			-.06	-.04	-.14***
Social support leader			.35***	.33***	.12**
Block 4: Exercise and training					
Emergency exercise				.14**	.13***
Block 5: Interaction					
Interaction					.61***
R^2	.00	.03	.13	.14	.43
R^2 change /ΔR^2	.00	.03	.09	.02	.29
F change	.09	4.76**	30.30***	11.80**	83.60***

Note. N= 576, *=p < .05, **=p < .01, ***=p < .001.
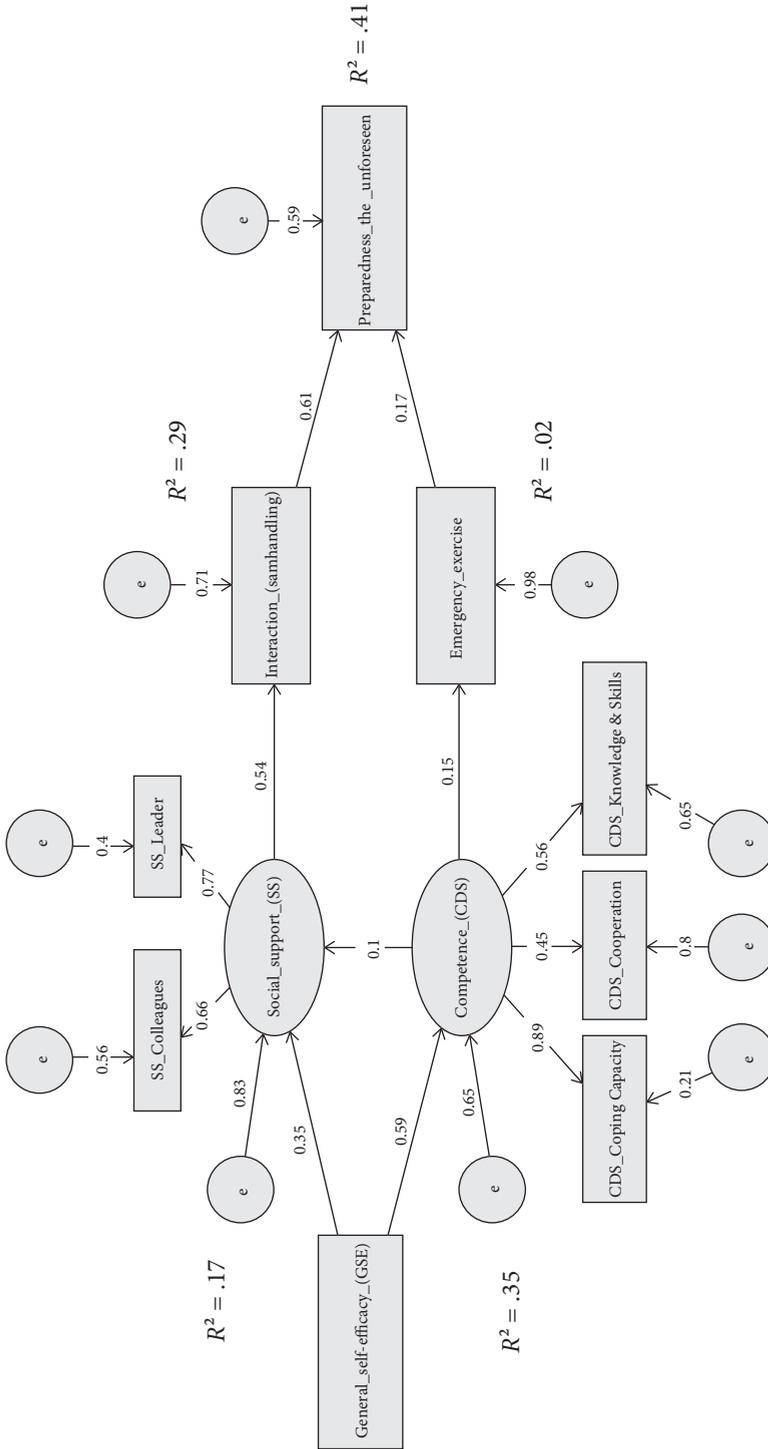
Figure 15.2 Structural equation model (SEM) for predicting preparedness for the unforeseen. Results for the structural equation model. Standardized solution.
Note: $N = 603$, $\chi^2(24) = 107.16$, $p < .001$; root-mean-square error of approximation (RMSEA) = .076, 90% CI [.062, .091]; comparative fit index (CFI) = .95; critical $N = 235.07$; standardized-root-mean-square residual (SRMR) = .055; goodness-of-fit index (GFI) = .96.

CHAPTER 16

Military *Samhandling* – Formal and Informal Behaviour in Norway's Armed Forces

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Abstract: The chapter describes and discusses interaction within the Norwegian Armed Forces. Military interaction is understood as the dynamic and sometimes unpredictable action undertaken when two or more services interact. The chapter explores why interaction between military services, such as land, sea and air forces, is difficult – and, in some circumstances, completely absent. How can inadequate interaction between the military branches be explained? As Europe's armed forces become increasingly complex and sophisticated, two perspectives from organisational theory are applied. First, an instrumental perspective is used to comprehend the problem. Particular attention is paid to the tension between hierarchical authority and the division of labour. Thereafter, a cultural perspective is used to comprehend inter-service rivalry. Here, attention is paid to informal rules and regulations, or habitual 'rules of thumb' that have become institutionalised over time. These 'the behavioural patterns' affect the way military services perceive themselves in contrast to others. The main finding is that Norway's Armed Forces suffer from 'limited rationality'. This is because Norway's military units operate within a fragmented command structure that consists of many different sub-organisations; individually, in times of peace in Norway, they pursue their own myopic agendas rather than a comprehensive national objective. In this process, the branches are also forced to compromise with each other to reach their individual objectives. A form of limited rationality therefore arises because the Army, Navy and Air Force act rationally. This is, however, not on the basis of what serves Norwegian security best, but on the basis of what is rational for their specific branch.

Keywords: *Samhandling*, interaction, subcultures, military, organisational learning, leadership, unforeseen.

Introduction

The purpose of this chapter is to describe and discuss interaction within the Norwegian Armed Forces. More specifically, the chapter explores why interaction between military services, such as land, sea and air forces, is difficult and why it occasionally may be almost absent. Defined in its simplest terms, military interaction is understood as the dynamic and sometimes unpredictable action undertaken when two or more services, as social groups, have an effect upon one another. In a military-sociological context, this applies particularly during negotiations and compromises carried out by Army, Navy and Air Force officers, who operate within the same chain-of-command.

Problems in military interaction are important for several reasons. Firstly, close interaction between the services is critical to all European NATO members, in order to exploit increasingly-scarce defence resources more effectively. Inter-service rivalry may easily erode broader ambitions of sustaining credible national forces and developing military expertise on 'joint operations' above the tactical level. Secondly, Norway's Armed Forces are also important public agencies that annually receive substantial funding from the tax payers' money. It is therefore important to gain more knowledge on how scarce resources are spent. Are the Armed Forces interacting cohesively and rationally in order to optimise the national security effort? Or are the individual services more influenced by the 'appropriate behaviour' which dominates within their own branch (Christensen, 2017:62–64), thereby deviating from political expectations of a broad and complementary national security strategy? Thirdly, military organisations are also the state's most dramatic and controversial political instruments. How different sub-cultures and sub-groups interact within the Armed Forces should therefore be of interest to increase the civic community's knowledge and control over military organisations. Scrutinising inter-service rivalry leads to better transparency within a state activity that is often characterised by secrecy and inaccessibility.

Analysed through the lens of organisational theory, this chapter argues that interaction between the Norwegian Army, Air Force and Navy is hampered by increasingly-powerful service branches. Such fragmentation within military organisations is by no means a new phenomenon (Builder,

1989; March & Olsen, 1989; Davis, 2012; Heier, 2017, 85–105). It nevertheless impedes a more effective and rational use of scarce defence resources. Governmental programmes aiming to create synergy between increasingly sophisticated, but also increasingly small and vulnerable national forces, face difficulties. Lack of interaction is often exacerbated by numerous institutionalised rules and procedures; informal norms and values that are deeply entrenched, like a special form of DNA, within the respective air, sea and land forces. Ethoses such as loyalty, obedience, discipline and conformity seem to prevail within certain units, particularly in the Army. Land forces often tend to become socialised by means of training and exercise programmes, which are heavily influenced by close combat with enemy forces in hostile terrain (Weissman & Ahlstrøm, 2017:6, 13; Rones, 2017: 138–143). In contrast, Air Force units more often consist of highly-educated technicians who operate far from enemy lines, and pilots often have the privilege to engage opposing forces from high altitudes and at long distances. This may promote more of a "civilian" ethos, characterised by frank discussions, less hierarchy, less discipline, and more diversity in personalities and styles of leadership (Kvale, 20013; Syversen, 2003; Maaø, 2014). The Norwegian Armed Forces, therefore, are first and foremost *institutionalised organisations* (Selznick, 1957/1997:20) – and a fragmented political instrument which utilises both formal and informal interaction to reach their goals.

Although this chapter focuses on interaction in a narrow military sense, the broader phenomenon of organisational interaction may also be relevant to other types of organisations. Referring to the *Bow-Tie Model* in Chapter 1 (Torgersen, 2018), fragmentation severely inhibits any organisation's effective prevention, management or stabilisation of unforeseen incidents. Examples are numerous and may, in a Norwegian context, include the rivalry between the Police Force and the Armed Forces during exercises (Røksund et al., 2016:9), or the absence of adequate civil-military security arrangements following the terrorist attack in Oslo in 2011 (Riksrevisjonen, 2017:14).

This chapter takes the formal organisation of the Armed Forces as a starting point. Being one of the most modern forces in NATO, the military chain-of-command can – in a theoretical and stereotypical form – be defined as a rational, unified and efficient combat organisation. Challenges

to rationality will be discussed below. The combat organisation, however, may be described as a neatly-balanced network of multiple components, in what is often characterised as a 'system of systems' (Heier, 2017:14–16). Different units from the Army, Air Force and Navy, enhanced by numerous leadership, support and combat support systems, must interact as a cohesive team to create mutually-reinforcing effects. On short notice, the various units – from all over the country – are expected to rapidly assemble and interact as small 'cogs' in a 'well-oiled machine'. The 'machine' is thereafter expected to perform rapidly and effectively, at home and abroad – along the Russian border and in the Barents Sea, in the deserts of Syria and Iraq, as well as above Libyan air space or in the Indian Ocean.

Towards a problem statement

The 'cogs', however, do not necessarily fit neatly together. Originating from different branches, units and levels in the chain-of-command, smooth interaction is hampered by different identities. Shaped by informal norms, values and expectations, the myriad of Army, Navy and Air Force ways of understanding themselves are rooted in numerous fields of expertise, often in contrast to other services.

Working on a daily basis inside small and vulnerable 'centres of excellence', they are also geographically dispersed throughout a Norwegian territory that stretches over a distance equivalent to Oslo to Rome. More often than not, these 'cogs' have never met before they are suddenly forced to interact, sometimes under extreme physical and psychological conditions.

Which mechanisms can help us to comprehend how Norwegian 'cogs' interact within the military machinery? As the various 'cogs' are put to the test, how can the organisational conditions be described? Are Norwegian troops part of a disciplined and smoothly-operating combat organisation, efficiently performing missions in accordance with political intentions? Or are Norway's Armed Forces part of a fragmented instrument; an organisation where informal habits, customs and procedures prevail, as unexpected incidents occur? Can Army, Air Force and Navy units, at the tactical level, make rational and comprehensive decisions for the

common good? Can they make choices unaffected by myopic interests from individual 'cogs'? Or is the Norwegian machine characterised by unsynchronisedinteraction,becauseland,seaandairforcesarealsotradition-bearers, and therefore influenced by their own goals and interests?

Answers to these questions depend upon the perspectives used; these will be described below. A good starting point may be the broader paradox of centralisation versus decentralisation. On the one hand, considerable effort has been put into controlling and managing scarce military resources more effectively. Centralising the Military High Command, by integrating it into the Ministry of Defence in 2003, is one such example (Bogen & Håkenstad, 2015:126–128). In order to become a more cohesive civil-military entity, the purpose was to '…take the military commanders by the ears…', fostering better interaction (Bjerga, 2014:473). On the other hand, a military decentralisation also occurred which made rational interaction more difficult. Six years after the first example, the Army, Navy and Air Force service staff branches were separated from the civil-military entity in Oslo, and re-located to respective 'centres of excellence'. The Army was sent to Bardufoss in northern Norway, the Navy was sent to Bergen in western Norway, while the Air Force was sent to Rygge in south-eastern Norway. In so doing, around 60 % of Norwegian personnel were allowed to pursue a life-long career within their own service branch. As a result, joint interaction and operational synergy between services may be more challenging to realise.

For example, the three service branches possess an estimated 200 different information and communication systems, which can hardly communicate with each other. It is, therefore, difficult to achieve genuine interaction between services that are becoming increasingly more autonomous and service-oriented, as opposed to joint-operation oriented (Pedersen, 2015; Bentzerød, 2015). Despite reforms aiming to reinvigorate the formal chain-of-command, 'inadequate interoperability between tactical commanders, and …between combat systems under the tactical commanders', make common objectives hard to reach (Pedersen, 2015).

Building on this paradox, this chapter's fundamental question is: *How can inadequate interaction between the military branches be explained*? As European forces become increasingly technologically-advanced and

sophisticated 'systems of systems', two perspectives from organisational theory may be applied. Firstly, using an instrumental perspective, interaction within formal military organisations can be explained, giving particular attention to the tension between hierarchical authority and the division of labour. Secondly, a cultural perspective may be adopted to address the same question. The instrumental perspective is complemented by the effects of informal rules and regulations; habitual 'rules of thumb' that have become institutionalised over time, which affect the way military services perceive themselves in contrast to others.

The instrumental perspective

How military organisations interact can be interpreted through the lens of instrumentalism. The definition of 'organisation' is understood as a formalised collective of personnel, who work systematically towards a common goal on a daily basis (Scott & Davis, 2007:36–40). In theory, the assumptions put forward by Richard Scott and Gerald F. Davis could be used to describe Norway's Armed Forces, stereotypically, as a 'rational actor' (ibid.:35). In theory, interaction between branches occurs according to defined roles, responsibilities, and areas of authority. Established formalities, procedures and rules are key characteristics of an instrument-like organisation. This contrasts with the more informal, incremental 'institution' described by Philip Selznick, which will be explored from the cultural perspective below (Selznick, 1957/1997:18–29).

Using the instrumental perspective, formally-written directives depend less upon the individual officer's leadership, or the general's subjective preferences and personal charisma. On the contrary, directives rest to a greater extent on rational considerations and existing routines. These are rigorously operationalised, transcending the military service's narrow interests. From the Defence Staff in Oslo to the tactical Branch Heads in Bardufoss, Bergen, and Rygge, strategic directives and national concerns are submitted down the chain-of-command. In return, daily, weekly and monthly reports are issued upwards, to build a common 'situation awareness' and hence, a better foundation for new strategic guidance. This is a theoretical description of interaction. How can it be explained in real life?

The logic of official interaction

In Norway, military interaction takes place through intersecting channels of management, vertically and horizontally. A *vertical* interaction occurs across military-strategic, operational and tactical levels of command. Here, political intentions are gradually operationalised into more succinct and specific military terms. Firstly, intentions are operationalised into directives at the military-strategic level, within the Defence Staff. Secondly, this occurs again at the intermediate operational level, within Joint Operative Headquarters. Finally, this is carried out at a tactical executive level, with specific missions designed for the various air, sea and land forces (Forsvaret, 2014). From this somewhat simplified context, interaction can be explained as a rigid activity of exercising command and control authority. 'Unity of command' is communicated by means of formal roles, clearly-defined responsibilities and delegated authority. Orders, standard operational procedures and established drills are executed by loyal and obedient staff officers, providing effective interaction across levels of command.

However, parallel to vertical interaction, a significant degree of *horizontal* interaction also occurs. Individually, the Army, Navy and Air Force delegate authority further down their own chains-of-command, to develop branch-specific operative concepts, doctrines and educational systems. Individually, the branches enhance their specific roles and responsibilities within the broader framework of national defence. Long-term investments are decided, particularly within dedicated weapon, support and logistical systems that give their doctrines more operative 'punch'. Specialised educational programmes and career plans are also developed, to underpin investments and doctrines with expertise, for example, through dedicated officer-candidate schools, military academies and staff courses abroad. In a broader and increasingly complex 'system of systems', therefore, much of the horizontal interaction is delegated to branch-specific vocational education programmes.

The combination of horizontal and vertical activities is instrumental in comprehending how interaction and synergy emerge between different services. This is, however, not without complications. Which mechanisms may create inter-service rivalry and hence undermine military interaction?

Cross-pressure and limited rationality

Based upon horizontal and vertical interaction, military organisations are likely to be characterised by a diverse set of goals and interests. Comprehending the Armed Forces as a unified, cohesive and rational actor is, as such, a myth (Nordheim-Martinsen, 2015). On the contrary, even disciplined and strictly hierarchical organisations are subject to significant cross-pressure. This is because each branch is empowered to act rationally between overarching goals and interests. But the same goals and interests are not necessarily compatible throughout the chain-of-command. What is regarded as rational for Army headquarters situated in the far north is not necessarily rational to Air Force staff officers situated at Rygge, outside the densely populated Oslo-region. An example may be the Air Force's recommendation to tie up large amounts of future defence spending to new investments in F-35 combat aircraft. On the one hand, this may improve the deterrent capability of the Armed Forces, thereby enhancing Norwegian security. On the other hand, it may also lead to a gradual disintegration of the Army and Navy, because fewer resources are left to sustain and develop critical 'centres of excellences' within these two branches (Bogen & Håkenstad, 2015, pp. 272–5; Johannesen, 2016; Norheim, 2016, pp. 11–12). Another example is the re-location of scarce helicopter resources from northern Norway to southern Norway. To better protect the most densely-populated regions of the country from a potential terrorist threat, this could be seen as a rational move, as seen through the lens of the Air Force and their cooperation with Special Forces and the Police Force. From an Army perspective, however, this may lead to a critical shortage of tactical helicopter support in their primary area of responsibility, along the border with Russia (FMR, 2015; Bergstad, 2015).

At the crossroads between horizontal and vertical interaction, it may therefore be claimed that the armed forces, like most other organisations, are exposed to different forms of limited rationality. This corresponds with international research conducted by Richard Cyert and James G. March (1963), James G. March and Johan P. Olsen (1983), and James D. Thompson (2008), among others. The problem of interaction in ostensibly rational organisations is often due to the fact that organisational diversity

is spread (by the different military branches) over a wide geographical area. Isolated within their own regions or at the main bases at Bardufoss, Bergen or Rygge, individual services can more successfully negotiate and intensify their own specialist preferences. In this light, the Defence Staff at the military-strategic level in Oslo can be interpreted as an arena for negotiation and compromise between the services, which again inhibits full rationality (Thompson, 2008:134–139).

The scaling down of Defence Staff in Oslo and the subsequent re-location of service headquarters to the north, west and south-east of Norway in 2009, serve as examples. On the one hand, the Defence Staff in Oslo lost critical manpower and the expertise needed to coordinate horizontal activity between numerous units throughout the country (Thornes, 2014:76–77). On the other hand, the same re-location also strengthened the branch specific 'centres of excellence' connected to each individual service, which formerly suffered from scarce resources.

The cultural perspective

Interaction can also be comprehended from a cultural perspective. This is quite a different perspective compared to the instrumental interpretation presented above. Even though 'limited rationality' still prevails, it takes a more extreme form. The cultural concept is understood as '… a possession – a fairly stable set of taken-for-granted assumptions, shared beliefs, meanings, and values that form a kind of backdrop for action.' (Smircich, 1985:58) The main emphasis is not placed on the organisation's formal division of labour, established routines or top-down leadership. Instead, it rests more on an *institutional* understanding of the concept, as presented by Philip Selznick: the informal management, which develops from below in an upward direction over time, because there also exists '…an internal social sphere which must be safeguarded.' (Selznick, 1957/1997:20).

Adjacent to the formal horizontal and vertical processes described in the instrumental perspective, informal norms and values tend to become more influential. Within increasingly-specialised services, the 'centres of excellence' in the land, sea and air force units start to 'live a life of their own' in Bardufoss, Bergen and Rygge. This interpretation may not only

promote a rational division of labour, as explained in the instrumental perspective. As James D. Thompson has suggested, a rational and logical division of labour may also stimulate the development of subcultures. This is particularly so when power and authority are delegated to subordinate units, which have little contact with one another on a day-to-day basis (Thompson, 2008:140–143). As a consequence, inter-service rivalry is more likely to occur, because stronger and more long-term incentives for interaction are dwindling.

Rather than cultivating ideas for increased inter-service 'jointness', branch-specific guidelines and moral 'compasses' emerge within land, sea and air-based units. This is operationalised into land, sea and air defence doctrines, career plans and educational directives. Informal attitudes, like 'this is how it's done here', become more influential, also within the formal chain-of-command. Key questions, like 'How should strategic directives be executed?', or "What kind of military expertise should be prioritised?', become more greatly influenced by symbols, artefacts, rituals, parades and social events (Heier, 2014:227–230; Heier, 2017:95–96). These mechanisms are systematically developed and organised by the military services themselves. Over time, it shapes the way officers think, act and behave, both in relation to themselves and, not least, in relation to officers from other services. The culture developed within the services thereby becomes a kind of 'professional baggage' that shapes officers' identities. As the same officers operate within the vertical and horizontal chains-of-command, as described in the instrumental perspective, they carry this 'baggage' with them more or less unconsciously, as procedures and practises are performed in conjunction with officers from other services.

An important presupposition is that Norway's military branches normally exist at a safe distance from each other – geographically, mentally and in terms of expertise. The political and social control exercised by the Defence Staff in Oslo is therefore weakened. At the same time, the branches' image of their own basis for existence is strengthened. In the contrast between 'Us' and 'Them', investments in branch-specific materials, such as command and control systems, is given a real 'meaning'. Therefore, what is seen as 'appropriate behaviour' in one's own military branch will contradict overriding directives that favour 'unity of purpose',

interoperability and ultimately, a cohesive method of addressing common challenges. These so-called 'birth marks' are often created far back in time. They often lead to a 'path addiction', whereby the struggle for your own interests follows a route that has been marked by colleagues and superiors before you. They have 'a normative and institutional basis, which can differ entirely, depending on which development path [the military branch in question] has had, and what are established as predominantly informal values and norms.' (Christensen et al., 2009:54).

'The logic of appropriateness' (March, 1994), or 'what is appropriate behaviour in a military unit', is an equally important factor affecting interaction further down in the organisation. This may, for example, be related to questions about which communications systems should be installed on the Navy's frigates to interact more effectively with ground or air force units. Or which missiles the fighter jets should acquire to support the Army or Navy. Or which career path army officers should pursue in order to create leaders with a broader and more holistic perspective on 'jointness' and national defence. Army Headquarters strives towards "…a transparent ownership of Army personnel", even at operational level, where joint efforts between the services are made (Hæren, 2016). This may be a double-edged sword. On the one hand, it gives the Army important ambassadors to influence crucial decision-making processes, as scarce resources are the various branches. On the other hand, it may also contribute to friction and rivalry with a joint service, which is strained by incompatible goals and priorities (Johansen, 2015; Builder, 1989:67–92).

The introduction of joint information and communication systems between services serves as an example. Instead of providing the Commander of the Cyber Defence Unit with sufficient authority to implement a unified system, the Army, Navy and Air Force Headquarters are authorised to place orders for equipment serving their particular needs, each individually, through the Armed Forces Material Administration (Pedersen, 2015).

Cross-pressure and limited rationality

The individual, service-oriented acquisition of communication systems that other services cannot use, cannot be explained as a breach of loyalty

in the chain-of-command between the tactical services and the strategic Defence Staff in Oslo. Instead, it arises because the Chief of Defence has delegated responsibility to officers that are socialised into patterns that frame thoughts and actions (March & Olsen, 1989:27, 54–5). If the Army, Navy or Air Force do not recognise the strategic directives from the Defence Staff in Oslo, efforts to enhance holistic investments across the Armed Forces will fall short. The extent to which the services identify with the decisions made, and whether they comply with the Armed Forces' overall goals and interests, must also be taken into consideration. Therefore, subcultures specific to the military branches are capable of creating tension, which again makes interaction difficult. How can this be explained in more specific terms?

During the 2000s, the individual services' expertise and 'centres of excellence' have been subject to an 'economically-driven re-organisation of defence' (Måseidvåg, 2011). Consequently, protecting one's own tactical forces from closures and redundancies has become increasingly prevalent. This strengthens the explanatory power of the cultural perspective, in part because increasingly more service-oriented expertise in the Army, Navy and Air Force risk acting on the basis of 'self-preservation' and local *esprit de corps* rather than on the basis of overarching, strategic military considerations.

As pointed out in the *Dekanstudien* (Deans Study), conducted by the Norwegian Defence University Colleges in 2016, '…branch-specialised institutions of learning have developed…in isolation from each other'. It has been argued that this has impeded the emergence of 'common perspectives, common solutions [and] professional synergies' (Bjerga et al., 2016:2). Preserving branch-specific interests was also evident within the Air Force Academy prior to the re-organisation of the six university colleges in the Armed Forces in 2016. External consultants were hired by the Air Force to clarify branch-specific requirements. They found that 'Here, it is important to create a strategy in order to safeguard particular characteristics.' (NIFU, 2016:21).

The combination of scarce resources and strong, branch-oriented cultures seems to put military leaders under cross-pressure, caught between promoting critical expertise on behalf of the branch, and promoting a

broader national defence culture of 'unity of effort' throughout the chain-of-command. On the one hand, Commanders of the Army, Navy and the Air Force experience expectations within their own services. Such expectations are created by personnel whose primary point of reference is firmly anchored in their own military branch. This cultural 'baggage' is often also tied to 'paths' marched by former colleagues in the generations before them. On the other hand, pressure for unity and loyalty is also created in an outward direction, from the political establishment and the society in which the Armed Forces exist to serve. Politicians and the Chief of Defence expect loyalty from Commanders of the Army, Navy and the Air Force, even if it leads to the total disintegration of a Commander's own force. According to former Chief of Defence (2005–2009), Sverre Diesen, this tension turns the Commander's position into one of the most demanding jobs in the Armed Forces. They are expected to promote branch-specific interests when interacting with the Defence Minister and the Chief of Defence, and at the same time, are expected to assume an advisory role on holistic and comprehensive solutions, as the Defence Chief's closest colleagues (Diesen, 2011:241).

Conclusion

The purpose of this chapter has been to describe and discuss interaction within the Norwegian Armed Forces. By trying to gain more knowledge on why inter-service interaction is difficult, the chapter aims to answer the following question: *How can inadequate interaction between the military branches be explained*? In these concluding remarks, plausible answers of both a general and specific nature are presented. Thereafter, two implications for the future are derived.

Generally, a common denominator valid for both perspectives seems to be that Norway's Armed Forces suffer from 'limited rationality'. This logic resembles the *Bow-Tie Model* in Chapter 1 (Torgersen, 2018), which claims that interaction between the three phases, *Prevention*, *Loss of Control* and *Stabilisation*, are sources of concern. In this context, this is partly due to the fact that a military 'system of systems' consists of many different 'cogs', or organisations, which individually pursue their own goals. In

this process, they are also forced to compromise with other branches to reach their own objectives. A form of limited rationality therefore arises because the Army, the Navy and the Air Force act rationally, not on the basis of what serves Norwegian security best, but on the basis of what is rational for their specific branch.

Generally, it also seems as if 'limited rationality' arises because inter-service compromises and solutions are influenced by informal norms thriving inside the Army, Navy and Air Force. These are subtle cultures which remain entrenched within the services and may indicate that inter-action is characterised by both organisational and institutional traits.

The more specific answer to the question is therefore as follows: Inade-quate interaction within the Norwegian Armed Forces can be explained as a sort of cross-pressure. On the one hand, generating from formal authority exercised through the official chain-of-command and on the other, by informal authority exercised through the service branches' defi-nition of 'appropriate behaviour'. The ineffective use of scarce defence resources within Norwegian forces is therefore consistent with Peter Selznick's perspective, claiming that most organisations are *institutional organisations* (Selznick, 1957/1997).

What bearing does this have on the future? Formulated as a hypoth-esis for further research, it may be claimed that Norway's Armed Forces will continue to be a fragmented and heterogeneous organisation. More public spending will not necessarily lead to improved defence. As the Armed Forces gradually become more specialised, the informal author-ity deriving from the individual service's 'appropriate behaviour' will increase. Thus, the continued deployment of small tactical capabilities to international operations, so-called 'niche capabilities', is likely to accel-erate this trend; branch specific engagements abroad will, despite a joint operational framework, promote more autonomy within the Army, Navy and Air Force.

However, fragmentation and inter-service rivalry may not necessar-ily mean that defence resources are wasted. Lack of interaction may also increase defence output, even though it may be more difficult to meas-ure in quantitative terms. A positive side of fragmentation may be that cohesion within the individual branches is strengthened. This aspect

is crucial, as Norwegian forces occasionally enter some of the world's most challenging combat theatres, such as those in Syria, Iraq, Afghanistan and Mali. As fragmentation and inter-service rivalry also foster a stronger *esprit de corps* and identity within individual 'centres of excellence', scarce resources may also help to create a highly-valued output.

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Samhandling and Trust in Military Leadership Structures

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Abstract: The purpose of this chapter is to discuss the importance of trust in military *samhandling*. Trust serves as one of the main prerequisites for effective collaboration (Kouzes & Posner, 2003). The Norwegian Armed Forces' (NAF) core business is the planning and execution of military operations (Forsvarsstaben, 2014). One of the main tasks of the NAF is to plan for the unexpected and, ultimately, for war. The chapter further discuss trust in military leadership, and leadership and situational awareness. Leadership as a social interaction process that builds trust is discussed, and *samhandling* is seen in a military context. A basic "trust-based model" of *samhandling* is introduced and viewed in terms of internal and external framework factors. The chapter concludes that trust is still quite an open concept, and that trust is essential for the effective accomplishment of military missions. The basic trust model is an attempt to underline understanding of the importance of trust in a military planning and leadership context.

Keywords: *Samhandling*, interaction, trust, military leadership, preparedness, organizational learning, unforeseen.

Introduction

We begin this chapter with a short introduction to the importance of trust in the military. The purpose of this chapter is to discuss the importance of trust in military *samhandling* (interaction, cooperation). We then continue to discuss trust in military leadership, and leadership and situational awareness. After this, we continue to discuss leadership as a social interaction process that builds trust. We then introduce *samhandling,* discussing this in a military context. After that, we discuss what military leadership is and explain military leadership structures. We then introduce a basic trust-based model of *samhandling* and discuss the model and its elements in terms of internal and external frame factors. Finally, we conclude that trust is still quite an open concept, and that trust is essential for the effective accomplishment of military missions. Our model is an attempt to pinpoint the understanding of the importance of trust in a military planning and leadership context.

The importance of trust has long been recognized (see for instance Stouffer, Adams, Sartori & Thompson, 2008). Trust also serves as one of the main prerequisites for effective collaboration (Kouzes & Posner, 2003). The Norwegian Armed Forces' (NAF) core business is the planning and execution of military operations (Forsvarsstaben, 2014). One of the main tasks of the NAF is to plan for the unexpected, and ultimately for war. The nature of warfare itself is distinguished by uncertainty and randomness (Clausewitz, 1832/1976). Warfare consists of many complex factors. The unforeseen is by no means a closed concept, it is rather a relatively open expression (Kvernbekk, Torgersen, & Moe, 2015). In the military context, the essence lies in forestalling the unforeseen in the best possible way, through gathering intelligence, planning, structured training and learning. *Samhandling* is needed to make this happen.

The core of the concept of *samhandling* is closely related to leadership. In a military sense, we can say that it is about gaining experience and learning from each other during the process (Torgersen & Steiro, 2009). For the NAF, *samhandling* is about the ability to lead planning of military operations as effectively as possible. There is broad agreement that trust is an important factor of interaction between different participants within an organization (see for instance Delhey, Newton, & Welzel, 2011). Trust

can be considered as the willingness to be vulnerable to the actions of another group member (be it a leader, subordinate or colleague), based on a sense of security towards another group member (Sweeney, Lester, & Matthews, 2011).[1]

The purpose of this chapter is to discuss the importance of trust in military *samhandling*. Specifically, we discuss the importance of trust when planning, leading and executing military operations, which by their nature occur under complex conditions.

Trust and leadership

Trust in military leadership

In the research literature, there is an ongoing and not-unexpected discussion about how the concept of trust should be defined and understood (Sonnenberg, 2015). Trust is a tool that helps individuals to deal with uncertainty and in a better way expect different outcomes (Luhmann, 2000). Kramer and Tyler (1996) highlight the idea that trust helps us dare to work with others to solve common tasks. Piotr Sztompka (1999) defines trust as: "a bet about the future contingent actions of others." (p. 25). This definition seems fitting for our purpose. It assimilates very well the unforeseen, and we find elements of *samhandling* implicit in the definition. So far, there is no complete definition of trust in a military sense (Brandebo, 2015). Trust is not new regarding *samhandling*. According to the renowned scientist Elinor Ostrom, trust and interaction are as old as humanity itself (Høyer, Kasa, & Tranøy, 2016). Trust and *samhandling* are therefore fundamental to our existence.

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1   Trust is necessary and essential for a leader to be able to exercise influence in combat. Soldiers who trust their leaders allow them a greater degree of influence regarding the soldiers' readiness to follow directives and motivation to perform duties to complete missions (Sweeney. Lester, & Matthews, 2011). Trust is a psychological mechanism that gives the personnel a feeling of security, even in dangerous situations, and the necessary willingness to accomplish what it takes to solve the mission. The leader must earn the trust of his/her group members through actions and communication. If the soldiers trust their leader, they will provide him/her with clear and timely information. They will not hesitate to give their own personal opinions, which can be very useful. In addition, they get used to voicing possible problems and possible solutions to their leader (Sweeney, Lester & Matthews, 2011).

In recent years, the concept of trust has come under pressure. We see this for example in relation to the implementation of New Public Management (NPM), also in military governance. The basic idea of NPM is that the public sector can be made more efficient through the use of organizational structures from both the public and private business sectors (Busch, Johnson, & Vanebo, 2002). According to Bryson, Crosby and Bloomberg (2014), NPM arose out of a concern with government failures, a belief in the efficacy and efficiency of markets, a belief in economic rationality, and a push away from large, centralized government agencies towards devolution and privatization. NPM refers to a broad trend of institutional developments, implying that principles of governance inspired by private organizations should replace the hierarchical structures of old bureaucracies in the public sector (see e.g. Almklov & Antonsen, 2014; Christensen & Lægreid, 2001, 2007; Dunleavy, Margetts, Bastow, & Tinkler, 2006; Hood, 1991). NPM as a "control doctrine" has its roots in liberal politicians' underlying mistrust of staff and decision-making in the public sector (Busch, Johnson, & Vanebo, 2002). NPM is not a topic as such in this chapter, but it is worth mentioning because NPM in military governance challenges our message that trust is crucial for leadership in the military.

Leadership and situational awareness

Martinsen (2005) states that leadership matters. We argue that this also applies in today's network-based NAF, where one might think that the picture of any situation is very well distributed and understood, so that no particular intervention is needed from one side or the other. The concept of situational awareness (SA) is used to describe the condition in which a person, group or organization has both an overview and understanding of a situation. Endsley (1988) has defined SA as "the perception of elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future" (Endsley, 1988:97). This is fundamentally problematic, because no humans perceive things alike. A realistic SA, therefore requires leaders who work with the community and activate all the resources of a team (Forsvarsstaben, 2012). We shall see later that SA is

closely related to the concept of sensemaking in military leadership and planning processes.

The key trends during the last 100 years of research on leaders and the importance of leadership show that leaders' personality traits, intelligence and leadership behavior can have a good to very good effect on efficiency and profitability. Charismatic and transformation-oriented leadership also has a good effect. The quality of the relationship between leaders and co-workers also has an impact on efficiency and profitability (Martinsen, 2005). Good and effective leadership is mainly about creating good results through others. The results created together in the NAF contribute to an increased operational capability. It is therefore sensible that the political leadership of the NAF has selected leadership, competence and a culture of continuous improvement as the most important areas for further development (Forsvarsstaben, 2014).

Leadership as a social interaction process, building trust

Yukl (2012) defines leadership as a social interaction process. Leadership is about relationships and jointly developing a good environment in the group. Good relationships affect work performance and achievement in a positive way. Decentralization gives the leader a particular responsibility to develop leadership into a collective process. To describe leadership as a collective process is a necessary consequence of the leadership philosophy behind mission command. "Mission command" (Ben-Shalom & Shamir, 2011) is referred to as *oppdragsbasert ledelse* (OBL) in Norwegian (Forsvarsstaben, 2007; 2014).

The leader will always have an overall responsibility to make sure the team functions and develops and that results are being achieved. Taking part in this responsibility contributes to trust and to an overall understanding, which in turn helps the hierarchy to function when needed. (Forsvarsstaben, 2012). In addition, military leadership requires – if it is to be good and efficient, that the leader exhibits balanced leadership behavior. This leadership behavior can be categorized by three primary target areas: 1. mission focus, efficiency and performance; 2. teamwork,

activation of human resources; and 3. development, innovation and adaptability (ibid.). In Norway, military leadership is about balancing these areas in a natural and credible manner. Embedded within this, trust is a subliminal force that enables social interaction between people.

Military leadership is about the leader's characteristics and behavior, and the interaction between leaders and subordinates. Besides this, several external factors, that is, system variables such as organizational structure, situation, context, and coincidences, may affect leadership (Forsvarsstaben, 2012.) This means that leaders, in cooperation with subordinates, in at targeted manner structures, organize, influence and legitimize the business. Therefore, we may suspect that trust in *samhandling* has a significant function, in that it contributes significantly to the effective accomplishment of military missions.

Samhandling in a military context

The concept of *samhandling* is, as we have seen, a relatively open expression. The concept is used in many contexts by agencies, companies, researchers and textbook authors (Torgersen & Steiro, 2009). The term is also closely related to leadership and trust. We will look at some of them and then put the concept into a military context. At the same time, the concept of *samhandling* is utilized at both organizational, group and individual level in connection with strategic management, competency management, education and training, where the technology structures are also included. Torgersen postulates that the concept of *samhandling* has an effect on all sectors and levels (personal communication, September 29, 2016). Over time, the word has also gained importance as an action, or interaction, in the interface between people, organizations, groups, departments, etc. This makes it particularly interesting in relation to the NAF, where the planning and execution of operations are strongly influenced by *samhandling* ability both within units, between units and between organizational elements and -levels.

The concept of *samhandling* is applied in the Norwegian Armed Forces Joint Operational Doctrine (FFOD) from 2014 (Forsvarsstaben, 2014). In FFOD, *samhandling* deals with both processes between people, between

the structural elements and levels of the organization, including the conversion of political ambitions into military operations. Among other things, this document states that "The *samhandling* between levels is dynamic and goes both ways, as well as *samhandling* with sibling entities, such as civilian agencies or allied headquarters and forces." (author's translation). The term is also used in conjunction with inter-operability, i.e., the ability to operate together. The latter is significant in relation to effective accomplishment of missions and is related to trust, in that trust contributes to better and/or more efficient *samhandling*.

In military literature outside of Norway, we find a similar, if not identical meaning for the term. In English, often-used terms are cooperation, collaboration, coordination or most commonly, interaction. *"Leaders could influence the efforts of subordinates by clarifying their roles and developing their abilities, organizing the structure of work, encouraging* cooperation and teamwork*,"* (Horn & Walker, 2008:494), is one such example in a military context. Another is; *"Leaders must be able to lead, but they must also be ready to liaise, persuade and cooperate, whoever the protagonist or strange the environment."* (Jans, Mugford, Cullens, & Frazer-Jans, 2013: preface). And, *"The performance of an organization depends in part on the level of cooperation and coordination among interdependent leaders."* (Yukl, 2015:466). This shows that the English equivalents of the term *samhandling* have embedded both key elements of group and team theory, as well as elements of general leadership theory. We can also clearly see implicit elements of interaction and trust.

The absolutely-essential element in military planning processes – that is, their outcome, is effective accomplishment of missions. The object, or the desired final end-state of the operation, always has the main focus. To achieve this, the process is dependent upon several factors. Trust is possibly the most important because it is essential for effective decentralization, dealing with unplanned events, making the most of skills and expertise, and targeted initiatives and drives (Forsvarsstaben, 2012). Effective planning and control of military operations requires, among other things, good leadership (Forsvarsstaben, 2014) and the establishment of SA (ibid.). Since trust is presumably essential for efficiency, the leader's role and his or her ability to convey the intent and desired

end-state becomes important to both trust and SA. Establishing SA, often a common one, is a challenging task. The leader produces and delivers (*read:* communicates), on the spot, a translation of his/her perception that is consumed by "users". In our case, primarily staff and/or subordinate commanders. Shared mental models are important when it comes to establishing a common SA (Endsley, 1995). However, different conditions can complicate communication, including the ability and willingness to transform the leader's intention into practical action (Forsvarsstaben, 2014). This therefore requires trust and *samhandling*.

We argue that the quality of *samhandling* is dependent on both the commander's ability to exercise discretion and framework factors in the communication situation. One factor may be the leader's relationship with those that he or she interacts with. Saltnes Urdal (2015) argues that when services are provided in collaboration with the users' requirements and participation in the situation, the users (for instance, the staff) will help to create the service and act as co-producers. *Samhandling* in the communication process is, as such, a mediator in relation to avoiding misunderstandings.

Military leadership

Leadership in the NAF does not occur in a vacuum; it happens together with other people (Forsvarsstaben, 2012). Leadership is a relational concept that presupposes a mutual collaboration between leaders and employees. Therefore, leaders in many ways are also team players (Glasø, 2008). All military planning and leadership processes involve *samhandling* between two or more people. *Samhandling* takes place not only between individuals, but also with leaders who take overall responsibility and cooperate across organizational boundaries (Forsvarsdepartementet, 2014). Knowledge and trust in each other is important. Trust is described as the main cornerstone of the NAF leadership philosophy: Mission command, or *oppdragsbasert ledelse* (OBL) in Norwegian (Forsvarsstaben, 2012). OBL highlights leadership through common attitudes and a common approach, rather than management through strict rules and over-control.

Trust is essential for this process to take place effectively. This applies at all levels. Effective processes require, among other things, cooperation across the whole range, i.e. between individuals, between groups and organizational elements, and between organizations and organizational elements. The latter is usually called "organizational *samhandling*" and trust is highlighted as a key prerequisite for its success (see Gottschalk & Solli-Saether, 2008). The leader of the current level can be considered as a "team leader". The leader is responsible for identifying and defining the assignments, deciding what should and should not be done in a team process (Hjertø, 2009).

According to Parrington and Findlay (2013), one of the leader's most important tasks is to build and maintain trust. The importance of the military commander in leading planning processes has been written about extensively in military doctrines and military leadership literature. It is clear that the leader alone cannot achieve this. *Samhandling* is required. The term *samhandling* has, until very recently, been used relatively infrequently in a military sense in Norway. In the Norwegian Armed Forces Joint Operational Doctrine (FFOD) from 2014 (Forsvarsstaben, 2014), the concept is utilized to a certain extent. This doctrine is a normative document that discloses principles in connection with the planning and implementation of joint operations, in addition to other things. FFOD is also a learning tool that is intended for the NAF schools and educational system (ibid). In the doctrine, the importance of *samhandling* between different subsystems, between people, and between departments and systems is emphasized.

These doctrinal, or normative documents very often describe ideals. When it comes to practice, our experience is that the reality is much more complex. In fact, the doctrinal reality often becomes too hard to practice, and may in many cases be abandoned.

Military leadership structures

To better understand *samhandling*, trust and efficiency, it is important to look closely at how military forces (*read:* units) are organized, and which leadership structures we find. The organization and the formal structures

form a framework for how *samhandling* and trust can be created and acted upon. The NAF is a highly hierarchical organization, and the organizational form is the result of centuries of development. The organization (structure) itself is, however, not enough to create interaction or trust.

The organizational structure should be an instrument for solving problems, creating transparency, predictability, and effective communication within the organization (Torgersen & Steiro, 2009). The current organization of military units is a *result* of the tasks that must be solved most effectively. Military forces are hierarchically organized in groups and units of varying sizes. There is a formal leader in each group/unit and at every level. This means that there are many leaders. We like to think that leaders are often people who would like to get something done, meaning that they have an inner drive. This can function as both a support and as a hindrance for *samhandling* and output, the effective accomplishment of missions. The leader has formal authority or power through his or her position and rank. That does not mean that the leader's power is always legitimate. Power is founded on various "power bases": respectively, reward power, coercive power, legitimate power, reference power and expert power (Vecchio, 2009). The leader is, nevertheless, a central figure.

The organizational form of military organizations is a line and staff organization, which can be traced back to the organization of the Prussian army at the end of the 18th century (Nytrø, 2006). As mentioned before, the organizational form is chosen based on the desire to have the most effective accomplishment of the assigned missions. The organizational form still has its challenges. The line organization executes the mission, and the staff are intended to provide a supportive function, in principle. Unfortunately, it is never as easy as this. This is presumably valid for many organizations. There are several assumptions that must be present for *samhandling* to function effectively. Trust is one of them, perhaps the most important. The leader must trust that the staff possesses the competence he or she alone does not have. The staff must have faith in their leader to trust the knowledge of the specialists and what they do, and that he or she gives them the necessary leeway, direction and support.

Effective *samhandling* can only take place if the line organization and the staff trust each other. Unfortunately, that is not always the case. This

may ultimately result in unnecessary casualties. On the other hand, too much trust can also lead to challenges. A survey conducted by the Office of the Auditor General in Norway (Riksrevisjonen, 2011) has shown that the existing culture of the NAF is based on trust. This culture of trust has, in some cases, lead to inadequate internal control procedures because of the mutual trust between the staff members. Certain procurements were carried out contrary to the current regulations (Boe & Kvalvik, 2015).

To mediate this, military forces have introduced a command and control (C2) system consisting of personnel, materials, methods and procedures (Forsvarsstaben, 2014). C2 is central to integrate, synchronize and control military operations across units, both horizontally and vertically (Andersen & Ødegaard, 2016). Hence, it can be viewed as a typical control system. We might ask ourselves whether C2 contributes to more and/or better trust. We assume that the system should at least be able to facilitate increased and/or better *samhandling*. Military leadership structures are not in themselves enough to either promote or maintain *samhandling* or trust. The processes in planning operations must be lead, and leadership, as we have seen, has a clear interactionist perspective (Wadel, 2012). Wadel also highlights the relational perspective of leadership.

We have seen that trust is at the core of any relationship. We can therefore argue, with good reason, that trust is also the core of leadership, since leadership is just about relationships. According to constructivist theory, language creates meaning (Bruner, 1990; Skagen, 2013). Opinion formation also takes place in the leadership process. We can refer to this as a *collective relational reality orientation*. Consequently, our questions are: How often do we talk about trust in our own practice? Or, in other words, how often do we use the word "trust"? Can it be that the more often we talk about trust, the greater the importance of the concept? Do we see here the seeds of a new and improved practice in the planning of military operations?

Therefore, trust can only be considered if one understands how such collective relational realities function. C. Grenness (personal communication, September 27, 2007) points out that for the leadership process to be more efficient, we must learn to communicate about the relational reality (e.g. implicit norms, culture), and begin with simple, dynamic conversations. What do we think and feel about trust in our own organization? This

has implications for dealing with the unexpected. By talking about trust and thereby creating a collective relational reality, it will open up for a collective formation of opinion. This can enable us to relate more effectively to the basic issues and problems, so that they can be addressed and resolved.

A basic trust-based model of *samhandling*

Trust is thus the core of all relations, also in a military context. We find it therefore natural to put trust into a basic model, using a *relational model for learning methods* (Figure 17.1) as a starting point. There are many factors that affect trust, specifically *samhandling* and relationships within and between the individual elements in the model (numbered 1–6). The model is primarily designed for joint military operations.

Trust in *samhandling* is essential for any effective mission accomplishment. This may seem obvious, but it is dependent on many elements. The model in Figure 17.1 is an attempt to simplify a very complex reality and should be understood as such. The model is a draft of such a context and may provide a starting point for analysis and reflection, as a basis for improved practices. It has its origin in a slightly processed version of the
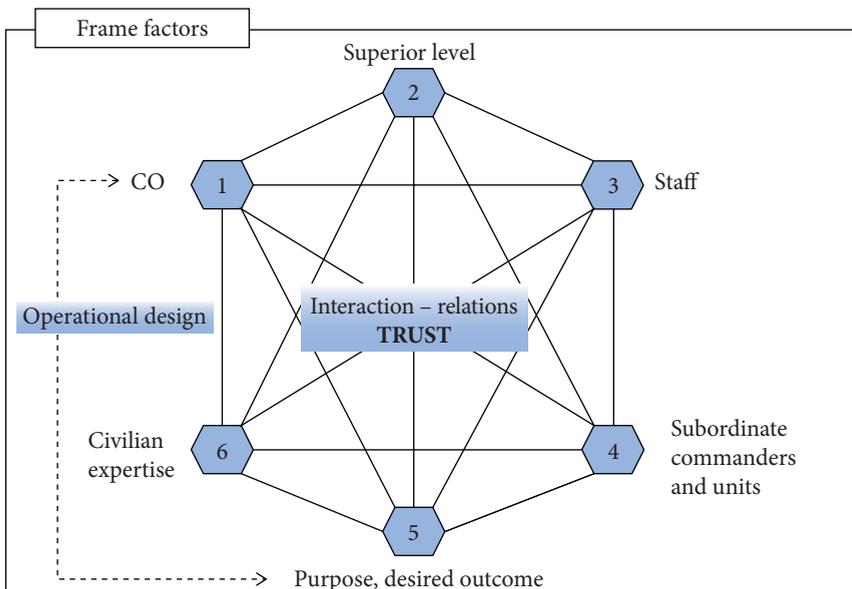
Figure 17.1 A basic trust-based model of *samhandling*

relational didactic model (Pettersen, 2005). *Samhandling* – and probably the most important factor *trust* is obvious in this context. Perhaps the model can also help to see planning and leadership processes from a fresh perspective.

Pettersen (2005) points out that models for learning methods, in principle, have been developed from a teaching perspective where learning is central. For our purposes, such an approach is nevertheless applicable. In the attempt to clarify interaction and the relationship between the different elements, we must consider all efforts involved in analyzing, planning and carrying out military operations. Specifically, this means that when we reflect on, analyze and act in relation to one element, we must also consider the other elements, because choices and/or decisions related to one element will have consequences for the others.

In military terms, this means that the planning and execution of military operations is essential if one wants to forestall the unforeseen in the best way possible, as stated in the introduction. This occurs through intelligence, planning, structured training and learning during the process. *Samhandling* is therefore necessary to make this happen. It therefore seems appropriate to have a relational learning perspective on military planning and leadership processes.

Figure 17.1 is an attempt to simplify the complex processes that may occur in planning and executing military operations. Trust is at the core of the model and may be considered as the prerequisite for effective *samhandling.* The entire planning process for joint operations is not the intention of this part of the chapter. This is described in NATO's planning doctrine, AJP-5 (NATO, 2013).

Planning and leading military operations are influenced firstly by a set of external frame factors, such as the current policy, military strategic ambitions, laws, agreements, conventions and available forces. The external frame factors affect all the elements, especially the Commanding Officer's (CO, no. 1 in the above figure) opportunities to achieve the purpose or desired outcome of the operation.

There are also internal frame factors in the model. These are matters within the participants' control and maneuverability. They are conditions that the organization and the participants as a collective have designed

and determined (ibid.). This may involve specific plans and models for the planning and execution of an operation. The *operational design* can be said to be such an inner frame factor. This will be explained later.

The central theme of the model is mutual relations, including *samhandling* and trust as its core elements. Without *samhandling* and trust within and between the elements, the mission will not be accomplished effectively. The desired outcome then becomes difficult to achieve.

The planning and leadership process is also affected by these interdependent elements:

(1) *The Commanding Officer (CO)* is responsible for the military force's overall operations, a responsibility which he or she cannot delegate to others. The CO will primarily act through his or her staff and the line organization (Forsvarsstaben, 2014). The CO influences the staff through their leadership style and understanding of the situation, i.e. mission, frame factors and the time factor (Nord & Andersen, 2016). The CO always has the primary responsibility for achieving the purpose or desired end-state of the operation[2]. This is the reason the arrow is pointed towards the end-state in the model.

In addition, there is an area that lies between the leader and the desired end-state –*the operational design*. The operational design is a tool for internal communication and is a separate attachment to the operational plan. This deals with two things: The operational framework and the leader's intention (Ljøterud, 2016). Operational design is intended to give the leader the leeway he or she needs to transform the decisions into activities that can accomplish the mission most effectively. This requires a high degree of SA, *samhandling* and trust. We can certainly say that this is an inner framing factor.

(2) *The superior level*. In modern Norwegian society, the military forces are politically governed. This means that military leaders do not

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2   We should not forget the CO's chief of staff (COS). He or she is often the key to the optimal accomplishment of the internal processes within the staff (Ljøterud, 2016).

have the same leeway that they would have in a military dictator-ship, for instance. The superior level is, therefore, a particularly important element in planning and accomplishing military oper-ations. The superior level can interact with the CO, which is most common, or directly with the staff and subordinate levels. The lat-ter has become more widespread because of the implementation of new information technology, which makes it easier to monitor any situation.

(3) *The staff* will always work on behalf of the leader and pave the way for those who fight the battles, that is, subordinate units and lead-ers. They have a mutual influence on each other. The staff also helps the CO to focus on the big picture and to think ahead.

(4) *The subordinate commanders and units* are both the CO's and the staff's advisors, in addition to being those who carry out the mis-sion. This element is therefore extremely important for an effec-tive accomplishment of missions. Here one will often find a lot of expertise concerning the conduct of joint operations. They interact closely with the CO and the staff.

(5) The *purpose* or desired *end-state* (of the operation) – is the overrid-ing focus. The solution or intended achievement of the operation always takes first priority. That is why there is an arrow between the leader (CO) and this element. It might be argued that the pur-pose or desired end-state for any military operation is not a sepa-rate element. This means that it consists of individuals who interact directly with the other elements in the model. We would argue that this is not quite the case. The reason for this is that planning and leadership of military (joint or joint/combined) operations require integration and coordination. This is closely related to the *what* of didactics. That is what we are trying to do and intend to achieve. In the military sense, this relationship becomes clear in that we primarily need to find out *what* the military force is supposed to achieve before we launch the operation. This requires *samhandling*, which in turn requires a dynamic process where the formulation of purpose(s) is constantly subject to change. These dynamics will consequently have implications for the other elements in the model.

(6) Last, but not least – *Civilian expertise.* All military operations affect civil society in various ways. The use of civilian expertise in planning military operations is, therefore, a central element that can help to provide detailed knowledge of the operation area, including topography, infrastructure and the civil population (Ljøterud, 2016). Integration of civilian expertise may therefore contribute to better *samhandling* and mutual trust between the civilian society and the military organization. This will, in turn, affect the desired outcome.

Conclusions

The purpose of this chapter was to discuss the importance of trust in military *samhandling*. The most common notion of trust seems to be of a psychological nature (Brandebo, 2015). This means that trust has a perceived vulnerability or risk. Individual perceptions of others' motives, intentions and actions are important. Trust in *samhandling* becomes particularly clear in a military context, in which vulnerability, risk, unpredictability and uncertainty affect the situation. Therefore, it is crucial that both military leaders and subordinates trust each other. That means, among other things, that they both need to act dutifully and not expose each other to unnecessary risk.

Trust is still a relatively open concept, perhaps especially so in the military sense. With a high degree of certainty, we can say that trust is the core of military relations and is crucial for effective *samhandling*. Trust is, therefore, of the utmost importance for the effective accomplishment of military missions and for maintaining a durable contract between the NAF and a democratic Norwegian society. Anything else is fictitious and can have potentially devastating consequences.

We can conclude that trust in and between military leaders is not only essential for the effective accomplishment of missions; trust is also crucial in terms of mental and physical well-being (Brandebo, 2015). To quote Brandebo further: *"Trust in leaders has been highlighted as a core variable and a prominent mechanism for subordinates' well-being, job satisfaction and motivation, amongst other things."* (Brandebo, 2015:128–129). This quotation clearly emphasizes the importance of trust.

The model presented in this chapter will hopefully contribute to an enhanced understanding of the importance of trust in a military planning and leadership process. Planning and executing military operations is a complex process. Trust is at the core of the model and may be considered as a prerequisite for effective *samhandling*. Trust serves as the "glue", helping to streamline and more effectively accomplish any given mission. By identifying both the external and internal frame factors, as well as the individual elements of the proposed model, it is possible to develop and implement specific strategies and educational programs in different areas of the NAF. In addition, we also think that our model may be useful for other types of organizations similar to the NAF, known as high-risk organizations (Picano & Roland, 2012). Trust is also a very important factor for *samhandling* for them. It is possible for these organizations to use the model, adapting it to their specific, organizational needs.

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Didactics and Innovation in Collaboration for the Unforeseen in Training Practice Preparation

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Abstract: The objective of this chapter is to improve collaborative practices and exercises, taking the unforeseen into account. The major focus is on the process of making collaboration exercises and the planning phase of these potential learning situations. Two educational perspectives will be explored in order to improve the planning work itself and, possibly, also training for the unforeseen. The use of social technology, together with didactic thinking, may enhance the extent and quality of collaboration training. Planners also need to deliberate upon the importance of "standard" or traditional exercises in combination with collaboration, seeing the whole picture and the exercise as a program. On the other hand, it is of vital importance to train in the realms of the unforeseen, entering the uncharted waters of learning outside known territory.

Keywords: *Samhandling*, interaction, collaboration exercises, didactic, planning phase, unforeseen.

Introduction

The fear of being "the fool", or showing that you do not know something, shuts down investigative, exploratory practices. This is not ideal but it is highly understandable. The thinking in this chapter needs to be tested empirically, measuring it on the premises of increased collaboration and the perceived degrees of the unforeseen in exercises. Innovative collaboration training is not carried out, probably because the people involved do not have time to do it. The objective of this chapter is to improve collaborative practices and exercises, taking the unforeseen into account. Collaborative practices in this text are referred to using the Norwegian term *samvirke*, which I perceive as leaning slightly closer to inter-organizational interaction than either of the Norwegian words *samhandling* or *samarbeid*. Chapter 1 (Torgersen, 2018) in this book provides a thorough discussion of these nuances.

This chapter reflects on the process of making collaboration exercises and the planning phase of these potential learning situations. The chapter dwells not on the exercise itself, but on the planning and preparatory phases of such tasks. Two pedagogical or didactic[1] perspectives will be explored in order to improve planning work itself and possibly training for the unforeseen. In this work, I argue that the use of social technology together with didactic thinking, may enhance the extent and quality of collaboration training. This chapter reflects a semantic theoretical construction (Kvernbekk, 2002), merging two practical and theoretical perspectives: Innovation pedagogy (Darsø, 2011) and the didactic planning tool or diamond (Bjørndal & Lieberg, 1978). These theories are not merely used to describe practices (Kvernbekk, 2005) but also to create new and different, innovative emergency-planning practices.

Exercises are related to the "unforeseen" and the Bow-tie Model (see Chapter 1) in two ways. Firstly, they relate to the third phase – stabilization. The topics practiced in exercises will often relate to the practices following the handling of something unforeseen. Secondly, this text explains how exercise planners can train themselves, addressing new training topics which relate to risks we do not know. It is about systematic,

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1   E.g. Theories of learning and teaching practice(-s), or in an anglo-saxon tradition; education or curriculum studies.

experience-based probing into the unforeseen in training planning. I will point to procedures and roles that can enrich planning processes to create ideas for practicing the unforeseen.

The educational concept of the unforeseen in a didactic framework can influence the choice of content, methods and evaluation. Furthermore, it is related to phenomena such as knowledge, learning, outcomes, judgement, and collaboration (Torgersen & Saeverot, 2015:20). The unforeseen can be contrasted with the predictable or the foreseen. The epistemological source of the unforeseen lies in the realms of our incompleteness of thinking (human error) and in the ontology of an unpredictable world in which we feel we have no control (Kvernbekk, Torgersen, & Moe, 2015). From this viewpoint, the need to address the unknown in educational practices within the field of emergency preparedness is urgent. If the unforeseen is rarely addressed in training/learning situations, the exercise can become ritualized and follow predetermined scripts, known to all and an objective in itself.

During fieldwork on naval exercises (Kristiansen, Löve-Sörensen, Carlström & Magnussen, 2017), I have noticed that what is going to happen and the topic are decided first. People jump to conclusions about exercise goals and content. This represents a possible early closure of the possible topics trained. From that point onwards, planning is reduced to task distribution, and basic project management for producing tasks and Gantt diagrams. This is also important, but may cause one to lock-on-target too early, reducing the possibility to prepare for the unforeseen. Depending on the scale of the exercise, the planning partners may develop their own training objectives to ensure learning in their home organization. Another point is that while the objectives may be loosely linked to the exercise, the training "lives a life of its own", and the evaluation ends up as something different. Overall, I analyze these challenges from an organizational didactic perspective. Organizational didactics are defined as "… a discipline focusing on the interaction between training and organizational structure, business and management/leadership." (Torgersen & Steiro, 2009:65) Didactic tools offer planners (teachers) help in their reflective thinking on different aspects of organized learning activities. They highlight the interconnectedness between different educational or planning variables.

Personalities and collaboration theory

Personality tests such as Myers and Briggs type indicator (MBTI) (Myers, 1998) or the Jungian Type index (Ringstad & Ødegård, 2012) refer to judging personality types according to one of four dimensions. People possessing traits such as "J" (Judging types) can become stressed by too much flexibility, emphasis on re-evaluating tasks, and dealing with surprises. They prefer order and structure, producing significantly fewer possibilities in creative tasks. These personality types can often be found in the environment of emergency preparedness and in planning groups, and among managers in general. Thinking and judging (TJ) are typical traits found within groups of military and police leaders (Storr, 2009:174), where organizations are hierarchical, predictable and structured.

Collaboration (*samvirke*) within and between different public bodies developed as a popular work methodology among different public entities in the late 1980s, as a counterweight to an era with a competitive climate. Recent research underlines that collaboration is both more useful and effective than individual initiatives (Berlin & Carlström, 2013; Jamal & Getz, 1995). The concept of collaboration in organizational thinking is often related to improvement and integration.

However, even if collaboration is perceived as useful, it needs to be stressed that from an emergency-management perspective, most incidents are solved within the boundaries of "blue light" organizations. This is the way it should be. It is in situations where the mission is not solved by one participant alone, or where resources of time and personnel are sparse and limited, that the need for collaboration emerges at both a ground and strategic level (Andersson, Carlstrom, Ahgren, & Berlin, 2014). Hurricane "Dagmar" is a relevant example.

Theoretically, a horizontal collaboration is a process in which different participants work together, devoid of all pretense, to solve a common problem (Berlin & Carlström, 2008; Jamal & Getz, 1995; Martin, Nolte, & Vitolo, 2016). Collaboration is divided into four subdivisions: vertical, horizontal, formal and informal (Berlin & Carlström, 2009).

A *vertical perspective* addresses different relationships in a top-down or bottom-up perspective. In short, it is about various hierarchical levels and the collaboration between superiors and subordinates. Such levels

differ in extent and numbers. Long, vertical command chains can be a challenge in emergencies that demand clear and rapid decisions.

Horizontal collaboration describes an idealistic relationship between equal partners. To become equal, the collaborating partners must agree upon a joint, equal sharing of responsibilities and resources. A horizontal collaboration model is unlikely to be affected by the need for speed and certain decisions in an emergency.

Formal collaboration refers to rules, legislation, treaties and agreements that divide tasks between the participating parties. Such rules or guidelines frame individual tasks and responsibilities. Leaders or government authorities often develop such guidelines. On the one hand, such guidelines contribute to clarity and predictability. On the other hand, too many details in such guidelines can create organizational barriers in emergencies. Problems emerge when situations follow new pathways or develop in terms of urgency and complexity. Something outside of the well-known routines is needed from both organizations and leaders. These situations demand experience and "gut feelings" (Kahneman & Klein 2010), enabling those involved to rise to the manifest challenge. This represents a shift in command and control thinking, from *befehlstaktik* towards *auftragstaktik* (Stewart, 2009)[2].

Informal collaboration can be found in written and unwritten routines and agreements. In emergencies, some groups collaborate with more ease, due to mutual situational awareness, trust, or a common background.

Collaboration does not occur because of the event per se. Collaboration demands voluntarism. The participant needs to see the usefulness of collaboration and be willing to work across organizational and professional boundaries to achieve a common objective (Andersson et al., 2014). Even though there is a contemporary emphasis on emergency training and exercises, research has found that collaboration is more than a rhetorical expression. It is something of practical value in relation to managerial challenges, asymmetry, uncertainty, and lack of trust (Berlin & Carlström, 2011). To achieve a higher degree of collaboration in actual

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2   This relates to whether military orders should be performed blindly, or adapted to the situations, encouraging the soldiers to be flexible when they are solving their orders.

emergencies, exercises need to have an increased focus on learning and evaluation.

Training for the unforeseen places creativity and new practices up front in training priorities. Common ground needs to be established, where different organizations and practitioners can meet to learn from and alongside each other. Better relations, communications and the ability to collaborate can be developed through getting to know each other's organizations, strengths and challenges (Gnyawali & Madhavan, 2001). Furthermore, if the unforeseen is taken into consideration, collaboration practices will be challenged by bridging the gap.

Tools for didactic planning
The Diamond Model

Bjørndal and Lieberg (1978) present a model or didactic tool to help teachers improve their planning processes. The model (Fig. 18.1) accentuates the relationships between the purpose of training (education), objectives, learning prerequisites, framework conditions, content, methods and evaluation.
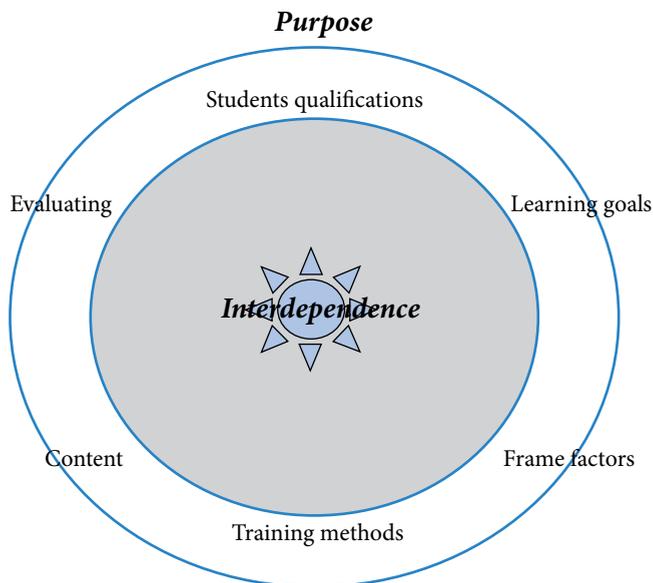
Figure 18.1 The Didactic Diamond Model.

If training for the unforeseen is the purpose, then this affects the didactic model by reducing the emphasis on goals or objectives. This line of thinking also has an effect on evaluation, challenging the ways of doing things and changing what is both appreciated and valued. If synchronous collaboration training represents an overriding exercise objective, planners need to reflect on the circumstances under which this will occur, and then plan taking into account the interconnectedness of didactic factors, i.e. content, methods, framework conditions, evaluation and learning prerequisites. If the case or scenario is too quickly decided upon when creating emergency exercises, it reduces the likelihood of investigating other possibilities and new ways to do collaboration training, with something new or even unforeseen as a factor. To develop this, I will turn to innovative pedagogical practices.

Innovation pedagogy

Innovative competence is one of the future core competencies (Darsø, 2011:10–11), and innovation pedagogy is about creating social and educational frameworks and structures that enhance innovative collaboration. Innovation competence is about the ability to create innovation by navigating effectively in collaboration with others in complex environments.

According to Darsø (2011:62), a creative innovation process contains five steps. The first step is (i) wondering about something – a phenomenon, problem, or disturbance. This triggers (ii) information seeking and gathering. Something that has gone unnoticed suddenly becomes intriguing and interesting. This is tiring and is followed by a (iii) mental incubation period, in which ideas and thoughts can hibernate and develop. The next phase contains (iv) illumination and *eureka* experiences, when the problem suddenly finds its solution. The last phase is about (v) verification of ideas and testing of solutions, with consideration to what started the project in the first place. "Prejects", in which multiple possibilities are investigated before a project is planned, are rare and seldom realized.

"Prejects"

"Prejects" involve human influences on the innovation processes. Human interaction is a decisive element with regard to a project's success or failure. The Innovation Diamond model (Figure 18.2) is a conceptual framework for the perception and articulation of barriers to, and opportunities for, innovations. The Diamond consists of four parameters that give direction to the mind and show how to facilitate innovation. The Diamond model highlights two dynamic fields of innovation: knowledge and communication.
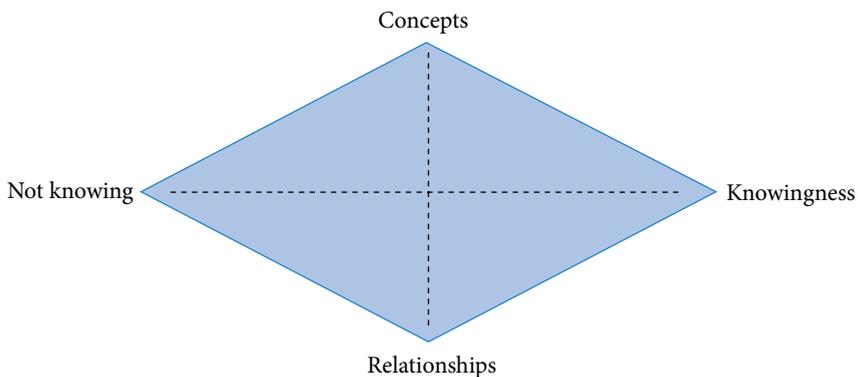
Figure 18.2 The Innovation Diamond.

The *knowledge* that is necessary to create innovation is complex and contains sources needed to develop ideas. Such knowledge is interlinked with what is known and what is unknown. Knowledge in innovation is a mix of evidence-based research, hearsay, intuition, traditions and personal convictions. *Non-knowledge* represents the opposite parameter of knowledge. In an innovation "preject", we need to explore what we know and somehow transform it into new practices with added value. Such processes make us touch upon what we do not know, or what we do not know that we do not know. People can avoid the field of not-knowing and seek a safe haven in old knowledge and wisdom. "Not-knowing" is a social role related to the fool, the clown, and the child, asking fundamental questions and doubting causality. In emergency preparation, this relates to the unforeseen. A "preject" needs to accentuate both what the group knows and what it does not know.

Communication in innovation pedagogy is about relations and concepts. Relations, according to Ritchie (Darsø, 2011:70), concern the interaction between us and how we relate to each other. We can be open or closed, and we can have either short or long-term relationships. Concepts can be described as models of guidelines or regulations. They can also be fully formed ideas. Communication is of vital importance to keep the flow of what the group knows and does not know moving towards the development of concepts. A challenge is the "muddling in the middle"; a group meets and dwells upon a problem for hours at a time, without clarity, concepts, or decisions. A creative process drifts around and in between knowing and not-knowing, between concepts and relations. This framework demands four different leadership roles, according to Darsø (2011:72).

Leadership in innovative didactics

The four leader or team roles are the Science Detective (knowing), the Gardener (relationships), the Clown (not-knowing) and the Concept Developer (concept). The didactic framework of Bjørndal and Lieberg (1978), without objectives, which in emergency training planning are unknown, provides the five focal points to the "preject". These are: content, methods, framework conditions, student learning prerequisites and evaluation. These represent five tasks which the innovative pedagogue needs to explore, finally choosing a path of action in the form of a project that aims to train for meeting the unforeseen. The leader roles proposed by Darsø (2011), (i.e. Science Detective, Clown, Gardener and Concept Developer), are not equivalent to situational leadership, where the role shifts within the individual leader, providing shifting impressions. It is the task of the innovative team not to jump to conclusions but to stay in the open "landscape" and the "preject" phase.

Team leadership designated by the process owners will, in this case, stall decisions and provide the planning team members with different leadership tasks. The "preject" needs to address possible practice topics, such as analogue, parallel, and synchronous collaboration. Exploration of what they know or do not know regarding these topics relates to learning prerequisites, evaluation, methods and content. It is even

more important to discuss the interrelationship between these concepts. According to Lave (1991), learning in practice can be seen as a trajectory and she advocate the idea that practical learning provides an in-built progression. Applied to the field of emergency, people have trained and learned in structures formed by work practices and economic logic. This highlights the importance of taking learning prerequisites into the planning of what to train. The innovative planning team need to ask themselves, "At what level of expertise do the individuals and the organization need to be trained?"

The Gardener provides the group with ice-breakers, nurturing and caring for the group's well-being during the process. The Gardener needs to ensure that everyone is heard and signifies that everyone's contribution is important. This may include providing a structure of opening and closing meetings, where all participants single out three points related to the task at hand and say something about their expectations for this work. This phase can open up the topic of concepts, what the expectations are, and what knowledge exists within the planning group. The role of the Gardener is particularly important for ensuring that everyone has his or her say.

What do we know? This is the question the Science Detective needs to ask, followed by the Clowns, who highlight what do we not know. The Concept Developer can harvest ideas, from the topic selection of the Didactic Diamond of Bjørndal and Lieberg (1978). To schedule a second meeting in the "preject" period can be beneficial in providing a cognitive incubation period, furthering ideas and alternating team leadership roles.

The sixth task of innovation didactics – making wise decisions

The "preject" is a process where the actions taken are about unlocking project scripts and creating more learning opportunities. In the transition from a pedagogical "preject" phase to the project phase, some deliberations need to be taken into account. Synthesising is about incorporating all the leads and variations from the "preject" into project work. In a transition from "prejects" to projects, Posner and Kouzes (1988:485),

give five points of advice to leaders who wish to accomplish extraordinary projects. The first two points were covered in the "preject" phase:

1) Challenging the Process
   a. Search for opportunities
   b. Experiment and take risks
2) Inspiring a Shared Vision
   a. Envision the future
   b. Enlist the support of others
3) Enabling Others to Act
   a. Foster collaboration
   b. Strengthen others
4) Modeling the Way
   a. Set the example
   b. Plan small wins
5) Encouraging the Heart
   a. Recognize contributions
   b. Celebrate accomplishments

Keeping the advice of Posner and Kouzes (1988) in mind, listening to different forms of dialogue is important. Scharmer (2009:296) sketches out a U model, where the presencing stage represents the change of will by a "collective presence" at spiritual level; this happens occasionally if the group follows "the rules of dialogue". This deep-phase of the U theory is under debate (Zidulka, 2015) and has been left out of the proposed practice. "Prejects" are not necessarily about this deep change of will but are about the opening of the mind and the rules of dialogue. The theory proposes four depths and four ways to interact: listening, debate, dialogue, and presence. Dialogue about inquiry and thinking together is best suited to level 3, and is of relevance to the innovative emergency planning team.

Closure of "preject" and the reopening of project

You are now in a position to create more-informed training for the unforeseen, using this didactic model for the unforeseen, which can help you to choose the factors that can enhance pedagogical deliberations

and provide more innovation. Keeping it open and without objectives, considered to be a pitfall of project planning and strategic competence management, "prejects" can resolve some problems by offering social tools stemming from innovation pedagogy. Patience is a key virtue in didactics for the unforeseen.

Conclusion - a new model

I have used theories to illustrate the content of this chapter, not as a description of practice per se (Kvernbekk, 2005), but to promote a different, new and innovative practice. The problems of early closure of topics and goal-driven project models are addressed by introducing a "preject" phase in didactic thinking, i.e. merging two didactic models. The Didactics for the Unforeseen Model (Figure 18.3) combines the two Diamonds in Figure 18.1 and Figure 18.2.
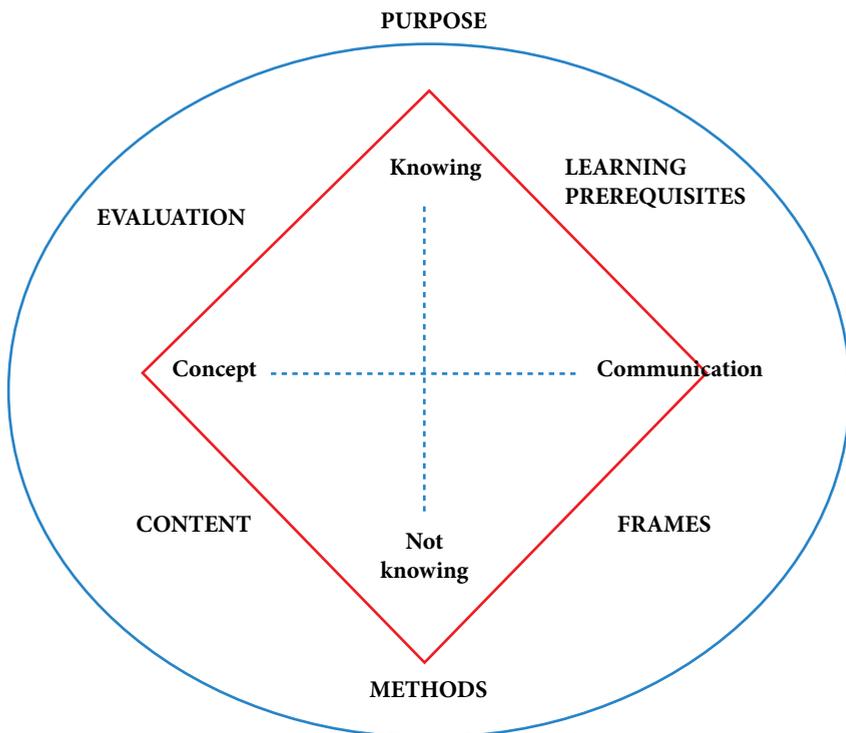
Figure 18.3 The Unforeseen Didactic Model, integrating didactic planning tools with innovation pedagogy.

The purpose of implementing a "preject" phase into planning is to address fundamental questions of "what, how and why" when holding collaboration exercises. Participants take into account that they are training for the unforeseen and they are not framed by learning goals. The purpose is to train for unforeseen events (see Chapter 1). If committed to innovative didactic thinking, the group needs to distribute the roles of the Concept Developer, Gardener, Clown and Science Detective. This distribution will ensure that the group has a thorough discussion on how the learning prerequisites, content, methods, framework conditions and evaluation are connected and interdependent. By manipulating the "what, how and why", the group can plan and construct exercises along the continuums of the unforeseen.

The model consists of a blurred surrounding field, where training for the unforeseen represents purpose and the "unknown". Through the "preject" phase, where the roles of the innovation diamond are put into play, different leadership roles emerge: The Clown, the Science Detective, the Concept Developer, and the Gardener. The team will then analogously, in parallel, or synchronously discuss the different elements of didactic thinking (without goals). To provide a cognitive-incubation period, this "preject" phase is held twice (I propose a one week interval between the two). Using this method, new thinking about emergency collaboration training can emerge, developing better practices. After the second meeting, planners can execute what they have figured out, using ordinary project planning tools and exercise training habits. However, taking the unforeseen into account, the exercise will not play out as it was planned or scripted. This is also learning from the unforeseen.

As mentioned earlier, the limitation of this research is the lack of empirical data, so that it merely ends as a set of suggestions for busy exercise planners, who are impatient and have demanding workloads. Planners also need to deliberate upon the importance of "standard" or traditional exercises in combination with collaboration, seeing the whole picture and the exercise as a program. On the other hand, it is of vital importance to train in the realms of the unforeseen, entering the uncharted learning landscapes outside of known territory.

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Section III: Operational *Samhandling* Structures

This research focuses on finding and concretizing challenges in connection with the concept of *samhandling* in operational and practical relationships, in different industries and sectors within society, including the defense sector, health sector, emergency preparedness and anti-terrorism.

CHAPTER 19

Samhandling During Crisis Work – A Three-Level Model

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Abstract: *Samhandling* is considered as a key solution when asymmetry occurs. An expectation of seamless *samhandling* can be a special challenge to High Reliability Organizations which have mechanistic traditions in common, i.e. an assumption of linearity and routine-based work. In this chapter, a model to operationalize *samhandling* is presented. This conceptual study is based on observational data from an inter-organizational exercise. A full-scale exercise of a train accident on the Öresund Bridge between Sweden and Denmark was observed. The overall goal of the exercise was to effectively solve the situation. However, different routines contributed to confusion and misunderstandings in the meeting on how to act. The exercise was dominated by a focus on linearity within the internal organizations, which hindered *samhandling*. In order to conceptualize *samhandling*, a three-level model is presented. It consists of "sequential *samhandling*", i.e. a simplified, assembly-line type work process, "parallel *samhandling*", i.e. carrying out tasks simultaneously, and "synchronous *samhandling*", i.e. tasks performed at the same time in a spontaneous and natural way. A three-level *samhandling* model such as the one presented can be a useful tool for managing disasters.

Keywords: *Samhandling*, interaction, inter-organizational exercise, High Reliability Organizations, preparedness, organizational learning, unforeseen.

Introduction

In Scandinavian countries, the concepts of "collaboration", "cooperation" and "coordination" are problematic, due to varying and overlapping meaning. The concept of "collaboration" in Swedish contexts, where the data of this study has been collected, is predominant in crisis and crisis exercises contexts. It is often defined as an overall concept of the interaction between coordination and cooperation (Jacobsson, 2008). This definition is, however, challenged. Axelsson & Bihari-Axelsson (2006) view "integration" as an overall concept to collaboration, cooperation and coordination. Collaboration is, according to Axelsson & Bihari-Axelsson (2006), a form of integration with a high degree of voluntary agreements and mutual adjustments between those involved. It is based on a willingness to work together. Cooperation is defined as a form of integration based on management control, but combined with voluntary agreements and mutual adjustments. Axelsson & Bihari-Axelsson (2006) define coordination as a form of integration achieved through the existence of a common management control. Decisions on integration are made at the top of the hierarchical structure and are implemented through bureaucratic mechanisms of supervision and control (see Pugh & Hickson, 1976). In Denmark, the concept of cooperation is predominant, widely used in a broad sense of meaning, and in Norway, a third concept, *samhandling*, is having an increasing impact.

In line with the theme of this anthology, the most common concept in crisis and crisis exercise contexts in Sweden, collaboration, is regarded as an equivalent to the Norwegian concept *samhandling*, used in the following work. In Torgersen & Steiro (2009), *samhandling* is an open and mutual communication and development process between participants. The participants exchange and compensate their skills, face-to-face or by means of communication technology, working towards common targets and based on trust, reciprocity, rationality and professional knowledge (p.130). The concept of *samhandling* will be used in the following text (compare to Axelsson & Bihari-Axelsson, 2006).

The goal of *samhandling* has proven to be difficult in crisis work. Crossing borders is hindered by organization-specific legislation, routines and agendas tailored to and repeated within each organization acting on an

accident scene (Carlström & Berlin, 2009). In contrast to this, *samhandling* is highly valued and expected from all participants during crisis work. The concept is frequently used as a prefix to professions, organizational models and techniques used during crisis work. One example illustrating this is from a Swedish program of rescue services, where the concepts *samhandling* commander, *samhandling* exercises, *samhandling* team, *samhandling* contract, *samhandling* education and limitless *samhandling* is used frequently. The repetitive use of the concept shows that *samhandling* is something good and positive (Sydöstra Skånes Räddningstjänstförbund, 2008:3–19).

It is also common that the concept of *samhandling* is used in stakeholder documents outlining reforms and rules. Difficulties in regulating responsibilities and rights are related to the need to practice *samhandling* preferably in a conflict-free and harmonious way. The necessity for negotiation, argument or even opposition during certain circumstances is seldom proposed. Instead, *samhandling* is suggested as a solution to the challenge of distributing management control in-between organizations with overlapping tasks (Rothstein, 2008).

In this paper, I describe the idea of *samhandling* as an idealized way to manage crisis work, how *samhandling* is practiced and how it could be developed in order to make the concept more appropriate. The context is *samhandling* exercises and an example from an exercise at Øresund Bridge, "Koriander", is used to problematize the goal of *samhandling* in a non-specific and general manner.

Samhandling in exercises

Samhandling is considered as a key solution when asymmetry of power or rivalry occurs. When *samhandling* is practiced, it appears to produce a win-win effect. This idea of *samhandling,* as a simple way to manage complex inter-organizational actions during a crisis, is common (Berlin & Carlström, 2008a). Danermark (2000) emphasizes that in a situation where *samhandling* really works, it can be "heavenly" and improve the quality of actions, but when it becomes an idealized mirage based on false expectations, it can, in contrast, be "hell". *Samhandling* can, according to

Danermark (2000), be used in order to compensate for vague leadership and a lack of structure and resources.

An expectation from partners of seamless *samhandling* can be a special challenge to operative crisis organizations, such as the police, fire department and rescue services. High-reliability organizations (HROs) have a mechanistic tradition in common, i.e. an assumption of linearity, predictability and routine-based work. Mechanistic exercises are often professional drills, i.e. exercises based on simple repetitive actions to imprint conform behaviors. In contrast to mechanistic behavior, an organic behavior is characterized by flexibility and seamlessness (Berlin & Carlström, 2011; Scholtens, 2008).

"Koriander"

In the following example from an international exercise, Swedish and Danish rescue services were expected to practice *samhandling* during an accident on the Øresund Bridge, which connects the two countries.

The exercise, as reported by Berlin & Carlstrom (2013), was named "Koriander" and was a full-scale exercise designed to simulate a real event. A total of 500 participants from 17 different organizations took part in the exercise.

Police, rescue and ambulance services contributed with most of the personnel for the exercise. The overall goal of the exercise was to ensure preparedness and effectively solve incidents that can occur on the bridge. The purpose was to practice *samhandling* at the command level, in order to organize and optimize the use of existing resources in a response area (Øresund Bridge, 2012).

The bridge has two decks, with a highway on the upper deck and a railway on the lower deck. The setting for the exercise was located in a narrow area beneath the upper part of the bridge. The scenario was a railway accident, involving a passenger train and a freight train on the Øresund Bridge. In connection with the accident, an overhead contact wire fell down on the train. After incoming calls to 911 (the emergency hotline) in Sweden and Denmark, the police, ambulance and rescue services were alerted in both countries. According to the scenario, four people were

dead, 15 were seriously injured, 25 had minor injuries and 30–50 people were in shock (Øresund Bridge, 2012:8–9).

The Swedish and Danish rescue services arrived from their respective directions. None of the services had received information about the exact position of the accident. Upon arrival, the Danish and Swedish services were asked to electrically ground the track, since there was an overhead contact wire hanging down. They also decided that work inside the train should not start until the grounding was complete.

The grounding was more time-consuming than expected. Forty minutes passed without the carriages being opened, because of difficulties distributing staff in the *samhandling* between the Danish and Swedish fire rescue services. The mock victims, waiting to be rescued from the blacked-out carriages, became quite bored, while hundreds of rescue workers on the upper part of the bridge were waiting to participate. They waited in the windy top deck, not knowing what was happening on the lower deck. Eventually, the area was electrically grounded and the train carriages were opened.

Responsibility for the passenger train was split up; the rear carriages were assigned to the Swedish rescue service and the front ones to the Danish. Since there were only three carriages in the train, confusion arose as to who should take responsibility for the middle carriage. The Swedish and Danish rescue services did not coordinate their respective actions.

The different working routines of the Danish and Swedish rescue services contributed to the confusion. The Swedes sent medical personnel to the train carriages to perform field triage, i.e. identify those who were in need of medical evacuation and make policy decisions. The Danes allowed the rescue services to empty the accident site, transporting the injured to the medical assembly point. These contradictory routines were not communicated. Misunderstandings and confusion arose at the meeting between the Swedes and Danes on how to act. No initiative for triage was done. Having the train carriages full of mock victims hindered the work. In the midst of this confusion, the exercise leaders informed the medical staff that a woman was about to give birth in one of the carriages. The nurse in charge of the triage "burst out laughing"; the situation was perceived as constructed and too complex. As time was elapsing,

the exercise leaders decided to stop the rescue work in the carriages. The mock victims were asked to get out of the train and walk to the upper deck of the bridge.

The command center was set up on the upper deck of Øresund Bridge, on the southern roadway. It was close to the assembly point for uninjured passengers. Despite closing the road off using vehicles, it was difficult to keep bystanders away. The command center was not closed off, or protected from the wind. The Danish Operational Headquarters (KST) positioned itself on the northern roadway. The distance made it difficult to establish *samhandling* between the command center and KST.

Organization on site was dominated by a focus on internal organization, which hindered *samhandling* between organizations and countries. It turned out to be difficult to understand and explain technical terms between the Swedes and Danes. The evaluation report described the *samhandling* as follows:

"Generally, there was a lack of knowledge about roles, tasks, leadership structure and principles of the opposite country's medical preparedness, as well as language problems, so that the *samhandling* at the leadership level became less effective." (Øresund Bridge, 2012:31).

The difficulty was reflected by the fact that vehicles were sent forth without information about the location of the accident. Danish rescue services arrived first at the accident site. In the beginning, radio traffic was intensive, but then the flow of information stopped up. Selective, organization-specific radio channels started to dominate communications. Personnel at the staging area, assembly point and command center received less and less information about the work and its progress at the accident site. There was also weak radio reception at times. After a while, the radio contact between KST and the staging area was completely inoperative (Berlin & Carlström, 2013).

Organically smooth and mechanistically predictable

A challenge for crisis organizations is to be organically smooth and at the same time mechanistically clear and predictable (Lalonde, 2004). To commute between mechanistic and organic behavior during crisis work is a challenge. The mechanistic behavior is deeply rooted in crisis

organizations, which can make them dysfunctional (Gormley & Balla, 2008). During non-emergency situations, which allow for planning and discussion, there is room for organic-action logics (Kuykendall & Roberg, 1982). In critical situations, when life and property are threatened, a need for structure induces a mechanistic imperative (Weick, 1998). Structure and simplified command and control models (C2) are used in order to reduce uncertainty when chaos lurks behind the corner. Standards create a feeling of security, reduction of confusion, and prevention of disorganized behavior when the situation is intense (Kendra & Wachtendorf, 2003).

One reason to practice *samhandling* is to strengthen the ability to handle a course of events that do not follow a stable plan, situations that are overpowering and situations when the resources are disproportionate. As in the studied exercise, mechanistic behavior tends to contribute to inactivity, delays and frustration. Much of the activity was based on repetitive monotonous tasks within organization-specific fields. Very rarely did the participants stop to seek out contact and converse with other participants, for the purpose of jointly utilizing the sum of resources.

Although flexibility is considered as important when handling disasters, crises or accidents, very few have suggested ways to operationalize *samhandling* and organic handling during crisis work (Deverell, 2012). The skill to act adaptively is, however, broadly accepted as a necessary characteristic during complex situations which are difficult to predict (Borodzics, 2004). If the way of acting is organic, the degree of flexibility and creativity is secured during unpredictable situations. This is true, especially in situations where senior management is absent and it is difficult to get an overview of the situation. Consequently, there is a need to alternate between organic and mechanistic behavior. Scholtens (2008) emphasizes that mechanistic techniques, such as C2, are impossible to use in the beginning of most chaotic events. Priority and action have to be managed on a basic operative level until a crisis organization has been built up. Every participant needs to be briefed about the situation, in order to make correct decisions and act in an effective way, preventing passivity and contra-productive behavior. Scholtens (2008) emphasizes that operative staff, in most cases, make the right decisions and act in an optimal way, if they are allowed to act autonomously.

> Units involved in crisis management should be spoon-fed their tasks, as well as the big-picture scenario, during the preparatory phase, so that they are able to make relevant operational decisions themselves. Information systems would then exist, not to keep central decision-makers informed, but to help decentralized decision makers carry out their task. (Scholtens, 2008:203)

Consequently, if *samhandling* is built on a balanced choice between organic and mechanistic strategies, the crisis work will be improved, especially in situations of emergencies and an overwhelming need to make decisions simultaneously.

A conceptualized model

In order to conceptualize *samhandling*, a three-level model which is possible to operate and based on research from crisis organizations will be presented. It is based on studies from exercises and real events, during catastrophes, crises and accidents (Berlin & Carlström 2008b; 2008c; 2010; 2013; 2014; 2015). The model will be positioned between organic versus mechanistic and *auftragstaktik* versus *befählstaktik* (these terms will be explained in the following).

Three levels of *samhandling*

The model, "three levels of *samhandling*," consists of sequential, parallel and synchronous types of *samhandling*.

1) Sequential *samhandling* is a simplified form of *samhandling*. It is characterized by a traditional sequential work process (assembly line) where everyone performs their specified task. At the accident scene, this means that the various organizations' personnel act at different times. Everyone waits their turn to make a contribution. This can be likened to a relay race, where someone starts a process that is then handed over to another co-worker. During sequential *samhandling*, established handling patterns are repeated, the number of meetings is minimized, and negotiations take place only on

an exceptional basis. It generates a relatively small degree of inter-action between organizations. Sequential *samhandling*, i.e. using Swedish or Danish fire brigade technicians, would have been effective when carrying out the electrical grounding work during the "Koriander" exercise. The choice to use both Swedish and Danish fire brigades delayed the process, due to meetings and communication. As a consequence, forty minutes passed without the carriages being opened.

2) Organizations which *samhandler* parallel to each other, carry out tasks simultaneously while acting "on their own". At an accident scene, this means that the organizations are in place at the same time and act side by side. Parallel *samhandling* is more complex than sequential *samhandling*. During parallel *samhandling*, tasks are strictly distributed among the organizations. The work is carried out in such a way that members of each organization do not support each other across professional boundaries. It is characterized by the standardization of developed roles and established procedures. The starting point is that every employee works according to his own organization's agenda and a clearly-defined mission. In the case of parallel *samhandling*, giving assistance to other organizations is avoided. This favors intra-organizational standardization and strengthens internal conformity. Parallel *samhandling* is difficult if the tasks of different organizations overlap. If so, a present and active management is needed. In "Koriander," during the grounding, a parallel *samhandling* was practiced but there were two joint managers, one Swedish and one Danish. The ambiguous leadership contributed to a slow and imprecise performance.

3) In synchronous *samhandling*, tasks are performed at the same time as in parallel *samhandling*. In addition, participants in the various organizations can mutual exchange tasks in spirit of equality. They cover for each other in a spontaneous and natural way. This is an extreme form of *samhandling*. The members of each organization do not focus only on their own tasks but are also looking for opportunities to assist others with their tasks. This is done by showing

flexibility and a capacity for rapid re-allocation of resources. The concept of "holism" describe how the organization's members place all the parts of the whole in relation to each other in a mutual exchange. This means that the players carry out their own tasks but are also willing to perform operations that are otherwise considered to be the responsibility of others. The focus is shifted from inter-organizational tasks to finding the best way to carry out the collective mission. In the synchronous form of *samhandling*, the collective task is more important than the individual tasks of the respective organization. Since the participants are not trained to perform tasks for others, exchange often takes place in the form of improvisation (Weick, 1998). To interact synchronously requires an ability to step out of one's own professional role and take on unfamiliar actions. This means stepping over the boundary into the unfamiliar and flexibly covering for others where needed, even if this does not lie within your own area of competence (Berlin & Carlström, 2008). Synchronous *samhandling* is the idealized, seamless form of *samhandling* referred to when governing bodies stress their ability to interact (Berlin & Carlström, 2011). Synchronous *samhandling* can be necessary during extreme situations when resources are lacking, such as mass casualties and waste disaster areas. Even though the model is strongly idealized, it is difficult to manage. It requires highly professional and flexible participants who are able to adjust to each other's and the specific circumstances.

These three forms of *samhandling* require dialogue and clarified roles. They are levels which make it possible to distribute *samhandling* on a scale from the mechanistic to the organic. The difference between the levels become obvious if management is included in the model. During sequential *samhandling,* the management needs to control the rotation between collaborating organizations; during parallel *samhandling*, the management needs to be present throughout to prevent crowding; and during synchronous *samhandling*, the management can remain passive because the teams work independently. The crisis work is distributed in an organic way within and between different teams.

Befählstaktik and *auftragstaktik*

The model can be illustrated by two well-established concepts, *befähl-staktik* or 'normal tactics' based on command and control (C2), and *auftragstaktik*, i.e. 'mission command' used by the military. When mission command is practiced, the team is informed about the goal, the purpose and resources to accomplish a mission. The team is free to make decisions and act even though they are not controlled by senior management. In contrast to mission command, normal tactics provides a high degree of management control. On the other hand, C2 is often characterized by inertia (Leistenschneider, 2002).

The history of the concepts 'normal tactics' and 'mission command' can be traced to a reform in the Prussian army, after being defeated by the French army in the battles of Jena and Auerstedt in October 1806. Analysis of the battle showed that the Prussians recruited officers based on their social standing while the French recruited their officers based on competence. Furthermore, the French army was divided into army corps (Corps d'Ármée). The Prussian army was a unified, top-down organization, strongly dependent on C2. Another difference was that every soldier in the French army was aware of the vision or idea behind their military campaigns. The vision permeated down from Napoleon to every part of the army. The soldiers in the Prussian army were expected to blindly obey orders and not to incorporate these orders into a bigger picture of ambitions or visions. The Prussian model placed a heavy burden on the senior management and made the army vulnerable. When Karl Wilhelm Ferdinand Braunschweig, who was the commander of the Prussian main army (63,000 soldiers), was fatally wounded during the battle of Auerstedt, the Prussian army was defeated by 26,000 French soldiers.

As a result of the events of October 1806, a national quarrel arose about how to manage the Prussian army in war. On one side was a conservative movement promoting 'normal tactics' and on the other, a modern movement promoting 'mission command.' In the end, the two contrasting tactics appeared as applicable strategies under different circumstances. Traditional C2 could be used as long as the management could control the situation, but if it became complicated, developing in an unexpected way and C2 became ineffective, 'mission command' was to be activated (Stewart, 2009).

When the three levels of *samhandling* sequential, parallel and synchronous *samhandling,* are viewed in the light of 'normal tactics,' i.e. mechanistic imperative, and 'mission command,' i.e. organic imperative, a simple axis distributing different logics and ways to manage a crisis appears (figure 19.1)
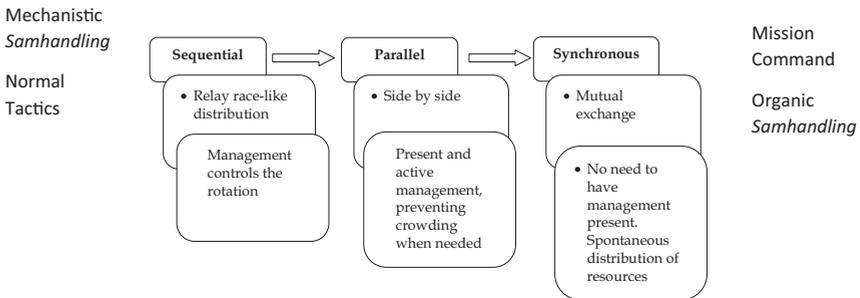
Figure 19.1 *Samhandling* between the logics of the mechanistic and organic.

During sequential *samhandling*, the management acts according to a traditional C2 model. During command, the management distributes a sequence of actions, and the effects are followed up by control. At the opposite extreme of *samhandling*, synchronous is a status neutral distribution between and within participating teams. Management is spontaneously distributed to staff, who independently overview the situation and allocate resources. A synchronous distribution is suitable when the resources are limited, few or no specialists are yet present and the crisis work is imminent, e.g. during a mass-casualty scenario. In the example from Øresund Bridge, the management acted, as synchronous *samhandling* was needed even though there were enough resources to handle the situation. A fruitful way to manage the train accident would have been sequential and parallel *samhandling*, combined with a more distinct leadership than was the case in the example. As already mentioned, one of the rescue services (the Danish or the Swedish) should have been appointed to electrically ground the track (sequential *samhandling*), and the parallel *samhandling* practiced when emptying the middle carriages should have been controlled by an active management, preventing crowding and controlling actions in a common manner. Instead, the teams acted in a

non-coordinated, ad-hoc manner during the exercise. Sequential and parallel *samhandling* demand a present and active leadership.

The three levels of *samhandling* are useful during different situations. When resources are lacking, the need for action is imminent, the event is complex and it is difficult to make predictions, a traditional C2 can be counterproductive. On the other hand, an organic logic during a situation of sufficient resources on the accident scene can contribute to vague management and a fragmented, ad-hoc-like handling of the situation.

The proposed model brings *samhandling* to a pragmatic level, which is possible to operationalize during changing circumstances. The model has the potential to be less ambiguous and imprecise than idealized ideas of limitless *samhandling* when managing a crisis.

Conclusion

The model of *samhandling* presented in this chapter may contribute to the understanding that the nature of an event should be handled according to an applicable level of *samhandling* during crisis work. The management is supposed to analyze the situation, distribute resources and give instructions for *samhandling*. Competency in practicing *samhandling* is built up by training. It can be improved if exercises focus on different levels of *samhandling*. Such exercises can promote the competency to use *samhandling* as an adaptive tool adjusted to the scenario. A three-level *samhandling* model, such as the one presented, can be a useful tool in order to improve exercises and crisis management.

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CHAPTER 20

The Relationship Between Stress and *Samhandling*: Some Challenges for Leaders in High-Risk Organizations

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Abstract: Military operations are very often accompanied by various levels of stress. This chapter aims to discuss the concepts and factors of stress and *samhandling*. The main factors are social support, self-efficacy, resilience and hardiness, implicit coordination, and character strengths. Individual factors are self-efficacy, resilience and hardiness, and character strengths. Team factors are social support, team efficacy, and implicit coordination. A model describing stress and *samhandling*, including the above-mentioned individual and team factors and their relations, is introduced and discussed. The conclusion is that four individual and two team factors are seen as important if one wishes to counteract the effects of stress and increase both the individual's and the team's ability to conduct *samhandling* when facing unforeseen incidents.

Keywords: *Samhandling*, interaction, stress, character strengths, team factors, military operations, unforeseen.

Introduction

This chapter opens up with a description of a stressful incident where *samhandling* (interaction, cooperation) occurred. After this, a short overview of challenges in contemporary military operations is given. Thereafter, the chapter briefly discusses the concepts of stress and *samhandling*, before some factors contributing to efficient *samhandling* under stress are introduced to the reader. The factors that are discussed in the chapter are social support, self-efficacy, resiliency and hardiness, implicit coordination, and character strengths. Individual factors are self-efficacy, resilience and hardiness, and character strengths. Team factors are social support, team efficacy, and implicit coordination. Finally, a model describing stress and *samhandling*, including the above-mentioned individual and team factors and their relations, is introduced and discussed. A short conclusion related to the importance of the factors for reducing stress and increasing *samhandling* is given at the end of the chapter.

Consider the following incident:

"During an operation somewhere in the world, I was assigned as a bodyguard (close protection specialist) to a high-ranking military officer (the VIP). The VIP's mission was to attend a meeting with a local warlord, and to negotiate on the issue of getting a safe passage for everyone through the warlord's territory. The close protection team that I was a part of entered its vehicles and started to drive to the location where the VIP would meet the local warlord. On this day, we had to take care of the aide of the VIP, since he was joining his commander for the meeting. This was not the usual routine, but orders were orders. So, we were stuck with the aide. These things should not happen, but life is not always perfect. Anyway, we knew where we were going and drove to the location. We entered the house after checking it and the surroundings, and having established perimeter security. The negotiations started, and everything seemed to be going fine for about an hour. Then suddenly, a gunshot was heard from below, and somebody started screaming. Both the noise of the gunshot and the screaming floated up the stairs to the second floor, where we were having our meeting. The noises seemed to come from the floor beneath us. The warlord and his 'goons' started to 'freak out'; I could tell that they wanted to draw their weapons. I grabbed our VIP and retreated into a corner, shielding him with my

body. I used some breathing techniques, used self-talk and at the same time took control over the VIP, telling him what to do, because I sensed that he was getting a bit stressed. The rest of the team that were inside the house took up new positions, just changing from the positions they had held and did what they were trained to do. I could hear them giving orders and information about what was happening to each other and to me. So far, so good; we were in control. Except for the aide. I suddenly saw him standing right in the middle of the large room, with eyes like big balloons. He looked at me and I could tell that he was not really seeing me. Clearly, he was having a severe stress reaction to what was going on. The gunshot and screaming had put him into a temporary paralysis. Things like this should never happen. We had, of course, planned ahead for who would be responsible for the aide, but he was just not mentally present. Half of the inside team was working its way down the stairs and the other half was around the VIP, securing him and controlling the warlord. I heard the guys on the stairs shouting, 'Clear!' and 'Move,' and the commands just floated through our communication system like they should – a good example of *samhandling*. I gave orders to the guys controlling the warlord and his 'goons', and also to the aide, that we should move out of the house and get away. The aide just kept standing there. I cannot tell how much time this took. Finally, I dragged the VIP towards the aide and slapped the aide in the face, saying, 'Move towards the stairs and get out!' It was like his brain came back to work, or like a light was turned on inside his eyes, and he started to move in the right direction. My focus returned to the VIP. We got to the stairs and one of the team members took care of the aide, while I concentrated on getting the VIP safely out of the house. We managed to do that, and nothing more happened. However, we refused to bring the aide with us again."

The incident described above is an example of when *samhandling* under stress worked well in a highly-trained team, except for the unforeseen incident with the aide. In Norwegian, the concept *samhandling* is used to describe this type of "interaction". *Samhandling* as a concept does not have an exact equivalent in English, but concepts such as "interaction", "cooperation", or "collaboration" capture some of the similarities. The escalation in the described situation, (as in the case of the gunshot), was not unforeseen, because we had mentally prepared ourselves for this. The exact time of escalation was unforeseen, but we had practiced how to

handle this too. The unforeseen element in this incident was the reaction of the aide; we had not practiced this.

Challenges in contemporary military operations

A war is not won alone. An interesting point is that 85 % of all military training takes place in small teams, as opposed to 5 % in the civilian world (Mullin & Shriberg, 2005). Volatility, uncertainty, complexity and ambiguity (VUCA) characterize contemporary military operations (Snider & Matthews, 2012). Participants in modern military operations will face unforeseen incidents. Unforeseen incidents can be defined as the following: The unforeseen denotes something occurring relatively unexpectedly and with a relatively low probability or predictability for those who experience and must deal with it (Kvernbekk, Torgersen & Moe, 2015, author's translation). Stress is a common element in most modern military operations. The need for coping with stress during operations can be found in the leadership doctrine, ADP 6–22, for the U.S. Army:

> "Decentralized operations require leaders at all levels that understand their environment, learn quickly, make sound decisions and lead change. Because there are no predetermined solutions to problems, Army leaders must adapt their thinking, formations, and employment of techniques to the specific situation they face. This requires an adaptable and innovative mind, a willingness to accept prudent risk in unfamiliar or rapidly changing situations, and an ability to adjust based on continuous assessment." (U.S. Army, 2012:0).

As a leader conducting ground operations, your span of control will function best when leading a five-man team (Marshall, 1947). This requires, among other things, the ability to handle stress, and to function well together with others during unforeseen and/or risky incidents, that is, *samhandling*.

"Command in combat requires love. A commander must genuinely love his men and win their affections in return, and when the time comes, he must use that love to cause his men to willingly risk and even sacrifice their lives to accomplish the mission." (McCoy, 2007:11).

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The overarching supporting documents describing Norwegian military leadership are the Norwegian Armed Forces Chief of Defense's *Basic view of leadership in the Norwegian Armed Forces* (Forsvarsstaben, 2012), and the Norwegian Armed Forces Joint Operational Doctrine (NAFJOD) (Forsvarsstaben, 2007; 2014). These documents establish mission command (*oppdragsbasert ledelse* in Norwegian) as the Norwegian Armed Forces' basic leadership philosophy. Mission command can be traced back to the end of the 19th century, with the Prussian concept of *Auftragstaktik*, invented by the Prussian General von Moltke the Elder (Ben-Shalom & Shamir, 2011).

Leadership is needed, as it is leadership that aims the gun so that the team can pull the trigger (Cannon & Cannon, 2003). Effective leadership exercised in cooperation with and in relation to others, can be described as a result of the interaction between the leader and their subordinates over time (Forsvarsstaben, 2007). Leadership can therefore be understood as the process that creates a common direction, alignment and commitment in a military unit (Forsvarsstaben, 2012; McCauley, Van Velsor, & Ruderman, 2010). Leadership is context-dependent (Hughes, Ginnett & Curphy, 2014), which means that a leader's behavior and efficiency is the result of interaction between individual factors and the environment (Bandura, 1997), where different situation variables are crucial for effective leadership (Forsvarsstaben, 2000; 2012). Military leadership can thus be described as a continuous process that is exercised in relation to others in a specific military context. One would think that a lot of research had been conducted on stressors and coping strategies in military contexts, simply because military work can be very stressful. Strangely enough, only a limited number of studies have explored the connection between stressors, coping strategies and military performance (Hall, 2009; Limbert, 2004; Overdale & Gardner, 2012). However, Milgram, Orenstein and Zafrirs' (1989) study of Israeli soldiers in the Lebanon War was a significant exploration of stressors and coping strategies' impact on military performance. In these studies, one finding was that social support used as a coping strategy had a positive impact on military performance.

However, there are other organizations outside the military system where the personnel have to face unpredictable, difficult, and stressful

situations in their daily work. These are referred to as high-risk organizations. Stated differently, the personnel might face incidents with unknown content and the unforeseen (Kvernbekk, Torgersen, & Moe, 2015). Clear differences have, however, been found between the execution of leadership among staff or in a garrison and the execution of leadership in a military operation (Boe, Johansen & Bergh, forthcoming), as well as when a conflict changes from a high-intensity to a low-intensity conflict (Boe, Bergh, & Johansen, 2017). This means that in the daily routine and education there are less unforeseen incidents, and less stress and risk involved. The need for *samhandling* will therefore probably be less in these conditions. One could state that there is a clear distinction between high-risk organizations (such as the military, the police, the fire department, security forces, and emergency organizations) and civilian organizations. The distinction is that high-risk organizations exist because they have a mission. An interpretation of this is that the mission is the reason for the existence of these types of organizations (Mullin & Shriberg, 2005). There are many similarities between military leadership and leadership in other organizations, but civilian organizations will generally have profit and prestige as their main reasons for existing. In the NAFJOD from 2007, it states, "The opposing rigors can be extreme. Our profession represents the will to succeed and to strive towards results that exceed the expected – the difference between success and failure" (Forsvarsstaben, 2007:160, author's translation). This quote highlights the importance for an officer to have a strong self-efficacy in their professional practice, in order to function well. It is logical to assume that individuals with high self-efficacy will be more apt to believe that they can meet work challenges although various stressors are present (Jex, Bliese, Buzzell, & Primeau, 2001).

Stress and *samhandling*

The Norwegian Chief of Defense (Forsvarsstaben, 2012:11) has stated: "[Military leadership] is about doing the uncomfortable and being able to cope with it, overcoming powerlessness, and avoiding emotional breakdown. Military leadership demands robustness in order to think

clearly and effectively, and cope with one's feelings when facing complex and difficult situations" (author's translation). Considering the nature of many military tasks, an officer will often have to cope with several decisions at the same time, often under severe amounts of stress. These types of situations are referred to as "in extremis" leadership (Kolditz, 2010). In addition, an officer engaged in close combat will have to make decisions under extreme levels of stress. These decisions very often carry serious consequences, namely the possibility of being killed or wounded, and thus contain a lot of risk. A significant part of handling different types of situations is the ability to work efficiently together. There is a broad consensus that trust is a decisive factor in order to solve missions effectively (Horn & Walker, 2008). Trust simply reduces stress and thus increases the possibility for *samhandling* (see the chapter on trust and *samhandling* for a more in-depth discussion about this). Shared mental models comprise much of a unit's collective action repertoire and decisions (Knouse, 2001).

Military training results in a high level of wear and tear on the personnel (Hoedebecke & Wells, 2002). How well a person masters or copes with a challenging situation can have a significant effect on biological symptoms affecting health and wellness (Bandura, 1991). In scientific literature, there is no doubt that stress and related stress reactions have a definite effect on human health and performance (see for instance Cowley et al., 2003; Griffith & Vaitkus, 1999; Hazlett & Morgan, 2003). Activation of the stress reaction is caused by a person's perception of the situation as threatening (Sivik, Delima, Korenjak, & Delima, 1997). It is therefore logical to imagine that this perception of a situation is influenced by a person's psychological resources, so that people with a high level of psychological resources will perceive a situation as less threatening than people who have a low level of psychological resources. A soldier who believes he or she has the resources to get through stressful situations and complete a mission successfully will perceive less threats and stress (Morgan, Cho, Hazlett, Coric, & Morgan, 2002). One's behavior and one's ability to lead under stress may be influenced by a variety of factors (Boe, Kjørstad & Werner-Hagen, 2012).

Some factors contributing to more efficient *samhandling* under stress

In the next sections of the chapter, I will propose and discuss some factors that may be important under stress, facilitating better *samhandling*. On the other hand, increased *samhandling* may also lead to reduced stress. Clearly, the concepts of stress and *samhandling* are related, and deciding the causal direction from one concept to the other is challenging. However, as this chapter uses a perceived reduction of stress as a main contributor to better *samhandling*, this will infer the causal direction from stress to *samhandling*.

The proposed and discussed factors increase the ability to cope with stress in relation to risk and unforeseen incidents. In addition to the factors described in Table 1 below, other factors exist, such as intelligence, general mental ability and personality traits, that are used to select personnel for the armed forces and other high-risk organizations. The challenge with these factors is that they do not really predict who will function well during unforeseen and stressful incidents (Picano, Roland, Rollins, & Williams, 2002). For instance, general mental ability has been found to be completely uncorrelated with later academic and physical performance in military cadets (Bang, Boe, Nilsen, & Eilertsen, 2017). These factors cannot be used to explain *samhandling* in stressful and unforeseen incidents. As such, they have a limited value in predicting performance in high-risk occupations (Barrick & Mount, 1991; Picano & Roland, 2012).

However, there are some individual and team factors that have been found to be important when it comes to functioning better under stress and when things are unforeseen. As teams are built up of individuals, the individual factors will be discussed first. This is because it is necessary to take control over yourself before engaging in more complex processes, such as taking part in and contributing to a team. The team factors will then be discussed, since they build upon the previously-discussed individual factors. In Table 20.1 below, four individual and two team factors are shown that contribute to reducing stress and increasing effective *samhandling*.

Table 20.1 Factors that reduce stress and increase *samhandling.*

Individual factors	Team factors
Self-efficacy	Social support
Resilience and hardiness	Team efficacy
Character strengths	–
Implicit coordination	–

As can be seen in Table 20.1, individual factors are self-efficacy, resilience and hardiness, character strengths, and implicit coordination. Self-efficacy can be defined as the belief in your own capabilities in order to reach specific results (Bandura, 1997). For professionals, high standards are required. It should be obvious that you need strong self-efficacy to deal with the countless scenarios you may find yourself in as a soldier and officer. This is not about the abilities and skills one possesses, but about what one considers attainable with the skills one possesses (Bandura, 1986). Bandura writes that self-efficacy is a very important factor for people in order to perform (Bandura, 1997).

Resilience is defined here as the tendency to recover quickly from different challenges and stresses while maintaining your focus (US Army, 2012). Hardiness is a similar concept, focusing upon a person's perception of control, challenge and commitment when facing difficult situations (Kobasa, 1979). As there is clear overlapping between the concepts of resilience and hardiness, they are discussed as one individual factor in this chapter. Character strengths are individual characteristics that are possible to develop through increased vigilance and effort (Biswas-Diener, Kashdan, & Minhas, 2011). Looking at the concept "implicit coordination", this indicates that each individual team member has a shared mental model of the situation they are in (Cannon-Bowers, Salas, & Converse, 1993). This becomes important if a team is to manage to solve and accomplish a mission together. Imagine a team where every team member has his or her own understanding of the situation. The level of *samhandling* will be very low, and the probability of being able to accomplish a given mission will also be low.

Regarding team factors, social support and team self-efficacy are also important if a team is to handle stress and function well during *samhandling*. Social support refers to the support received from the other team

members. According to Bandura (1997), team efficacy deals with the team's collective belief in being able to solve their missions together. However, Bandura uses the term "collective efficacy" to describe this factor.

Individual factors affecting *samhandling*
The importance of self-efficacy for *samhandling*

Social cognitive theory was launched in the book "Social Foundations of Thoughts and Action" (Bandura, 1986), and it is in this work that self-efficacy as a concept is presented. Bandura (1997:3) defines self-efficacy as "…[the] belief in one's capabilities to organize and execute the courses of action required to produce given attainments." Here, one's perceived expertise plays a particularly important role in how one copes with situations, as perceived expertise within clearly-defined domains or activities is the most important factor in both self-perception and self-efficacy (Eccles, Wigfield, & Schiefele, 1998). An important factor is thus to create in oneself a high degree of faith in one's own mastery (Eid, 2006). Believing in one's own capacities, skills and abilities has been found to be important for Norwegian military officers within diverse subjects. Examples are increasing the will to kill (Boe & Johannessen, 2015), learning aggression and aggression control (Boe & Ingdahl, 2017), preparing for a parachute jump (Boe & Hagen, 2015), and enhancing leadership communication skills (Boe & Holth, 2017; Holth & Boe, 2017).

An important part of being an officer and in mission command is about being able to cope with various quickly-emerging and unexpected situations when dealing with others, i.e. *samhandling* with your team. An important part of being able to solve a mission is to become aware of how mastery is achieved and how different forms of coping strategies can help to achieve interaction. In a study of 141 military cadets from the three military academies in Norway, it was found that academic self-perception was positively related to self-efficacy, and that self-efficacy was positively related to self-reported individual stress-management ability, working in difficult situations, and motivation to perform (Boe, Säfvenbom & Buch, forthcoming).

The importance of *resilience and hardiness* for *samhandling*

Kobasa, Maddi and Courington (1981) have suggested that individuals who have a tendency to perceive stressful situations as positive, challenging, enjoyable and stimulating, can be called "hardy". Although the term "hardiness" has its roots in existential psychology (Maddi, 1967), the term was first used in the research literature by Kobasa in 1979. Kobasa described the concept as organized around three relatively stable and interacting factors: control, challenge and commitment. Commitment describes how dedicated people are to themselves and their surroundings. Challenge describes the degree to which people are looking for new experiences that they perceive as interesting and exciting. Control refers to how much one believes that one can influence the direction life takes. The extent to which a person possesses these specific characteristics may affect their evaluation of a situation as controllable or uncontrollable, challenging or threatening, and will also be crucial with regard to whether a person will be dedicated to a task or feel foreign to it (Kobasa, Maddi, Puccetti, & Zola, 1985). The three factors are thought to interact, so that they lead to people being less affected by stressors if they possess a high degree of the three factors. Hardiness has been shown to prevent poor physiological and psychological health among military personnel, such as soldiers in the Gulf War (Bartone, 1993; 1999; 2000), evacuating personnel in the US Army (Bartone, Ursano, Wright, & Ingraham, 1989) peacekeeping soldiers (Bartone, 1996; Britt, Adler, & Bartone, 2001), Israeli soldiers during combat training (Florian, Mikulincer, & Taubman, 1995), Israeli officer candidates (Westman, 1990), cadets from the Norwegian Naval College (Bartone, Johnsen Eid, Brun, & Laberg, 2002) and also Norwegian university students (Hystad et al., 2010). The concept of hardiness clearly has many similarities to the concept of "resilience" (Leipold & Greve, 2009).

One important question is to what extent can one change and improve one's hardiness? Evidence has been found indicating that hardiness can be learned and developed (Coutu, 2002; Kobasa et al., 1985; Maddi, 2002). Leipold and Greve (2009) suggest that hardiness will

appear to others as an expression of stability, while hardiness within a person is the result of dynamic and interacting regulatory processes that continually change throughout one's life. Hardiness is probably more stable than just believing in yourself, and Coutu (2002) argues that the ability to make a comeback when things are going badly can be developed and easily changed for the better. Resilience is defined here as the tendency to recover quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus (U.S. Army, 2012). Paired closely with resilience is the concept of "persistence". Persistence in what one is doing is also an important factor for *samhandling*. Persistence is simply stated as the ability to finish what you start, and it is an important character strength for military officers (Boe, 2016a). Persistence requires a certain level of mental toughness. Mental toughness can be described as the ability to cope effectively with stress despite adversity and/or failure (Smith, Wolfe-Clark, & Bryan, 2016). Resilience is not described as a personality trait, but rather as a normal, stable or successful developmental trait in potentially-dangerous situations. Resistant or hardy individuals can be described as people who have the capacity or ability to make a comeback when things have been difficult or challenging (Coutu, 2002). The overall ability to bounce back and also to respond with positive attitudes during serious difficulties and trauma seems to be quite common. Bonanno (2004) argues that the human capacity to operate and evolve in the face of challenges is undervalued, and there is much to suggest that he is right. People who experience extremely difficult or traumatic events bounce back and function well in their aftermath.

The importance of character strengths for *samhandling*

Twenty-four character strengths are known to be universal and found in all cultures (Peterson & Seligman, 2004). Previous research in the Norwegian Armed Forces has identified 12 of these 24 character strengths that are the most important for military leaders (Bang, Boe, Nilsen, & Eilertsen, 2015; Bang, Eilertsen, Boe & Nilsen, 2016; Boe, 2015;

2016a; 2016b; Boe, & Bang, 2017; Boe, Bang, & Nilsen, 2015a; 2015b; Boe, Davidson, Nilsen, & Bang, 2016; Boe, Heiskel, Grande, Nilsen, & Bang, 2016; Boe, Nilsen, Kristiansen, Krogdahl, & Bang, 2017). These 12 character strengths are leadership, followed by integrity, persistence, bravery, open-mindedness, fairness, teamwork, self-regulation, love of learning, social intelligence, perspective and creativity. Having character and commitment have proven to be success factors when it comes to, for example, completing the selection of military Special Forces and special police units (Boe, 2011; Boe, Woolley, & Durkin, 2011). Furthermore, successful applicants to the Australian Army Special Forces revealed that their most frequently assigned character strength was integrity, followed by teamwork, persistence and love of learning (Gayton & Kehoe, 2015b). The reason that character strengths are important for military leaders is that character strengths are based on values. An individual will express his or her values through their character. This has been found to play an important role in leadership, adaptability and achievement (Matthews et al., 2006; Gayton & Kehoe, 2015a; Picano & Roland, 2012).

In the described incident at the beginning of the chapter, each member of the team was aware of the character strengths of the other team members, both weaker and stronger character strengths. This allowed the team to increase their level of *samhandling* even during stressful situations.

The importance of implicit coordination for *samhandling*

A special feature of military leadership is what is called "implicit coordination" (Cannon-Bowers, Salas, & Converse, 1993). Implicit coordination means that participants in a team have a common or shared mental model of the situation they are in. This means that it is possible to predict the other team members' actions and then adapt one's own pattern of behavior to the other members' patterns of action. A high degree of implicit coordination will lead to less perceived stress and enhanced *samhandling* in a team. Implicit coordination is a prerequisite for effective teams and is not just limited to the field of military leadership. The

need to function as well as possible together is, however, even more important in a military context than in a civilian context. This is due to the possibly devastating consequences of failure in a military context. Stout, Cannon-Bowers, Salas, and Milanovich (1999) have also shown the importance of planning the development of shared mental models in a military context, in order to avoid catastrophic consequences as a result of teams being unable to cope with multiple simultaneous tasks. In the above-mentioned incident, our team had practiced a lot, but we had missed out on practicing how to cope with the aide. However, we had practiced enough to know what each team member would and should do in different types of situations.

Team factors affecting *samhandling*

The importance of social support for *samhandling*

There is a lot of research showing that social support reduces stress and helps recovery (Bianco, 2001; Chan, 2002; Cohen & Wills, 1985; Harlow & Cantor, 1995; Lu, 1997; Pearline & LeBlanc, 2001; Rosenberg & McCullough, 1981; Sarason, Pierce, & Sarason, 1994). Social support has been shown to protect people from unexpected stressors (Doornbos, 1996; Thoits, 1986) and physical illness (House, Landis, & Umberson, 1988; Kennedy, Kiecolt-Glaser, & Glaser, 1990), and has proven to be significant when it comes to recovery from injuries (Wagner, Williams, & Long, 1990). Social support has also been shown to counteract the negative effects of stress and to protect one's psychological sense of well-being (Turner, 1981). Social support is regarded in the literature as a so-called "environmental moderator," since support comes from outside oneself (Stetz, Stetz, & Bliese, 2006). In the incident described in the beginning of the chapter, the team had a tremendous amount of social support in each other and from each other. We had been training and working together for a long time, and knew each other very well. This helped in reducing stress a great deal in the situation in which we found ourselves. As a result of this social support, our *samhandling* worked quite well, despite an unforeseen incident.

The importance of team efficacy for *samhandling*

In the aforementioned incident, our team had a high degree of what is known as "team (or collective) self-efficacy" (Bandura, 1997). Based upon our selection and later training, we were quite confident that we could solve our missions.

A word of caution here. Your individual self-efficacy and your team efficacy need to be realistic and not inflated. Getting to know your limits in *samhandling*, as well as your weaknesses and strengths, is an essential part of functioning better together.

A model describing the relationship between stress, unforeseen incidents and *samhandling*

Based on the previous discussions of several factors that have an effect upon stress and *samhandling*, it is possible to conceptualize this in a simple model. The selection of factors in the model is based upon a semantic theory construction, which is a process of model construction based upon certain parameters. Several sets of chosen parameters at both individual and team level thus constitute the model (Kvernbekk, 2002). The chosen individual factors/parameters are self-efficacy, resilience and hardiness, character strengths and implicit coordination. At the team level, factors such as social support and team self-efficacy are important, in order to cope with stress and to facilitate better *samhandling*. In addition to stress and *samhandling*, the model also incorporates the unforeseen (Kvernbekk, Torgersen & Moe, 2015). The unforeseen is included in the model as it is known to lead to increased stress and less *samhandling*. Figure 20.1 describes this model.

The main point of the model in Figure 20.1 is that unforeseen incidents will normally lead to an increased perception of stress and less ability to execute *samhandling*. Levels of individual and team factors will vary according to where one is in the model. Where one finds oneself in the model will be dependent upon the experienced level of stress, the level of *samhandling* needed, and the level of unforeseen incidents taking place.
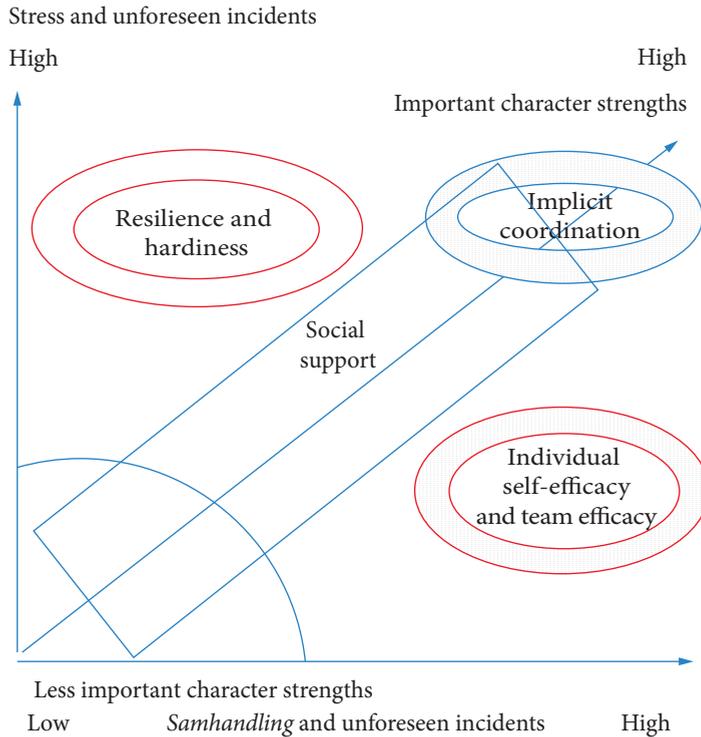
Figure 20.1 Unforeseen incidents and their relation to stress and *samhandling.*

The relation between a low level of stress, *samhandling* and unforeseen incidents

When the level of stress is low, the level of *samhandling* is low and there is not much that is unforeseen, the individual level of self-efficacy will also be low. This is because there is no need for a well-developed self-efficacy, due to the simplicity of the tasks being executed and the low level of stress and unforeseen incidents. Routines and drills will take care of the normal incidents. The need for individual resilience and hardiness will also be low. As one is not challenged at this point, there is nothing to bounce back from. Also, when the level of stress is low, the level of required *samhandling* is low and very little is unforeseen, less important character strengths will be needed to solve a mission. Character strengths such as, for instance, prudence (being careful about your choices) and

kindness will be used. Implicit coordination will not be important under these conditions, as there will usually be enough time to sort out any problems that arise. One does not, therefore, need a very clear mental picture of what the others in a team are doing. The social support given to each other in the team and the team efficacy do not need to be high when the stress level is low, the need for *samhandling* is low, and not much is unforeseen. Things are working well at this point, so there is not much need for social support either.

The relation between a high level of stress, *samhandling* and unforeseen incidents

However, as can be seen from the model, this picture changes when unforeseen incidents start occurring. Then the stress level increases and the need for *samhandling* also becomes more important. Individual self-efficacy becomes more important, that is, that each individual in a team believes that he or she will be able to handle the unforeseen incident. This includes, for instance, determination and goal setting (US Department of the Army, 2015). Resilience and hardiness will show their value, as one might try different solutions and perhaps fail. Having a well-developed level of resilience and hardiness will then facilitate *samhandling*, as one tries again and does not give up. When the level of stress and the need for *samhandling* increases, the use of character strengths will also change. As the level of unforeseen incidents increases, this will lead to one needing other more suitable and important character strengths. Character strengths that will be increasingly important during stressful incidents, when one is required to execute *samhandling* at the same time, are integrity, teamwork, and persistence (Gayton & Kehoe, 2015a; 2015b). As the level of *samhandling* increases, implicit coordination becomes more important. It is vital for each individual to know exactly what the other team members are doing. This is simply because of the lack of time caused by a suddenly-appearing unforeseen incident, and the need to solve the incident quickly. The need for social support will be high, and social support used as a coping strategy has been found to improve performance under stressful situations (Milgram, Orenstein &

Zafrir, 1989). Social support will act as a buffer against stress and facilitate more efficient *samhandling*. Being able to function well as a team, that is, having a high level of team efficacy, will become increasingly important as the level of stress and required *samhandling* increases. Unforeseen incidents will thus require a team that believes in its mutual abilities to handle whatever is thrown at them. However, it needs to be said that both individual self-efficacy and team efficacy need to be realistic and based upon previous training and experiences. Otherwise, the level of self-efficacy and team efficacy might not be suited to solve incidents that may occur suddenly.

Conclusion

This chapter started with an introduction to the theme of stress during *samhandling*. There is no doubt that modern military operations are demanding, and are very often accompanied by various levels of stress. Stress affects the ability to function well together, and stress has a clear effect upon *samhandling*. Four individual and two team factors are seen as important if one wishes to counteract the effects of stress, and increase each individual's and the team's ability to conduct *samhandling* when facing unforeseen incidents. Working on improving one's self-efficacy, resilience and hardiness, character strengths and implicit coordination are important on an individual level. Working on improving the social support given by and to the team members, and working on team efficacy are also important. Together, these individual and team factors will facilitate *samhandling* in stressful and unforeseen situations.

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Effective Cooperation Between Strangers in Unexpected and Dangerous Situations – A Matter of "Swift Trust"

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Abstract: This chapter aims to discuss what it takes to make people or groups that do not know each other previously establish effective cooperation during unforeseen events. The focus is on the formation process of "swift trust", and the potential prerequisites and outcomes of such trust, seen as an alternative to traditional, history-based trust approaches that dominate the research literature of today. "Swift trust" may enable effective cooperation even among people that are unfamiliar with each other. This is seen as a relevant perspective because such temporal groups often handle unforeseen and critical events. Given the limited amount of research on "swift trust", the chapter also aims to identify future research questions. In the analysis, I utilize different theoretical perspectives, including the social sciences, experimental psychology and leadership, and seek to conclude the investigation by identifying different leadership strategies that may stimulate the formation of "swift trust".

Keywords: *Samhandling*, swift trust, leadership, temporal groups, the unforeseen

Introduction

The purpose of this chapter is to introduce an alternative approach to the long-held theoretical assumption that people need to have developed a high level of trust, based on an extensive history together, to be able to cooperate during such unexpected and dangerous situations that Torgersen (2018) outlines in relation to the *Bow-tie Model* in Chapter 1 (e.g., Cannon-Bowers & Salas, 1998; Siebold, 2007). As an alternative point of view, I will discuss how people and groups that are strangers to each other may still be able to establish a well-functioning degree of cooperation under such conditions, similar to that of groups with considerably higher levels of interpersonal knowledge and experience, by developing a state of "swift trust" (e.g., Ben-Shalom, Lehrer, & Ben-Ari, 2005).

This may be a fruitful perspective, given that in dangerous and unexpected situations like terrorist attacks, avalanches, explosive fires, or mass casualties on the motorway, the people and groups standing back-to-back and dealing with the situation are, in many cases, *not* highly cohesive emergency units, but rather strangers that have never worked together before (e.g., Ben-Shalom et al., 2005; Curnin, Owen, Paton, Trist, & Parsons, 2015; Fahy, 2012). These situations encompass a cluster of threats and problems that require combined efforts from a wide range of specialists and departments, often with little or no previous familiarity with each other. They may also entail urgency, where those present have to respond immediately, making the best out of the resources at hand within the framework of an "ad hoc" organized group of strangers.

It is worth noting that such a gap between prevailing theory and operational realities, which often includes the efforts of temporal groups, may be the reason that establishing well-functioning cooperation between strangers is a form of competency and knowledge that is under-stimulated or completely absent from training and education of professional emergency workers. This lack of awareness and focus may in turn lead to a lack of cooperation and the loss of life, in worst-case scenarios.

Against this background, the question I pursue is the following: What does it take to make people or groups that do not know each other, or see each other as strangers, or even are prejudiced towards each other,

quickly establish effective cooperation in dangerous and unexpected situations? According to Meyerson (1996), a key challenge is the rapid development of "swift trust" in temporal social systems.

Temporal systems responding to the terrorist attack on Utøya 2011

On the 22nd of July 2011, a terrorist first set off a bomb outside the Norwegian Government Buildings in Oslo, killing eight people. Disguised as a police officer, he then travelled 40 km northwest of Oslo, where he attacked the youth summer camp of the Labor Party, on the isolated island of Utøya. In the space of 70 uninterrupted minutes, the terrorist shot dead 69 people and wounded another 66, before he was eventually detained by the police.

When the police SWAT unit finally arrived at the scene, while the shooting was still in progress, they chose to approach Utøya in a rubber dinghy. During the voyage towards the island, their engine suddenly broke down. Luckily, they were soon approached by two recreational boats. After a short conversation, a local resident (civilian), Oddvar Hansen, and his girlfriend, Lill-Hege Nilsen, invited four unfamiliar police officers on board their day-cruiser. Sailing at a speed of 45 knots, they transported the assault team to a landing site on Utøya chosen by Hansen, at great personal risk. Immediately after the first landing, Hansen was requested to take another two other groups into the "hot spot", before learning that the terrorist had been captured.

This assault group can be described as a *temporary system,* defined by Goodman & Goodman, 1976:494) as "a set of diversely-skilled people working together on a complex task over a limited period of time". According to Meyerson, Weick and Kramer (1996:167), these systems may "exhibit behavior that presupposes trust, yet traditional sources of trust – familiarity, shared experience, reciprocal disclosure, threats and deterrents, fulfilled promises, and demonstrations of non-exploitation of vulnerability – are not obvious in such systems". Thus, individuals have little time to sort out who knows precisely what and no time for the usual forms of confidence-building activities that

contribute to the development of trust, in more traditional, enduring forms of organization. This is particularly challenging, given that the tasks and missions usually require high levels of interdependence and little self-sufficiency, in order to adapt effectively to the situation. In other words, the members are forced to cooperate by contributing their partially-unique competency, in order to solve the shared problems ahead of them.

In order to convert the individual expertise of strangers into an interdependent cooperation, a demanding challenge is to reduce the sense of uncertainty and vulnerability that naturally occurs among members that do not know one another, but still need to rely on one another, during dangerous circumstances. One mechanism for the reduction of such uncertainty may be "swift trust", as illustrated in Figure 21.1.
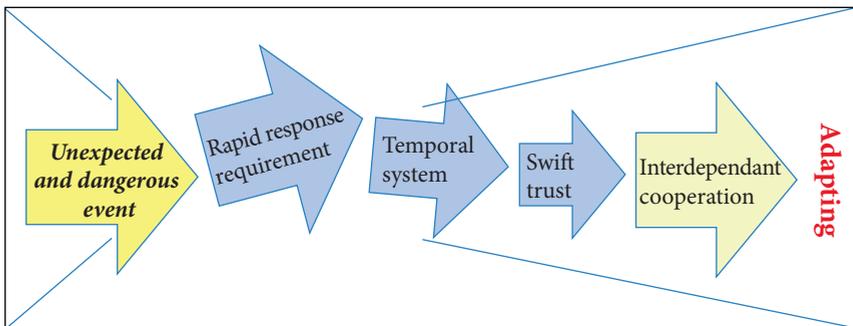
Figure 21.1 "Swift trust" – the link between the unexpected and temporal, and interdependent cooperation, during unexpected and dangerous situations.

What is "swift trust"?

There is no unified and clear definition of "swift trust", distinguishing it from other forms of trust. However, according to Meyerson et al. (1996:170), trust in temporary systems is not simply conventional trust scaled down to fit brief encounters among strangers, but arises in a situation where "…people have to wade in on trust rather than wait while experience gradually shows who can be trusted and with what: Trust must be conferred presumptively or *ex ante*". It follows from this that rapidness of

the trust-development process is essential in "swift trust", and that it forms in response to a different set of antecedents, based on rapid perceptions, compared to more history-based, conventional trust. Therefore, building on Meyerson, "swift trust" is better perceived as "a unique form of collective perception and relating that is capable of managing issues of vulnerability, uncertainty, risk and expectations" (Meyerson et al., 1996:167) in a temporary setting. Thus, in an emergency situation, "swift trust" can be seen as the result of a brief evaluation process related to fears of ending up hurt, leading to a sense of positive outcome expectancy that enables people to overcome a subsequent reluctance to contribute to the situation at hand (Fahy, 2012; Hyllengren et al., 2011). It is nurtured by rapid perceptions of variables that reduce the experience of vulnerability, uncertainty, and risk.

In order to understand "swift trust", Meyerson et al. (1996) suggests three aspects of trust, based on general trust theories, that may capture nuances in the construct: Firstly, as an element of "accepted vulnerability to another's possible but not expected ill will (or lack of good will) towards one" (Baier, 1986:235). Secondly, as a belief: "that when offered the chance, he or she is not likely to behave in a way that is damaging to us" (Gambetta, 1988:219) – coincident with uncertainty reduction. Thirdly, as risk and the choice to expose oneself to a situation where the possible damage may be greater than the advantages sought (Luhmann, 1988, p. 98). Accordingly, (swift) trust is an attitude that allows for risk-taking decisions, and without it, risk is avoided, innovative activities dry up, and only routine actions are applied. This suggests that "swift trust" is not only a cognitive process, but is, in accordance with Popa (2005:9), "an individual's willingness to take risks in a temporary group and it has a behavioral manifestation that involves the actual act of risk-taking". In an emergency situation, such behavior could be manifested, for example, as the willingness to enter a dangerous avalanche area on the basis of strangers' risk assessments, or participating in an attack where your survival depends on unfamiliar people's ability to cover you.

A lack of "swift trust" may have several negative consequences. For example, withdrawal, passivity or even escape by people or groups that could have been valuable assets during an emergency (Fahy, 2012), lack of information-sharing or impaired delegation and decentralized

decision-making, to the benefit of control behaviors that slow down decision cycles or increase information overload (Fahy, 2012; Mishra, 1996). Such low trust perceptions may also lead to relevant and available resources at the emergency scene being ignored, due to pre-established negative reputations, as is frequently witnessed in the interplay between the police and fire department in New York (Fahy, 2012).

Therefore, an important element in a theory about effective collaboration between strangers is the identification of factors that may stimulate (or obstruct) the formation of "swift trust". Here, *the first meeting* may be of great importance.

How can "swift trust" be developed?
The first meeting – the birth of "swift trust" (?)

For the formation of "swift trust", the *first meeting* between individuals or groups that need to collaborate may represent the "moment of birth" (Ben-Shalom et al., 2005). At this meeting, people strive to learn as much as they can about those they are dealing with, and subsequently decide on how they will approach the relationship in the future (Meyerson et al., 1996; Sunnafrank & Ramirez, 2004). A company commander puts this need into words in the middle of a combat operation:

> "When you don't know, it worries you. You don't know what his capabilities are, what he knows… You ask him: What can you do, what are your capabilities? … You study him, learn to know him a bit, you must do that." (Ben-Shalom et al., 2005:73).

Little is yet known about the mechanisms and behaviors that stimulate the formation of "swift trust" during such initial encounters, and only one study has, to our knowledge, addressed the question empirically (i.e. Ben-Shalom et al., 2005). However, the more substantial body of research on first impressions may represent an alternative path to the development of this theory. From this research, we learn *first* that impressions about other people are formed very quickly and often sub-consciously. For example, in a study of trait inferences based on facial appearance, trait judgments made after only 100 milliseconds of exposure, concerning

variables like trustworthiness and competence, correlated highly with judgments made in the absence of time constraints (Willis & Todorov, 2006). *Second*, studies suggest that first impressions have a long duration, and determine how communication and relations develop over time. An example of this is provided by Sunnafrank and Ramirez (2004), who show that impressions made after three-minute first encounters determine the long-term nature of relationships. And *third,* a large body of research shows that automatic evaluations can be relatively rigid and difficult to change (Bertram, Rydell, Vervliet, & De Houwer, 2010).

The functional properties and antecedents of positive first impressions are still the subject of ongoing debate. Regarding functionality, "Predicted outcome value theory" (POVT) suggests that individuals attempt, often unconsciously, to develop relationships with those expected to be most rewarding, and restrict development with those who appear less rewarding (Sunnafrank & Ramirez, 2004). Hence, low-outcome value assessments will produce few to no attempts to continue a contact, and vice versa in the case of positive assessments. In either case, individuals will act and communicate in ways likely to maintain initial impressions and relational decisions.

In a field study of combat units at war, Ben-Shalom and colleagues (2005) observed two parallel processes related to swift impression-making in temporary settings. The members initially imported expectations of trust from other settings, making use of category-driven information processing to form *stereotypical impressions,* due to the limited room for developing expectations based on first-hand information. However, once different units had been placed within a new context, such category-driven reputation was not enough to assure collaboration. A process of *mutual testing* was also activated in order to detect the possibility of extending cooperation to more sensitive areas.

From this, I deduce that awareness of the first-impression processes interwoven in first meetings and the ability to create a positive impression, may represent an important competency for emergency workers, who often collaborate with strangers. An awareness of stereotypical impressions generally attributed to one's own profession, and the significance of rapid demonstrations of competency, may also represent knowledge that

could be transformed into pre-established strategies that can be activated to stimulate "swift trust".

It is, however, notable that no experimental studies have studied behaviors or traits that may stimulate positive first impressions in a complex and dangerous setting, affecting the level of "swift trust". Nevertheless, there are strong indications that such positive impressions and trust are related to how leadership is conducted.

Competent leadership and involvement

Leaders are important, and a large body of research shows a direct link between a leader's behavior and how well a group functions. Many studies also show that the effect of this behavior is often mediated by trust (e.g. Zhu, Newman, Miao, & Hooke, 2013). In addition, it has been suggested that trust in a leader will have a contagious effect on the group, propelling the formation and distribution of trust in the group as a whole, possibly due to an increased optimism related to mastering the situation (Fulmer & Gelfand, 2012; Meyerson et al., 1996). This may explain why the *leadership* factor, in a study of Scandinavian military officers, emerged as the single most important factor explaining "swift trust", or the lack of it, in critical situations (Hyllengren et al., 2011).

According to Kolditz (2007), those leader characteristics and behaviors that are perceived as instrumental in getting people through a dangerous situation alive, are the most important in the formation of follower-attributed trust. In a study of US soldiers at war in Iraq, Sweeney (2010) found that particularly followers' perception of their leaders' *combat-related competency* determined how much they trusted these leaders. This study also found that soldiers re-evaluated trust in their leaders at the point of transition from peace to combat operations, shifting from a strong appreciation of relationship-oriented leadership into a much stronger appreciation of leaders' military skills and tactical judgment, as exemplified in the following quote from a US soldier at war in Iraq:

> "I don't like the guy. I don't know how to deal with him when we get off work, but as far as being professional and being out there in the trenches, he is a great squad leader… I admire him." (Kolditz, 2007:12).

In the same vein, on the basis of a content analysis of 988 critical incidents, Lapidot (2007) found that subordinates' perception of vulnerability increased the importance of behaviors reflecting leader ability, compared to benevolence, to avoid swift erosion of trust. The question is, however, how such professional competence can be demonstrated quickly – in order to nurture "swift trust".

Few, if any, studies have investigated this important question empirically, but several assumptions can be made:

(1) There are indications that static factors, such as leaders' rank and status, may stimulate "swift trust" in the leader in a temporary group (Lapidot et al., 2007). By symbolizing competency and responsibility, such symbols may nurture hope and positive expectations, and lower a feeling of vulnerability.

(2) As shown by Hyllengren et al. (2011), leaders' rapid trustworthiness is highly dependent on their ability to display emotional stability in the face of danger – possibly as an indication of coping ability. Thus, a leader's ability to gain control over personal fears and stress-reactions may be an important amplifier of "swift trust".

(3) As part of the observed process of mutual testing of others during first meetings, Ben-Shalom (2005) found that even simple arrangements, like how a tank commander placed tanks in a parking area, served as a test of competence to detect the possibility of extending cooperation to more sensitive areas. This indicates that leaders should be involved, not only in initial decisions, but also in the actual organizing, planning and first operational responses. Extended delegation, rendering the leader "invisible," may give an advantage in terms of overview, but may obstruct the possibility for strangers to learn more about the leader quickly and subsequently develop "swift trust".

(4) Effective leadership in dangerous situations also requires rapid decision making, tailored to a constantly changing environment (Kolditz, 2007). Thus, a demonstration of decisiveness may initially stimulate trust swiftly, which partially concurs with Meyerson et al.'s (1996) suggestion that "swift trust" is more resistant in groups where leaders and followers are *skillful improvisers*. This implies

that for "swift trust" to evolve, the leader should not take a purely authoritarian role but rather demonstrate a willingness to change plans together with the group (Lester, 2006; Meyerson et al., 1996). This concurs with Hyllengren et al.'s (2011) finding that the ability to encourage involvement and creativity is the single-most significant leadership behavior related to "swift trust". Here, the question about why such involvement might stimulate "swift trust" is both relevant and under-researched. One could, however, speculate that involvement rapidly increases a sense of control, which subsequently stimulates positive outcome expectations and "swift trust", but the basis for this claim is, as yet, thin.

(5) A leader's ability to share risk with followers has also been suggested as a way to stimulate trust in leaders in dangerous contexts (Kolditz, 2007). By initially exposing him or herself to the dangers of the situation, the leader both communicates hope that the situation may be mastered (and will not become a death sentence), and nurtures a sense of justice, by demonstrating willingness to share the same fate as their followers – possibly stimulating "swift trust".

Role clarity as "swift trust" development

An additional challenge for leaders in temporal settings is to stimulate a sense of common role clarity in the group (Curnin et al., 2015). Meyerson et al. (1996) suggest that strangers build trust faster by dealing with each other through roles than through personal relationships, which may take a long time to develop. This is further supported by McEvily and Perrone et al. (2003) who find that reducing role redundancies is an effective strategy to increase trust within organizations. Thus, an ability to rapidly establish a common understanding of each other's responsibilities and tasks (i.e. role clarity), represents a form of (swift) trust building suited for temporary teams, as demonstrated also in a recent study of liaison officers in emergency operation centers in Australia (Curnin et al., 2015).

However, according to Fahy (2012), such swift establishment of roles may be difficult to achieve. Often, in complex and dangerous situations, first responders have difficulty seeking out counterparts early in an operation

to share information regarding their capabilities or tactics, or to decide on strategies. An initial meeting does not occur and roles are not clearly defined; units operate independently without communicating their roles or understanding the roles of others. Curnin et al. (2015) also observed that in groupings of individuals with different backgrounds and professions, establishing clear roles was difficult, due to different perspectives and experience. This situation points to another challenge related to the development of "swift trust": the integration of different group identities.

The challenge of a new "us" and integration of "them"

During the 9/11 terrorist attacks in New York, the emergency response agencies in New York City lacked the ability to collaborate and share information during the initial response (Fahy, 2012), which led to the deaths of emergency responders at the World Trade Center, among other things. In the same vein, cross-agency agencies had difficulty establishing trust and cooperation during Hurricane Katrina, due to strongly-held negative organizational stereotypes of the other organizations and perceived ideological differences, according to Zolin's (2002) findings.

This lack of trust could be viewed as a clash of social identities and general distrust between agencies. According to Tajfel's (1981) Social Identity Theory, individuals gain positive self-identity through membership in a group, partially from a general overestimation of one's own group and a devaluation of others, nurturing a state of competition and subsequently, a lack of trust between groups. This implies that a state of pre-established distrust and competitive attitudes may need to be changed quickly in order to develop a functional cooperation between groups in temporal settings.

In their field study of Israeli combat forces, Ben-Shalom et al. (2005) observed four strategies that enhanced the integration of unknown "visiting units" into established "host units", and the subsequent rise of "swift trust". First, any logistical needs vital for the "guest" elements to carry out their task were promptly met (e.g. kitchen services, sleeping areas, ammunition), and the "host" demonstrated a strong will to learn from the others. Second, allowance was made for the smaller units to freely express their

professional knowledge and authority without direct relation to their rank in the military, so that a tank commander, for example, might be consulted by a brigadier commander on how to best utilize the tanks. A third factor was related to "distributive justice" and a fair balance in the allocation of quality assignments during the mission. And fourth, an innovative combination of doctrinal and "local" practices that entailed a toolbox of routines, language, drills, etc. was often developed to fit the specific situation, stimulating a commonality among forces that had no common history.

In the same vein, Zolin (2002) emphasizes the importance of creating a unique and temporal task group identity, a new "we" that encompasses all present groups, possibly even by naming the new formation in order to enhance cooperation. In this process, a leader's enthusiasm for the temporary group is seen as a decisive factor in establishing a team mindset.

Conclusion

In this chapter, I have tried to emphasize the relevance of developing "swift trust" in emergency situations and some ways of succeeding in this. It is my opinion that there should be more focus on this topic in both research and training of emergency workers. A search in Google Scholar puts this in perspective. On the topic "team building", about 179,000 references occur, while "team development" gives about 41,800, and "social cohesion" 361,000. In comparison, the topic "cooperation between strangers" receives about 555 references. If you add "swift", "rapid" or "quick" to all of the above-mentioned topics, notably no references occur. From this we learn that much is known about what constitutes a well-functioning group, but it also shows a gap between the realities often facing first responders to an emergency situation, having to cooperate with people and groups they have never met before – and the body of contemporary theory.

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CHAPTER 22

Learning from Sports: *Samhandling* and Risk in Soccer

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Abstract

This study shows some generic characteristics from sports that are of relevance to *samhandling* structures under risk. The findings are based on a case study of the concept of "Total Football" and the Rosenborg Football Club (RBK) in Norway. Football is a dynamic sport with several factors that come into play and where flexible solutions are demanded. The case is also of relevance for organizations in handling risk. RBK's *samhandling* is based on "Total Football" and flow theory. In analyzing RBK, we also apply theories of improvisation. RBK created a platform that gave both direction to choices and a clear playing pattern. This platform further ensured that tasks could be executed at high speed and high intensity, described as "flow". Flow contributed to both speed and precision in the playing pattern. It is concluded that the following is relevant for other organizations: 1) Forming a deeper understanding of *samhandling* and ensuring top management commitment; 2) Creating, establishing and maintaining *samhandling* in a manner that suits the organization; and 3) Minimal structures can be of great importance for organizations in unforeseen and risky situations.

Keywords: *Samhandling*, interaction, football, competence, flow theory, risk, unforeseen

Introduction

Are there characteristics in sports that are of relevance for *samhandling* structures that can also have relevance for risk situations and unforeseen situations in other organizations and branches? We have examined the *samhandling* concept, play pattern and philosophy of RBK. A well-performing and functioning soccer team can be viewed as the product of several factors. In the following example, football will be used. It can be used to determine which football team is performing best. A football player has ten other players to relate to; he or she also has eleven other players on the opposing team to consider.

This provides a myriad of possibilities, which makes the game complex. In that sense, football is a very good example of studying the unforeseen. "Football players have to react to surprising moves from the opposition and also generate moves that catch opposing players off guard" (Montuori, 2003:240). Improvisation plays a key role here. This can be termed as "react and act" (Bjurwill, 1993). The coach has less impact on the team during the match, when the noise in the stadium prevents verbal communication and communication is reduced to short messages or signals. Hedberg et al. (1976) observes that system designers have weak direct influence on participants' behavior. That is, it is not possible to command and control the situation.

The risk concept here is linked to both the potential for injuries during training and matches and to the uncertainty of match results. Firstly, training will need to identify hazard signals and maneuver away from them, often very quickly. Secondly, both players and the team as a whole must have an overview of the game. The uncertainty of match results is linked to the extent to which team-based play systems and the individual's skills work along the way, when faced with the other team, and the game's development from second to second.

Similarly, Hedberg et al. (1976) suggests that designers should reconceive their roles as catalysts for a system's self-design. Becker (1986) offers the concept of culture to explain the phenomenon of concerted activity and draws insight from playing improvised music such as jazz. Therefore, Weick (1993; 1999) suggests the jazz band as a preferable prototype organization. Barret (1998) claims that an orchestra metaphor, connoting

pre-described musical scores and having a single conductor as leader, is limited when compared to the ambiguity and high level of turbulence that many managers experience. Alvesson and Spicer (2011) claim that how we understand and interpret leadership is absolutely central to whether we actually respond to it. What is more important is what we do with the metaphors (Davidson, 1984; Hatch, 1997:2002; Rorty, 1989).

Morgan (1986) points out that viewing through a metaphorical lenses provides a way of seeing that might actually block other ways of seeing, putting us in a position of not being able to see. Barrett (1998) writes, "Jazz players do what managers find themselves doing: fabricating and inventing novel responses without a pre-described plan and without certainty of outcomes, discovering the future that their action creates as it unfolds." (Barrett, 1998:605). Perky (1991) also supports the view that organizational strategy may be seen through the lens of jazz improvisation. His central premise is that the organization might be better off if they started to conduct themselves with the sense of flexibility and environmental negotiation that jazz improvisation employs. Brady (2011) examines the Battle of Stalingrad and stresses that, while the German commander, Field Marshal Friedrich Paulus, stuck to the plan and doctrines too rigidly, his opponent, the Russian Marshal, Georgij Zjukov, improvised and allowed improvisation by the Russian high command, Stavka, providing him with more freedom and flexibility to adapt to urban warfare.

The case in this article concerns RBK and their *samhandling* pattern under coach Nils Arne Eggen's leadership. This chapter examines the following research question: How can RBK's way of playing be explained by structure and the ability to improvise? We use football and jazz as metaphors for understanding organizations dealing with complexity and the unforeseen.

Brief case description

During Nils Arne Eggen's term as head coach, spanning from 1988–2002, RBK experienced remarkable success. In short, they won the national series thirteen times during this period (and every year between 1992–2002), becoming Norwegian Cup champions five times in the same

period. From 1995 to 2002, they qualified for the Champions League tournament every year, reaching the quarter-final in the 1996–1997 season and winning the group stage in the 1999–2000 season. By 2002, RBK was amongst the most experienced teams in the tournament. They qualified for the Champions League tournament again in 2004, 2005 and 2007, after the reign of Nils Arne Eggen had ended.

The influences on their play can be traced back to two sources. The most influential source is "Total Football" (Eggen & Nyrønning, 1999). Here we can connect "Total Football" to Nils Arne Eggen and his focus on the *samhandling* between players as a means of exploiting opportunities. Nils Arne Eggen uses the term *samhandling*. The other important term is the favored foot ("Godfoten"). The idea is that you should focus on your strongest side and use it as a part of the system, for the benefit of all. Steiro & Torgersen (2013) imply that *samhandling* is about something to do "in action" rather "on action"; that is, it is a deeper form of cooperation which involves more direct influence between individuals, building on each other's skills and competence. The latter can also be traced to Belbin (1998; 1999), Miles & Watkins (2007) and Torgersen & Steiro (2009), focusing on complementary skills and roles.

Theoretical background
"Total Football" and *samhandling*

"Total Football" was developed by the legendary Dutch coach, Rinus Michels, and the legendary player and later coach, Johan Cruijff. Michels (2003) borrows the conductor metaphor of the philharmonic orchestra but, at the same time, he pinpoints some obvious differences: in contrast to the musicians, who can sit down and concentrate, football players are constantly confronted with elements all around them (Michels, 2003). Wilson (2008) notes, "'Total Football' is the label given to an influential tactical theory of association football, in which any outfield player can take over the role of any other player in a team.…You make space, you come into space. And if the ball doesn't come, you leave this place and another player will come into it." (Wilson, 2008:37). "Total Football" was pioneered by Ajax and the Dutch national football team. "Total Football"

was exported to Barcelona Football Club when Rinus Michels moved to the club; he was later joined by Johan Cruijff (Wilson, 2008; Winner, 2000). Space and the creation of space are central to the concept of "Total Football". The constant switching of positions that became known as "Total Football" only came about because of this spatial awareness. On the dynamics of football coaches, Carson (2013) writes, "As with many leadership arenas, football leadership has become a whole lot more complex. But the leader who can use his team of staff to bring simplicity out of the complexity will win the day." (Carson, 2013:122).

The second influence is that of Nils Arne Eggens's coaching colleague, Kjell Schou Andreassen, who led the Viking Football Club to three championships between 1971–1974 in Norway. They coached the Norwegian national team together, albeit with limited success. Andreassen was later strongly influenced by the psychologist Csikszentmihalyi (1996; 2002) and the focus on flow theory (Andreassen & Wadel, 1989).

Kuper and Szymanski (2009) explain Johan Cruijff's thinking, "He was a philosopher of football and the most important thing about football, for Cruijff, was the pass. 'You never passed to a teammate's feet,' he lectured, 'but always a yard in front of him, to keep the pace in the game.' While the first player was passing to the second player, the third player already had to be in motion, ready to receive the second player's pass." (Kuper & Sxymanski, 2009:397). *Samhandling* between the players and their special skills in a more structured setting becomes more important and raises tactical awareness. For Cruijff, 4-3-3 was the formation that best covered all spaces on the football field. It was a more explicit way of using the wings and focusing on complementary skills. The wing backs could also be used offensively, given that other players covered their defensive tasks.

Improvisation and flow

Eisenberg defines improvisation as "making do with minimal commonalities and elaborating on simple structures in complex ways" (Eisenberg, 1990:154). Eisenberg writes further on players balancing autonomy and interdependence. Improvisation can be labeled as flow, that is, a phenomenon in which spontaneity and creativity reach such high levels that radical transformation happens in real time (Csikszentmihalyi, 1996).

Hatch (1997) focuses on intuition guiding something in a spontaneous but historically contextualized way. Organizational improvisation can be defined as "the conception of action as it unfolds, by an organization and/or its members, drawing on available material, cognitive, effective and social resources" (Cunha, Cunha & Kamoche, 2002:99). Seligman (2003) proposes that flow is more likely if a person concentrates on using their "signature strengths". The theoretical foundation can be linked to Csikszentmihalyi (1996; 2002). Most studies of flow in sport have focused on individual sports, as it has been argued that these are more likely to elicit flow, particularly sports that are repetitive and provide fast feedback (Csikszentmihalyi, 1975). However, there is empirical support of flow experience in team sports as well (Jackson, 1995).

Flow theory and *samhandling*

Flow theory can be linked to *samhandling* in football. In all situations, the balance between challenges and skills is important. Challenges beyond our skills push us out of the comfort zone and lead to frustration and then anxiety (Andreassen & Wadel, 1989; Eggen & Nyrønning, 1999; Simonsen, 2005; Skrede, 1992). Left alone, one cannot adjust this imbalance and is in need of good helpers. Eggen explains, "Teammates using their 'favored foot aim at your favored foot, resulting in plus experiences. A platform of mastery is built together." (Skrede, 1992:106). Eggen & Nyrønning (1999) point out that, "There are no problems in performance demands that bring you out of the flow zone, if you collectively control performance you can be adjusting and be rooted at a higher performance level." (Eggen & Nyronning, 1999:225). Flow is defined as "that holistic sensation that people feel when they act with total involvement" (Csikszentmihalyi, 1975:36). Csikszentmihalyi (1997) and Jackson and Marsh (1996) identified nine characteristics that are the fundamentals of flow: balance between challenges and skills, fusion of action and consciousness, clear goals, immediate feedback, concentration and focus on activities, feeling of control, loss of self-consciousness, time distortion and autoelic experience. Flow can be achieved by job design (Bakker, 2008; Demerouti, 2006; Salanova, Bakker & Llorens, 2006). There are similarities between

Csikszentmihalyi (1975; 1997; 2003) and the Demand and Control Model proposed by Karasek and Theorell (1979). The model states that there is an interactional effect between demand and control. Karasek and Theorell (1990) added social support to the model later. Leitao (2009) studied RBK and concluded that ability is not the sum of the group's individual competence, but the sum of competence that is created together. Herberg, Torgersen & Rundmo (2018) (Chapter 15) found that *samhandling* is the most important factor in risk situations and meeting the unforeseen. Lagadec (1993) has stressed that the foundation for crisis management is established before the crisis occurs.

Therefore, it is of great interest to study an organization that has been very aware of *samhandling* and see how it has been both developed and maintained. Sports have the advantage of making it easier to assess good performances, particularly over a period of time. A football team can work with a plan but needs to take into account the dynamics of the situation. They need to take certain risks to win or to secure a good result.

Method

The empirical data of this study is based on document analysis and semi-structured interviews. The starting point is Nils Arne Eggen's book *Godfoten: Samhandling – veien til suksess* [*The favored foot. Samhandling as the road to success*] (Eggen & Nyrønning, 1999). It describes the football philosophy clearly. Skrede (1992) has also provided insight into the ideas behind the RBK philosophy and Nils Arne Eggen's way of leading.

The following two documents provide valuable insight into the development of ideas. Åsvoll, Gudmundsdottir & Karlsdottir (2002) studied coach Bjørn Hansen (head coach of RBK between 1984 and 1985, and assistant coach to Nils Arne Eggen 1990 –1997). Simensen's (2005) book *Godfotarven* [Favored foot heritage] also provides an important window into the RBK mentality. Nils Arne Eggen and four key players of the golden era were interviewed between September 2015 and February 2016. The interview guide was based on reading the documents listed above and linked directly to the problem formulation. Nils Arne Eggen was interviewed for one and a half hours. We also asked four key players for

interviews, which they all agreed to do. These interviews lasted between 45–60 minutes. The players' identities are kept anonymous. They are all players who were considered to be part of the starting 11, who had played for several seasons and who had substantial Champions League experience. Thematic analysis was adopted to analyze the interview material (Braun & Clarke, 2006). Our analytical approach was driven by the researchers' interest in the research question and, in particular, the works of Skrede (1992) and Eggen and Nyrønning (1999).

The analysis can be classified as a deductive, thematic analysis or a "top down" process, according to Braun & Clarke (2006). A theme was defined as patterned response or meaning within the data set (Braun and Clarke, 2006:82). In addition, we have used concepts from Torgersen and Steiro (2009) as a framework. We have also examined other relevant chapters in this anthology (see Chapter 1, Torgersen, 2018), in order to put the current study within a context of risk and the unforeseen.

Results and discussion

Nils Arne Eggen was very concerned with collective issues and his philosophy is best illustrated by the following quotation: "The highest form of collaboration is when the player moves away from 'must do' to 'want to do' the same thing." The foundation lies in the individual player's educational skills: their ability to make others good. The ability to take responsibility for others' development and performance. Nils Arne Eggen focuses a lot on social resources that bring out the best in players. A left wing needs to constantly run, either to get a pass or to open up and create a space for the second or even third attacker. The left wing player "Mini" Jakobsen needed to get a pass which allowed him to utilize his "favored foot"; in this case, a low pass in front of him. This is completely in line with the thinking of "Total Football" (Michels, 2003; Wilson, 2008). High, curved balls would not lead to mastery but only frustration for this left wing. According to Nils Arne Eggen's philosophy, the following points are the foundation for the postulates and the interaction: 1) You will play well if you make others good, and 2) It is all about channeling the ego-drives to a collective effort. This was very evident both from

the literature review and from the interviews. The players mentioned the collective as a crucial point.

From football to jazz

It is interesting to note that Nils Arne Eggen uses an example from jazz, claiming, "…it is not until common ground is established that creative improvisation provides meaning and development." (Eggen and Nyronning, 1999:125, authors' translation). Montuori (2003) has also compared football to jazz. Amabile (2001) stresses the importance for a group to share excitement over the team's goal and mutual recognition of each other. Løfdali (2014), referring to RBK's success, says "Eggen's explanation of the basis of success can be summed up in one word: *samhandling*. What the players highlight is the coach's clear picture of how to play football and his unique ability to transfer this to the players." (Løfdali, 2014:29, authors' translation).

This is also supported by By Rise (2014). In the interviews this was very evident too. All the players agreed that the basic structure could be identified and they all talked about focusing on the group before one's own interest. The players recognized an overall theme. They also acknowledged the high quality of training using the same theme. *"After a while, we got tired of Nils Arne's nagging and adapted to his style. We recognized the pattern, became familiar with our roles and a feeling of mastery developed."* (Player 1).

Minimal structures

The RBK philosophy consisted of 50 postulates which cannot be fully articulated here. For a complete overview, see Eggen & Nyrønning (1999). The game postulates were first introduced in 1994 to ease learning. Presented in keywords and articulated briefly, they are best understood in relation to practical execution (Eggen & Nyrønning, 1999). Based on the interviews, the following postulates seem to be of special importance and are often repeated, therefore serving as an educational tool. Other postulates are also relevant but these seven are the most common. They are presented in Table 22.1.

Table 22.1 Play postulates and their explanation

Advance ahead	Start movement before a pass is made.
Third attacker movement	Attacker one and two move, attracting the attention of the opposing team, allowing the third attacker to excel.
Play in longitudinal direction	Focus mainly on forward play.
Speedy transfers	Exploit the immediate possibilities that a mistake or non-intended pass from a co-player provides.
Concurrent movements	Several movements that the opposing team have to react to, also linked particularly to the third attacker movement.
Create outnumbering situations	One or two players in attack, such as on the left flank, open up different opportunities, creating a dilemma for the right back in defense.

Table 22.1 illustrates the play postulates of minimal structures. Minimal structures can be used as powerful tools in training. During the Battle of Britain, the Royal Air Force adopted the minimal structure, *"Beware of the Hun in the sun."* (Holland, 2010; Hillary, 2015). The German fighters preferred to attack from above, with the sun behind them. The German Messerschmitt BF 109E had its strength in steep dives and steep climbs to attack the British fighters, Spitfire MK 1 and 2 and Hurricanes MK 1 and 2. "Beware of the Hun in the sun" is simple; it was easy and essential for a fighter pilot's survival in the Battle of Britain.

Similarly, it is worth noticing that the play postulates, in Eggen's own words, are very brief and need to be seen in relation to practical exercises. The team trains intensively on a few selected movement patterns that are so clearly set out that they become automatic, releasing a significant amount of energy for improvisation and creativity. The jazz musician Charles Mingus focused heavily on collective improvisation and insisted, "You can't improvise on nothing; you've got to improvise on something" (Kernfeld, 1995:119). This is also illustrated by Nils Arne Eggen, "It can be an educational and linguistic challenge to slightly vary the same message from time to time, just like jazz. This is an important skill for a coach. Good coaches manage to convey the same message using slightly different words." (Olsen, Eggen & Ulseth, 2010:98, authors' translation).

Shadow training

The same idea was very clearly expressed in Eggen's book (Eggen & Nyrønning, 1999) and both the coach and players reported that this was reinforced during training sessions: "Look out for opportunities. A bad pass can create a new opportunity." The last twenty minutes of training were spent on "shadow training". Here, the eleven players from the starting lineup played against the rest of the team. In addition, Eggen demanded a fast pace during training. However, when necessary, Eggen would intercept with his characteristic "Stop!", meaning freezing play momentarily while he demonstrated a principle, such as "creating outnumbering situations," to get the players to interact properly. In the interviews, all of the players highlighted the quality of training, from Monday to Friday. *"The training sessions were the foundation, with clear objectives and high quality"* (Player 3). *"We were the best team, so when the attack formation played against the defense they were up against the very best. If we had flow, we knew match day would not be any harder"* (Player 1). We can see this in relation to the thinking of "Total Football", of being aware of one's own role and seeing one's contribution – "I can participate too" (Michels, 2003; Wilson, 2008).

Conclusion

This study shows that there are several factors we can learn from sports that are important for *samhandling* under risk. Firstly, in the current study, a very interesting approach emerges, regarding the use of complementary skills in a framework or picture. As Charles Mingus put it, so succinctly: You can't improvise on nothing; you've got to improvise on something." The picture is an educational tool to illustrate, create, train and adjust skills and competencies to the structure. It also demonstrates an example of focusing on competence rather than position. Secondly, it also illustrates that it takes time to establish *samhandling*. We see a strong link to the Dutch concept of "Total Football" and this has been a major inspiration for *samhandling*. The generic lessons from this case study for other organizations where *samhandling* is important can be summed up as follows in Table 22.2, with the implications on the right.

Table 22.2 Summing-up of the important factors for *samhandling*

1. **Form a deeper understanding of *samhandling* and ensure top management commitment**	It is important that the organization does not have plans that cover everything. Organizations should plan, but at the same time, they should create a framework for *samhandling* that is rooted in some basic structure within the culture of the organization. This could be, for example, acknowledging the competence of the people in the sharp end to make sound decisions.
2. **Create, establish and maintain *samhandling* in a sense that suits the organization**	The organization, with the support of top management, should train the organization for the unforeseen and make resources available in accordance with existing culture.
3. **Minimal structures can be of great importance for organizations in unforeseen and risky situations.**	Minimal structures, as demonstrated in this chapter, could serve as guiding principles that are recognizable throughout the organization. Rather than stressing that everything should be covered by plans, minimal structures could be enforced as strong guiding principles, regardless of the situation.

The understanding of, or again, the picture of *samhandling* needs to be created and reinforced by leadership and institutionalized within the organization. We can see from the current study the importance of *samhandling* through the alignment of educational, organizational and operational structures.

The main point is that top leadership creates the framework and the people in the sharp ends find out how to execute it. This means that all levels in an organization are important but in different ways. Minimal structures can create a strong common ground and, at the same time, provide flexibility within a certain framework, which is so important for meeting the unforeseen.

Acknowledgements

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Care Coordination, *Samhandling* and Patient Safety

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Abstract: This chapter focus on Norwegian healthcare policies and regulations for care coordination and patient safety. The Norwegian Coordination Reform implemented in 2012 emphasizes patient engagement, care pathways, and competence development in municipal healthcare services. Moreover, protocols for division of work tasks and collaboration between specialist and municipal healthcare services are key aspects. The reform identifies fragmented health services and the lack of coordinated care as main challenges. The authors introduce the concepts of care coordination, continuity of care and patient handovers, and relate these to patient safety. Results from a Norwegian observational study, identifying factors affecting care coordination and patient safety in care transitions between hospital and municipal care, are presented. Finally, the authors introduce relevant measures to improve care coordination and patient safety, including the regulatory work and follow-up of health services through nationwide audits performed by the Norwegian Board of Health Supervision.

Keywords: *Samhandling*, interaction, healthcare services, patient safety, municipal care, coordination, risk, unforeseen.

Introduction

The World Health Organisation (WHO, 2007) defines patient handover as a high-risk area in health care. In Norway, the Coordination Reform [*Samhandlingsreformen*] (White Paper No. 47, 2008–2009) points to fragmented and poorly-coordinated services as a key challenge in the health services. We use the term "coordination" in this field and chapter. The tasks related to treatment and care are carried out in separate units or 'silos' (Gloubermann & Mintzberg, 2001), although the municipality and specialist healthcare services have complementary roles and functions (Kodner & Spreeuwenberg, 2002). The hospital focuses on treatment and the municipal healthcare services focus on patient care, function and coping with daily life. Communication between involved healthcare personnel, continuity of information and transfer of care responsibility are some key factors for patient safety in care coordination between hospital and municipal healthcare services.

Insufficient care coordination across hospital and municipal healthcare services may increase the risk of adverse events (Laugaland, Aase, & Barach, 2011). This can be due to unclear, delayed or insufficient information and communication between healthcare personnel about the patient's medication and treatment, inadequate preparations for upcoming care transitions, and poor coordination of measures in the municipal healthcare services (Hellesø, Sørensen, & Lorensen, 2005; Hesselink, et al., 2013). Inadequate care coordination leads to problems maintaining continuity of care, and increases the risk of adverse events, patient readmissions to hospitals and mortality (Stoyanov et al., 2012; Tsmilligras & Bates, 2008). The preparation of elderly patients and their next of kin for upcoming care transitions to municipal healthcare services may be one way of improving care coordination and patient safety (Bull, Hansen, & Gross, 2000; Foss & Hofoss, 2011).

This chapter will shed light on the issue of care coordination within the framework of patient safety, health policy directives and legislation. We use the term "care coordination" in order to be consistent with the Norwegian government's use of the concept in the Coordination Reform (White Paper No. 47, 2008–2009). The Coordination Reform and related laws emphasize responsibilities; rights and duties for specialist health

services and municipalities to ensure care coordination and continuity in healthcare services (Municipal Health and Care Services Act, 2011; Specialist Health Services Act, 1999; White Paper No. 47, 2008–2009).

The concepts of "care coordination", "continuity of care" and "patient handover" will be explored in relation to patient safety. We will present some results of a research study that examines care coordination between hospitals and the municipal healthcare services. We will also identify some factors that affect patient safety in care coordination. Finally, we will comment on the work and follow-up efforts by the authorities, seen in the form of country-wide audits, and we will present some measures to improve care coordination and patient safety.

Health policy

The Coordination Reform, came into force in Norway on January 1 2012. The reform emphasizes strengthening patient autonomy, establishing care pathways for specific patient groups, ensuring consistency in contact and follow-up from health services during periods of illness, improving staff clinical competence in the municipalities, and establishing binding agreements between municipalities and hospital trusts to ensure collaboration and shared-accountability for patient care and follow-up. In the National Health Plan for Norway (2011–2015), tasks related to the Coordination Reform occupy a central role. Its objective is to ensure the provision of high quality, comprehensive services, a high degree of patient safety and short waiting times. The White Paper, 'High Quality – Safe Services – Quality and Patient Safety in the Health and Care Services' (White Paper No. 10, 2012–2013) identifies three main goals for work, related to quality and safety:

1) Services need to become more user-oriented. The experiences of the individual patient/user need to be used in quality improvement, and service providers and patients need to engage in collaborative work, to ensure shared decisions about the individual's treatment and care. The next of kin are a vital resource.

2) Clearer prioritization of tasks related to systematic quality improvement. Work related to healthcare quality needs to be integrated into

the service. Improving on the systems measuring quality, ensuring leadership support and expectations for results, including follow-up, with appropriate improvement measures when necessary.

3) Improved patient safety and a reduction in adverse events, through mechanisms and a culture for reporting, analysing, and learning from and preventing adverse events. Additionally, oversight over risk areas needs to be improved.

The White Paper assumes a broad approach to quality in the health services. It is based on the principle that the services are effective, safe and secure; involve users and give them influence; are coordinated and characterised by continuity; utilize resources effectively; are accessible and equitably distributed (Norwegian Directorate for Health and Social Affairs, 2005; White Paper no. 10, 2012–13, Institute of Medicine 2001). In the Paper, patient safety is one of the six dimensions of quality, or characteristics, of the services (Aase, 2015; White Paper No. 10, 2012–2013; Directorate of Health and Social Affairs, 2005). In this chapter, we will focus on patient safety as a central concept, even though it is often used in conjunction with quality.

Legislation related to care coordination and patient safety

Norwegian regional health authorities have a duty to facilitate necessary collaboration between health trusts within the regional health authority and other regional health authorities, counties, and local municipalities, or other providers delivering services prescribed by law (Specialist Health Services Act, 1999). The Coordination Reform (White Paper, No. 47, 2008–2009) and relevant legislation require hospital trusts in specialized health services and municipalities to establish binding agreements, in order to improve coordination and integration of healthcare services (Specialist Health Services Act, 1999; Municipal Health and Care Services Act, 2011). This is intended to ensure that patients and users experience continuity and coordination of services. The agreement includes, among other aspects, that the parties have to agree on which tasks the healthcare providers have

responsibility for. In addition, the agreement requires the specification of a common understanding of measures which the parties are responsible for implementing, if necessary. It also includes guidelines on collaboration, in relation to both admission to hospitals and the discharge of patients who require healthcare from providers in the municipality. A breach of the agreement may result in a written notification of irregularity and possible penalties. Individual plans, patient coordinators and coordinating bodies or offices are other instruments in the legislation, established to ensure continuity and coordination of care for patients with long-term needs.

There are several legal requirements for the purpose of promoting patient safety. There is no specific patient safety act in Norway. However, there are requirements specified in several laws and regulations. Herein, we will briefly mention the most important ones. The concept of sound professional practice is one of the most central requirements for healthcare personnel and service providers. This requirement can be found in the Specialist Health Services Act (1999), the Municipal Health and Care Services Act (2011) and the Health Personnel Act (1999). The requirement of sound professional practice is not the only requirement in health legislation with implications for patient safety. The Regulations on Leading Quality Improvement in the Health and Care Services (2016) describe central parts of the legally-required safety management system, which the provider must have in place. The provider is responsible for having an oversight over risk areas, and establishing mechanisms for prevention and following-up of adverse events, in addition to other things. There is also a specific requirement in relation to assessment of risk in handovers, within providers and between providers. Moreover, there are requirements imposing a duty on health personnel to hand over any available information on conditions that may endanger patient safety to supervisory authorities. There is a requirement in the Specialist Health Services Act stating that healthcare providers have a mandatory duty to report adverse events to the Directorate of Health, and notify the Norwegian Board of Health Supervision about the most severe adverse events. The latter concerns deaths or significant injuries where the outcome is unexpected in terms of foreseeable risk. Figure 23.1 depicts the participants and their roles in care coordination and patient safety.

Patient and next of kin - involvement in care
coordination and patient safety

Municipality - proper healthcare service,
agreements and protocols for care coordinaton
and patient safety

Hospitals/local hospital trusts - sound
professional practice, agreements and protocols
for care coordination and patient safety

Supervisory body - audits to ensure health care
providers' regulatory compliance in relation to
care coordination and patient safety

Ministry - policy, reforms and regulations in
relation to care coordination and patient safety

Figure 23.1 The participants and their roles in care coordination and patient safety.

Coordination and patient safety

Patient safety has become an established research area, both nationally and internationally (Aase, 2015). The development of the patient safety field in Norway has, to a large degree, been influenced by developments in other countries and international organizations, such as the World Health Organization (WHO) (NOU, 2015:11). WHO defines patient safety in the following terms:

> *"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 in NOU, 2015:11:26)

In 2010, the Norwegian Knowledge Centre for the Health Services explored taxonomies related to patient safety in the international literature. The following definition is currently used: *"Patients shall not be subject to unnecessary harm, or the risk of unnecessary harm, as a result of the health service's efforts and performance or lack of the same."* (Saunes, Svensby, Mølstad, & Thesen, 2010:6).

Research plays a central role in improving patient safety (Wiig & Manser, 2016). In a report on prioritized research themes in the field of patient safety, WHO has suggested that developed countries, such as

Norway, should prioritize research on the lack of communication and coordination in the health services, (including discontinuity and coordination across organizations/levels) as one of the top priorities (WHO, 2008; Bates, et al. 2009). This highlights the need for knowledge related to care coordination and the risk of adverse events, as a result of the rapid exchange of information between ever-more specialized health personnel at various levels. We will now present and explore the following concepts: care coordination, continuity of care and patient handover, after which they will be related to patient safety using results from current research.

Care coordination

According to Øgar and Hovland (2004:166), "care coordination" in the healthcare service concerns *"… information exchange, knowledge transfer, a division of responsibilities and tasks to properly safeguard the needs of the patient, and the overarching health policy goals and regulatory requirements which apply to the health service."* The goal is the comprehensive provision of healthcare services centred on the patient's needs. Øgar and Hovland identify a series of factors that affect care coordination. These are: familiarity with and respect for involved stakeholders (health personnel, patients and next of kin); positive attitudes towards collaboration; a common understanding of the division of work tasks and responsibilities; familiarity with each other's organizational cultures and professional language; platforms for cross-level communication and collaboration; trust and continuity in relations; possession of necessary clinical skills; and legislation and financing arrangements. Similarly, Torgersen and Steiro (2009) emphasize that care coordination is a complementary process, including communication and the mutual exchange of information, and the use of involved stakeholder's competence, experience and professional background.

Nedreskår and Storm (2016) conducted an interview study with administrative personnel and leaders in hospital and municipal health services, focusing on care coordination during the discharge of elderly patients from hospitals to short-term nursing-home wards in the municipality. According to the interviewees, there could be disagreement between the

municipalities and hospitals in relation to whether or not the patient had completed his/her treatment, and was ready to be discharged from the hospital. It could also be difficult for health personnel in the hospital to decide when the patient had completed his/her treatment, because the patient's health status can change fast. This requires regular communication between hospitals and the municipal health services. Municipal health services were under pressure to receive patients from hospital who had completed treatment, but had subsequent needs for follow-up care. This demands that the municipal health services have available beds in nursing homes, and that receiving healthcare personnel have the necessary resources and competence to take on full responsibility for the patient's care (Nedreskår & Storm, 2016).

Continuity of care

Continuity in patient information, efficient communication between the health personnel involved and the patient, flexibility and adaptability of care provision to the needs of the individual over time, are important preconditions for the patient to experience coordination and continuity in the health service (Freeman, Shepperd, Robinson, Enrich, & Richards, 2000). Haggerty et al. (2003) have identified three types of continuity:

1. Management and organizational continuity
2. Information continuity
3. Relational continuity

Continuity in information contributes to ensuring that the health services provided to a patient are consistent and continuous, in spite of different health personnel being involved. The information may be related to an illness or a person. *Management and organizational continuity* are important for patients with chronic or complex illnesses that require following-up by health personnel in the municipal and specialist health services over time. An individual care plan is a mechanism for organizing and systematizing knowledge about the patient, creating a plan and setting goals for further following-up. It can also contribute to ensuring *information*

continuity and foreseeability in the provision of care (Wierdsma, Mulder, de Vries, & Sytema, 2009). *Relational continuity* can be ensured when the patient accesses services from a limited number of health personnel, and is able to establish meaningful and therapeutic relationships with them. In the field of mental health and municipal healthcare, relational continuity is particularly emphasized in the following-up of patients with long-term and chronic illnesses. However, it is also present in other situations (for instance, during a hospital stay), in which a core element of the staff provides the patient with an experience of foreseeability and continuity (Haggerty, et al. 2003).

Staffing levels, workload, time pressure, incompatible ICT systems and complex patient needs all affect the potential for continuity in the health services (Belling, et al. 2011). In the study by Nedreskår and Storm (2016), health personnel state that sufficient time, experience, competence and stability among nurses are important and contribute to coordinated care. Research in the field of mental health indicates that a lack of continuity in the provision of care may lead to re-admissions (Freeman, Weaver, Low, Crawford, & de Jong, 2002). Risk factors for suicide among users of mental health services include a reduction in the frequency and scope of contact between patients and health personnel, poorly-planned discharges from hospitals, changes in contact persons, and the absence of familiar health personnel (Freeman et al., 2002; Sweeney et al., 2012).

Patient handover

Patient handover is central in care coordination and for continuity in the health service. A distinction can be made between intra-hospital patient handover, for example, between hospital wards or across work shifts, and inter-organizational patient handover, for example, between hospitals and municipal health services, or between healthcare organizations in the municipality (Schibevåg, Laugaland, & Aase, 2015). The key components of patient handover are:

- The exchange of patient information (for example, current medications, ongoing treatment, changes in health status)

- Communication between involved health personnel (on different work shifts, in different hospital wards, in specialist and municipal health services)
- The transfer of responsibility for the patient's treatment and care (Jeffcott, Evans, Cameron, Chin, & Ibrahim, 2009; WHO, 2007).

Furthermore, the coordination of resources, staff training, involvement and training of the patient and family are important aspects (Hasting & Heflin, 2005; Wong, Yee & Turner, 2008; Laugaland, Aase, & Barach, 2012).

A review of the literature by Laugaland et al. (2011) identifies poor communication, improperly-written transfer notes, lack of medication lists, and failures in procedures and responsibility for follow-up care, as risk areas in patient handover. Failures in medication lists may be the omission of regular medications, the cessation of medication, changes in dosage as well as the use of generic drugs. Poorly-integrated ICT systems have been one reason for the discrepancies in patients' medication lists. When there is inadequate communication and information exchange about the patient, (for example, regarding diagnosis, test results, treatment and medication, and plans for following-up) receiving health-care personnel are not sufficiently prepared to safeguard the necessary treatment and provision of care for the patient (Laugaland, Schibevåg, & Aase, 2015). The consequences for the patient can be discomfort, a worsening of the health condition and possibly a hospital readmission (Boockvar, Fishman, Kyriacou, Monias, Gavi, & Cortes, 2004; Corn-hish, et al. 2005).

Patient experiences with care coordination

National surveys of patient experiences of hospital-based care are carried out regularly in Norway. They show a high degree of satisfaction, for example, with communication with health personnel, but there is need for improvement when it comes to engaging patients in participation in treatment decision-making, information and preparation for up-coming hospital discharge, coordination of care across hospital and municipal health services and the availability of services (Bjerkan, Skudal & Egge,

2014). A study by the Commonwealth Fund International Health Policy Survey of Adults, which incorporated data from Norway, also points to a lack of information given to patients during discharge from hospital (Schoen, Osborn, Squires, Doty, Pierson, & Applebaum, 2011). In Norway, over 60 % of those surveyed reported that they received inadequate information on how to manage symptoms and where to seek medical assistance, lacked a written care plan for the immediate period after discharge, had not made any agreement for follow-up visits and lacked clear instructions for prescribed medications. This is cause for concern, as a lack of preparedness and support for self-care after a hospital admission can increase the risk of medication errors and unwanted side effects of the medication. Inadequate following-up of a patient's medical treatment and care may also lead to unnecessary readmissions to hospitals and, at worst, death (Storm & Coulter, 2016).

Factors that affect coordination and patient safety in care coordination of the elderly

To provide an insight into patient safety and care coordination of the elderly, we will present the results of a Norwegian study from two Norwegian hospitals and their respective municipalities (Storm, Siemsen, Laugaland, Dyrstad, & Aase, 2014a). Forty-one patient observations were carried out in different hospital departments (the emergency, geriatric, general medical and surgical departments), in connection with hospital admission and discharge. The patients were over 75 years of age with a hip fracture or medical diagnosis, used more than five medications daily and required following-up from the municipal health services. The observations included conversations with the patient, next of kin and the involved health personnel. Two researchers carried out the observations over a period of eight months in 2012. One of the aims of the study was to identify factors which affected patient safety in care coordination. Table 23.1 based on Storm et al. (2014a) presents some factors that affect safety in care coordination, as well as the challenges associated with each of the factors, illustrated with statements and quotes from the data.

Table 23.1 Some factors that affect care coordination and patient safety based on Storm, Siemsen, Laugaland, Dyrstad, & Aase (2014).

Factors for care coordination and patient safety	Description of the factor	Challenges	Quotes from the data
The Elderly Patient	The elderly patients may have complex clinical health conditions. They have varying levels of satisfaction with care coordination and report feeling unsafe during admission and discharge.	During admission, the patient often presents vague and diffuse symptoms, which can lead to a lower prioritization for medical evaluation and longer waiting times in the emergency department. During discharge, the patients are often confused, tired, dizzy and afraid. They may have pain and problems with mobility. The patients are unprepared for discharge and can risk experiencing several care transitions between departments and care homes in the municipality. Multiple patient handovers can cause the patient's health condition to worsen.	The elderly patients report that they are dissatisfied with long waiting times in the emergency department, and many would like to be transferred to a municipal healthcare provider after discharge.
Next of Kin	The presence of the next of kin contributes to patient safety and continuity by facilitating the communication of information about a patient's health condition (which is not necessarily documented in the medical records). They are the patient's spokespersons and provide support for self-care, both in hospital admission and discharge.	In spite of their important role, the next of kin are required to ask for information on the patient's health condition, treatment and planned follow-up in the municipality.	A son reported: "The discharge came up very fast...I was not involved...they called the same day to notify me that my mother was due to leave. They could have called the day before so I could have been prepared".

Information Exchange	Information exchange occurs orally, in written and electronic form when the patient is admitted and discharged from hospital to the municipal health services. Nurses play a key role in care coordination, in that they exchange and ensure continuity of information about the patient and by coordinating relevant measures.	Inadequate information (for example, the nursing report and the medication list), test results and results of examinations are not ready. A lack of integrated ICT systems between hospitals and municipalities, particularly in relation to discharges. This involves the patient carrying their discharge papers with them in an envelope to be delivered to the receiving health personnel in the municipality. The challenges of information exchange are frustrating for the health personnel involved. Extra time is spent gathering information about the patient's health condition, medical history and medication.	A nurse employed in a municipal nursing home: "The same medications as before! How should I know which medications the patient is currently taking? I had to call the hospital...they sent the medication list by fax".
Competence	The Coordination Reform in Norway has led to the introduction of formal protocols for care coordination between hospitals and municipalities. The protocols state that it is the hospital's chief physician who decides that patients are ready to be discharged.	Health personnel are not always acquainted with the protocols for handover of patients and care coordination. A patient can be considered 'ready for discharge' by a nurse, in spite of the fact that such an evaluation may only be made by a chief physician.	A district nurse in the municipality reported: "They did not call the telephone number they were given, nor did they call the district nurse directly... The hospital should call 24 hours before the patient is discharged".
Context	Staffing levels, protocols and the total number of times a patient is transferred between different organizations affect care coordination and patient safety. In hospital wards, there is pressure to discharge patients who have completed treatment in order to make more beds available.	Holidays, low staffing levels and overcrowded hospital wards reduce the time available for patient treatment, care planning and coordination during admission and discharge. During discharge, the patient may experience being transferred from the hospital to a care home for a short stay before they are transferred to a rehabilitation department, short-stay ward or home with a district nurse.	A nurse in a care home reported: "Several care transitions between different places following a hospital stay confuse the patient, even though they do not suffer from cognitive impairments".

Measures to improve care coordination and patient safety

The research literature identifies a series of targeted measures, often used in combination, to improve patient safety in care coordination of older patients (Laugaland, Aase, & Barach, 2012). We can differentiate between the following measures:

1) Measures targeted at patients and next of kin to improve coping and self-care (information and education to promote self-management of medications and how to manage symptoms, awareness of warning signs of worsening health conditions, engaging caregiver/ next of kin, patient-centred health records) (Coleman & Berenson, 2004).

2) Organizational measures (discharge coordinator, systematic discharge planning, standardized discharge reports, including medication lists and electronic tools for exchange of information).

3) Profession-oriented measures (inter-organizational staff meetings, education and training of health personnel) (Gordon & Findley, 2011; Kirsebom, Wadesten, & Hedström, 2012).

4) Measures consisting of a follow-up audit of care coordination and patient safety.

Studies show that elderly patients benefit from different measures, and that the measures can promote better care coordination and patient safety through a reduction in adverse events related to medication, fewer re-admissions and increased patient satisfaction. We will further explore profession-oriented measures as well as measures in the form of audits and follow-up.

Profession-oriented measures

Inter-organizational staff meetings and discussion platforms have been suggested as strategies to stimulate inter-professional and inter-organizational collaboration, and for developing mutual understanding of the role and functions of health personnel in care coordination

(Kirsebom, Wadesten, & Hedström, 2012; Storm et al., 2014a). Gordon & Findley (2011) conducted a review of educational interventions to improve handover in health care. They report a paucity of research in the area, but there are some studies demonstrating improvements in health personnel's handover attitudes, knowledge, and skills, following participation in an educational program. In the research project, "Quality and Safety in Transitional Care of the Elderly", an educational intervention programme, "Meeting Point", was developed to increase healthcare personnel's competence with regard to quality and safety in care transitions. The program addresses the factors important for care coordination and patient safety presented in Table 23.1. "Meeting Point" is an inter-professional arena for knowledge exchange and education of healthcare personnel involved in care coordination in hospital and municipal health services (Storm, Groene, Testad, Dyrstad, Heskestad, & Aase, 2014b).

"Meeting Point" was organized as a series of three seminars, addressing the following themes: patient safety, patient involvement and system-level aspects of care coordination. The seminar focusing on patient safety included an educational component, with a teaching session addressing patient safety in care coordination, the review of a case report, both individually and in groups, and the identification of measures to improve patient safety and care coordination in own work unit. Approximately 100 participants (nurses, doctors, patient coordinators, physiotherapists, health care assistants and leaders) working in hospital wards, nursing-home wards and home healthcare services participated in "Meeting Point". The results show that "Meeting Point" can contribute to knowledge transfer between the participants and stronger awareness among health personnel of key factors related to patient safety and care coordination (Heskestad & Aase, 2015; Dyrstad & Storm, 2016).

Regulatory-oriented measures

The Norwegian Board of Health Supervision (NBHS) is a national public institution organized under the Ministry of Health and Care Services. The NBHS has responsibility for supervision of child welfare services, social services, and health and care services. It carries out its duties in

accordance with the relevant legislation and directives (Act on Government State Inspection of the Health and Care Services, 1984; Braut & Holmboe, 2015). Its duties as auditor are roughly divided into two groups: planned inspections and event-based inspections. Event-based inspections are instigated on the basis of an adverse event, situation or set of conditions which have arisen or become a matter of concern. The planned inspection is carried out in the form of system audits that aim to be risk-based and identify possible factors constituting a risk in care provision or where changes are needed (Braut & Holmboe, 2015). Certain tasks in the planned system audits are carried out as country-wide inspection activities. In such cases, the NBHS decides on the themes for the audit and which category of providers that will be included in the scope of the audit. The County Governors carry out the country-wide audits, according to a common template developed by the NBHS (NOU, 2015:11; Braut & Holmboe, 2015).

In 2015, one of the themes of the country-wide audit was care coordination during patient discharge from specialist health services to the municipality. The audit encompassed acute health care, except services related to addiction and the mental health service. The country-wide audits reviewed the activities involved in the care coordination process between the hospital and the municipality, when patients are admitted/discharged.

Audits were carried out in 19 hospital trusts and 37 municipalities. In 36 audits, the County Governors found noncompliance with the law. In 23 audits, clear areas for improvement were highlighted. According to the synoptic report, the investigation uncovered several areas in which care coordination had failed:

> "The audit discovered that patients were not given enough information about their treatment at the hospital nor about what was to happen when they returned home. The audit also pointed to serious failures in care coordination between the hospitals and the municipalities. The transfer of information between the hospitals and municipalities was the area in which the County Governors found the highest degree of noncompliance and areas for improvement. This was partly related to the way in which information was communicated. However, it also owed to deficiencies in terms of the content; for instance, the patient's condition, assessment of the

patient's functionality assessment, and information on medication. Where there are significant deficiencies in terms of patient information or where it is incomplete, serious consequences may arise for patient treatment in the municipality."
(Norwegian Board of Health Supervision, 2016:3).

The County Governors are following-up the hospital trusts and the municipalities where noncompliance with the law was found, until the conditions are carried out according to the law. The NBHS argues that it is fair to assume that the same conditions of noncompliance are present in other municipalities and hospital trusts, and therefore recommends others to review their own management system, to ensure that practices comply with the law (Norwegian Board of Health Supervision, 2016).

Conclusion

Care coordination and patient safety are high on the health policy agenda in Norway. Policies and legislation have been implemented to ensure that the patients receive timely and proper medical treatment and care in specialist and municipal health services. This chapter has presented key and overlapping features of the concepts of care coordination, continuity of care and patient handover, and related them to patient safety using results from current research. Important factors for care coordination and patient safety have been emphasized as: exchange of information and communication between involved health personnel; adequate staffing levels; protocols for care coordination; clinical competence about the patient's health situation; competence with regard to involved personnel's roles and responsibilities; as well as information to, and preparation of, patients and next of kin for upcoming care transitions. National and international studies of patient experiences with hospital discharge highlight challenges associated with the coordination of services, poor information and preparation of patients for upcoming discharge. In 2015, the Norwegian authorities carried out an audit of health providers' work related to care coordination and reported serious failures in information transfer between the hospitals and the municipalities, despite existing policies and legislation, and research which shows that measures exist to ensure care coordination and patient safety.

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CHAPTER 24

Working Together in the Aftermath of an Unforeseen Event

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Abstract: The frame of this chapter is how clinicians and leaders employed in psychiatric departments in hospitals experience and cope with patients who commit suicide while undergoing treatment. The major focus is the phenomenon which in the Bow-tie model is called "stabilization". To explore this phenomenon in an empirical analysis, two concepts of *samhandling* are introduced, these being coordination and cooperation. These two concepts are used in an interpretation of what eight leaders and clinicians report on how they handle working together after a patient during treatment in a psychiatric hospital has unexpectedly committed suicide. The findings are that leaders and clinicians have different views on what stabilization is. Stabilization to the leaders seems to be something they can handle by using mandatory organizational procedures of coordination. To the clinicians (psychologists and psychiatrists) however, stabilization is less straightforward. Professional stabilization is, to them, more important than organizational stabilization, and it requires another form of interaction – namely, cooperation. Cooperation is, in its simplest and purest form, a symmetrical way of working together, based on equality in competence and an unforced relation between the parties. For the purpose of professional stabilization, this is the form of interaction preferred by the clinicians. However, these findings are tentative and more research is needed to elaborate why leaders and clinicians respond as they do after a patient suicide.

Keywords: *Samhandling*, interaction, suicide, coordination, risk, stabilization, recovery, unforeseen.

Introduction

The subject matter of this chapter is how clinicians and leaders employed in psychiatric departments in hospitals experience and cope with patients who commit suicide while undergoing treatment. Thoughts and plans of causing one's own death are not unusual amongst people who suffer from mental disorders, but very few of the patients actually carry out their plans of suicide. Based on data obtained from interviews with a selected group of psychiatrists, psychologists, heads of department and sectional leaders, all of whom have experienced the suicide of at least one of their patients, we seek answers to the following question:

> After a patient undergoing treatment has committed suicide, how do leaders
> and clinicians at psychiatric departments in hospitals work together? And how
> do they handle the elements of unpredictability in their work?

The analytical aim of this chapter is to explore if, and how, the two organizational-theoretical terms, 'coordination' and 'cooperation' (Axelsson & Axelsson, 2006) can be used to illuminate differences between leaders' and clinicians' understanding of an unexpected suicide. From the Bow-tie Model (Chapter 1, Torgersen, 2018), our point of departure is a phenomenon called 'stabilization'. 'Stabilization' is illustrated in the right field of the model and correlates to 'prevention' in the left field. 'Stabilization' can occur over a longer or shorter time span. The stabilization process starts right after, or in some cases, almost at the same time the unexpected incident occurs. The model suggests that 'loss of control' amongst those who have to cope with the incident, and are affected by it, is temporary.

Cooperation and coordination

Working together after a patient has committed suicide during treatment can be done in multiple ways. Cooperation is, in its purest and simplest form, a symmetrical way of working together, based on equality in competence and an unforced relation between the parties (Axelsson & Axelsson, 2006). In our context, the concept 'cooperation' describes, for example,

what the person responsible for the patient's treatment, e.g. a psychiatrist or a psychologist, is seeking if he or she asks an entrusted colleague with the same professional background for help to go through the case history of a patient who has committed suicide. Cooperation between professionals usually involves a small number of people. In favorable cases, this way of working together can result in the development of new knowledge, without the need for a larger organizational apparatus. However, coaction in small professional groups has, as some scholars have observed, a 'clan element' about it (Ouchi, 1980). The 'clan element' describes inner solidarity between group participants, which tends to develop over time. The flip side of the coin of this professional, in-group solidarity, especially in critical situations, is that the group is sometimes inclined to reject external evaluations. Different variations and degrees of coaction, based on a voluntary and symmetric relation between experts in the same field, is what we will further on describe as cooperation.

Coordination is a different way of working together. Unlike cooperation, which in its purest form does not involve any division of labor, this is a prerequisite for coordination. In this context, coordination may be described as when, for example, one leader or a small number of leaders get a large number of workers, who perform small and specialized functions within a department, section or organization, to pull in the same direction. This form of coaction has an element of hierarchy in it (Axelsson & Axelsson, 2006). The integration is based on dependency, which occurs when each contributor only works on a small and specialized task within a larger organizational entity (Durkheim, 2000). For this entity to work properly, coordination is required. The leader who coordinates is to be found in the upper level of the hierarchy, and has the final authority to decide in cases where there are mixed opinions. The workers, some with higher professional acquirements, are to be found in the lower level of the hierarchy. Coordination is, for example, used in bureaucracies to carry out a wide array of routine tasks, involving a large number of people with different skills.

The difference between coordinating leaders and cooperative clinicians can be further explored by adding Michael Power's distinction

between first-order and second-order risk (Power, 2004). First-order risk is addressed when a peer group of psychiatrists or psychologists cooperate to reconstruct the individual medical history of a patient who has committed suicide, in order to learn more and in the long run, ideally to strengthen professional evaluation so that there is less likelihood of new patients committing suicide. The aim of the leader's coordination and second-order risk evaluation is not to reduce future incidents of suicide, but to reduce future chances of not discovering administrative mistakes and omissions in the department, section or in the overall internal control system.

Before we present and analyze our findings from the study of the terms cooperation and coordination, we will briefly explain the status of knowledge concerning suicide amongst patients, and the administrative provisions that leaders and clinicians in the Norwegian specialist health services are subject to when a patient undergoing treatment commits suicide.

Administration of suicides in the specialist health care services

Suicide prevention amongst psychiatric patients is an important priority of the Norwegian Board of Health Supervision (NBHS). The national cause of death statistics from 2016 show that the number of registered suicides in Norway was 614; 418 of these were men and 198 were women. The most common method is hanging, followed by poisoning, shooting and drowning. Suicide attempts are more common amongst women, and the number of suicide attempts is assumed to be between 5000 and 6000 each year (Folkehelseinstituttet.no). Mental illnesses increase the chance of committing suicide, but even so, the suicide rate amongst people with psychiatric diagnoses is low. Each year, there are approximately 50 registered suicides among patients admitted to psychiatric institutions. In addition, there is an unknown number of suicides amongst patients undergoing outpatient treatment and those newly discharged from a psychiatric institution. We do not know how many unreported suicides there are among psychiatric patients.

According to specialist health care legislation in Norway, it is the leaders at hospitals who are formally responsible for detecting different kinds of adverse events and also initiating changes when mistakes that put patients at risk are made. When a patient commits suicide during treatment, an inspection unit investigates the case on behalf of the NBHS. The inspection unit is a multidisciplinary team with members from the health profession, the legal system and the police. According to the law, the inspection unit from the NBHS must be informed about the suicide within 24 hours. In the most complicated cases, the inspection unit conducts an inspection in the department in question, to collect information from clinicians, leaders, and the patient's family or dependents. The purpose is to clarify the causes of actions and to prevent similar cases from happening in the future. The requirement of patient safety has always been integrated in the professional ethics of clinicians, but it was first in 1980 that the law regarding professional advisability was passed. In our context, meeting the requirements of professional advisability involves both leaders serving an administrative system designed to expose and correct mistakes which may have a potential impact on patients' health and safety, and psychiatrists or psychologists who carry out satisfactory clinical evaluations and acceptable treatment of each individual patient. The shared legal responsibility between leaders and clinicians does not, however, prevent them from experiencing a patient's suicide very differently.

Statistics, suicide risk and discretionary assessment

To reduce the chances of suicide committed by patients undergoing treatment, suicide risk is measured. Complex relations between a person and a situation must be discretionary evaluated up against suicidal thoughts and plans, in addition to many other factors of risk. The risk factors for suicide are estimated according to studies of previous suicide cases. At the group level, it is possible to predict the suicide rate in the population from statistical examinations, but at the individual level, it is not possible to predict accurately who will commit suicide (Motto & Bostrom, 1990). Suicides are so rare that as a clinician, in the long run one will make

less mistakes without even trying to use one's professional discretion on the individual patient and instead make a general assumption that no patient will commit suicide, even in a population where a lot of risk factors are present (Kapur, 2004). This does not mean that data from group statistics is completely irrelevant for clinical purposes, but it must be critically rather than casually interpreted (Larsen & Teigen, 2015). Different methods for improving our knowledge about suicide risk in Norway are suggested. We do not have a personal register over suicides committed by patients in psychiatric health care, and according to Rønneberg and Walby, we should look to Denmark, which has introduced this kind of register, to improve our clinical prognostic accuracy of suicides in Norway (Rønneberg & Walby, 2008).

There is no unified agreement between experts on the potential of increasing the utility of suicide statistics for clinical purposes in the future. The statistical basis of knowledge used today to predict suicide gives a low grade of specificity and sensitivity. Because of its low grade of specificity, the risk evaluation can cause 'fake positives', namely patients whom the clinician believes will commit suicide and actually do not. The same applies to its low grade of sensitivity, causing 'fake negatives', referring to patients the clinician believes will not commit suicide but actually do (Larsen, 2012). Despite the fact that many risk factors for suicide are well known, it is not possible to predict the individual cases.

Method

We have conducted individual interviews with eight clinicians and leaders, who have experienced at least one suicide committed by one of their patients while undergoing treatment in a psychiatric department in a hospital. To recruit informants who made it possible to collect informative data on sensitive content, it was important to build trust between the researchers and respondents. The method we used was firstly, to ask for permission from the leaders of the psychiatric department in the hospitals where the study was planned to be carried out. Then we asked for permission to use the internal e-mail systems at the hospitals to inform our potential respondents about the project, and also to send an interview request

to the current leaders and clinicians who had experienced the suicide of at least one of their patients during treatment. The e-mail was used to reduce external pressure to take part in the study. Ten people volunteered; amongst these were six psychiatrists and psychologists, and the remainder were heads of departments and sectional leaders. For the clinicians, it was a prerequisite to have experienced the suicide of at least one of the patients whom they were mainly or partly responsible for under treatment. For the leaders, it was a prerequisite that they had experienced leading a section or department where the suicide of a patient under treatment had occurred. Two of the volunteering leaders did not meet these requirements, and were therefore not included in our group of respondents.

Each interview was conducted at the respondent's workplace during working hours. To be interviewed about a serious case at the hospital can be experienced as a burden. It was important for us to treat the interviewees with respect while interviewing them, as well as in the presentation of data and in our analysis. To protect the anonymity of the individuals, we have avoided using longer quotes which might make it possible to recognize them by their form of expression. The transcription of the interviews was made verbatim, and to systemize the transcript material we used systematic thematic text analysis (Malterud, 2012).

Results

Below (Table 24.1) is a thematic collection of quotes, illustrating some main tendencies from the interviews with the clinicians and leaders who took part in the study. We have chosen to emphasize themes relevant to clinicians and leaders' perspectives on coaction after a patient has committed suicide.

Analysis

The patient's suicide came unexpectedly to all the informants in our study. Despite the fact that both the clinicians and the leaders at a general level knew that patients in crisis tend to have a higher suicide risk, they did not see the individual suicide coming. The clinicians in our study had the

Table 24.1 Clinicians and leaders' experience and handling of a patient suicide.

THEME	CLINICIANS	LEADERS
FIRST REACTION TO THE SUICIDE	"It was a shock when it happened. It could not be possible. How could it happen?" "The despair of understanding that everything had gone wrong, questions about what we could have done differently, and should we have seen this coming?"	"The leader phones the clinicians and says 'This happens, and it is a part of our job.'" "Everyone on the shift gets information and each individual person reacts differently." "Within 24 hours, I had a meeting with the closest leaders and the clinical leaders. After the meeting, I reported the case further to the appropriate instances."
WAYS TO COPE WITH UNCERTAINTY	"There will always be many thoughts and self-examinations." "There could be a patient that resembles the one that took his or her life. And it makes you react differently. The atmosphere is changed and you are more careful, and observe the other patients more closely."	"In the first period we were scared. That is for sure." "When a suicide happens, we all of a sudden get the need to go through (the internal control system) to ensure that we do everything right."
WAYS TO COPE WITH RESPONSIBILITY	"The heaviest burden is when the dependents come…. I have experienced a clinician having a physical reaction. It probably had to do with the discomfort he/she felt in the meeting. The superior sent this person home and talked to the dependents instead."	"We sent all the papers to NBHS, and we got no comments back from them. Everything was documented and evaluated well enough, so there were no comments on the way we had handled this." "We were examined about how my employees did their job. And that is possibly why it was easier for me, because I'm not the responsible person. It wasn't me who wrote the journal, and it wasn't me who made the decision to unlock the door and let the patient go."
WHO EXAMINES THE SUICIDE?	"Suicide examination? No, we don't have any culture for doing that."	"The emergency team is established, and we assume they examine what happened concerning the suicide."
RIGHT TIMING OF AN INTERNAL EXAMINATION OF THE SUICIDE	"At least two months, then you get a sense of distance without it being forgotten. You've had time to go through it over and over again, and at the same time you are less emotionally involved with it."	"I think it is smart to have a systematic examination closely following the suicide." "An examination after 4 weeks is okay, but preferably as soon as possible. We continuously admit many new patients, and for me it is good to get things done."

(Continued)

Table 24.1 (*Continued*)

THEME	CLINICIANS	LEADERS
COACTION EXPERIENCED AS INADEQUATE	"I had a need to explain my role, but it was never talked about. " "I couldn't bring up my issues at a meeting. They don't belong there. To take care of the nurses is one of our tasks as doctors, and it would have been a burden to bring up my own issues there ." "The workplace is mostly concerned with protecting itself legally, and a list of suicide risk factors must be put in the journal, without it necessarily being good for the patient, the dependents or the therapist."	"My experience is that doctors are not good at reporting their needs, and it is easy to miscalculate them. They usually say things are fine, and that they have full control over the situation; then I discover that they have a need for support that they have not conveyed." "It is very important for us to show how well the patients have become, and a part of the treatment is to be allowed to go out on their own undertaking. But we can become even better at coping with what this does to the clinician who lets the patient go, when the patient then commits suicide."
COACTION EXPECTED TO BE ADEQUATE	"I would prefer an examination (of the suicide) to include only clinicians and leaders. I think that an interdisciplinary examination (including nurses) is more uncomfortable, and that the risk of ending up shooting at each other increases." "For me, I think it would have been expedient if it was only the clinicians who had the meeting."	"I doubt if the person responsible for treatment is comfortable with everyone being present, but at the same time, this suicide examination should be interdisciplinary because it is the way we work." "We have pretty good guidelines for evaluating suicide risk. It was maybe a bit random at the start, but after the first episodes... then we decided to have very good control over this... and that is good to have, and to know that the evaluation is documented."

overall strongest emotional reaction to the suicide, but the feeling of fear and the need for self-examination affected both the clinicians and the leaders. After being informed about the suicide, the clinicians describe thoughts about what they could have done differently in the treatment of the patient. Fear of contravening the law was a central issue, both for the leaders and the clinicians' self-examination. But in contrast to the leaders, whose first reaction was to focus on checking organizational routines, the clinicians' attention was drawn to the personal 'me and you' relationship with the patient.

The clinicians describe the first period after the suicide as a time for questioning themselves on what they might have done differently to prevent this particular individual from committing suicide. Some clinicians

describe the discomfort before the upcoming meeting with the patient's dependents, as an overwhelming experience, and doubt about one's own professional competence as a clinician is linked to fear of what the future holds regarding meetings with new patients. During the first period after the suicide, the clinicians in our study seek to reduce first-order risk, namely, the chances of another patient committing suicide. One of the informants also mentions that after the suicide, he experienced a period of increased awareness of potential signs of danger occurring in the treatment of new patients, and that he more closely observed patients who reminded him of the one who committed suicide.

Compared to the leaders in our study, it seems like the clinicians to a lesser extent come to accept the genuinely unpredictable aspects of the individual suicide. Thoughts about what they could have done better persist longer for the clinicians. The clinicians describe a need to wait several months before the emotional pressure decreases and they are ready for an examination of the suicide. When, and if, the suicide is examined systematically, they describe a need for a 'closed circle', where guilt and scapegoating are put aside. For the clinicians in our study, the preferred way of working together is to cooperate in a peer-review, to find out more about what actually happened with the individual person who committed suicide. When the clinicians in our study are stuck and seek help, they prefer a small group of peers with equal responsibility and/or equal qualifications. In this preferred peer-group, the members have either personally experienced, or realize that in the future they might experience, the suicide of a patient they were responsible for.

'To cooperate' is a term we have previously used to describe a voluntary relation between experts on the same subject who are working together. However, the meaning of the term 'cooperation', in our particular context, must not be confused with the organizing principles of interdisciplinary teams. The different professions involved in the interdisciplinary teams in our study have an asymmetrical relation to each other and, in accordance with the principles of division of labor used in all complex organizations, the members of the interdisciplinary teams help out with their unique skills in the treatment of a patient. The asymmetrical relations between the members of an interdisciplinary team is what concerns some of the

clinicians in our study. After a patient has unexpectedly committed suicide, the psychologists and psychiatrists we interviewed describe a need to step out of their roles as professional leaders at the top of the interdisciplinary team hierarchy. To replace the asymmetrical relations, they seek peers with equal competence or an equal formal responsibility, to develop more systemized knowledge about the individual patient's suicide. 'To cooperate' is, for some clinicians, something that can *only* occur in the absence of a formal hierarchy defining the different positions of group members in the hospital's interdisciplinary team. The psychologists and psychiatrists we met were seeking to prevent the pursuit of the 'guilty' person, or 'shooting at each other' as one of them puts it.

For the leaders who are responsible for coordination of all the internal and external bodies which must be informed consecutively after the suicide, the fact that documentation of risk evaluation is performed means something more than a simple technical analytical praxis with the aim of preventing suicide. Documentation is a key element for heads of departments and sectional leaders, who must cope with both internal and external claims for accountability after the suicide.

For the leaders, the response from the Emergency Services team from the State Health Authority is important. It reduces their uncertainty about the quality of the documentation, and gives them an answer to the question of whether the evaluation of the patient was good enough. The Health Authority's administrative vocabulary, where expressions like no comments or everything was documented well enough are used also by the leaders, to show that an external state-controlled inspection has ensured them that their responsibility for the organization's second-degree suicide risk evaluation has been properly handled.

The leaders in our interviews describe their coordinating function after an unexpected suicide as a 'leader-organization' relation, where the organization's internal control system is at the center of their overall administrative responsibility, while they also try to give attention to 'the human factor,' by protecting the individual clinicians who only to varying degrees express their personal needs after the suicide of one of their patients. The hospital's mandatory way of organizing work is regarded by the leaders as binding, and the interdisciplinary teams are seen as

the right forum for an examination of the suicide. If the present way of organizing teamwork makes things harder for the psychiatrists and the psychologists, it might be possible to adjust the interdisciplinary teamwork on a smaller scale; "we can look at who's participating", but the leaders do not give permission to deselect the interdisciplinary teamwork.

For the clinicians, it is of crucial importance to understand what actually happened to the individual patient who committed suicide. They are not always satisfied and done with a case even though the State Health Authorities have not found any formal faults in the documentation of their treatment of the patient. The leaders, on the other hand, are more impatient and eager to close the case. They focus on standardized procedures which are mandatory after the suicide, and on the general organizational demand to get things done. Unlike the clinicians, the leaders in our study do not question the assumption that the Emergency Services team from the State Health Authority is the right organ to evaluate the case and provide learning from the individual suicide. The leaders seem to have a quite well-defined set of standardized procedures to put into action when a patient commits suicide in their section or department. In contrast, the psychiatrists and psychologists in our study describe fewer adequate, organized routines to guide their coaction as clinical experts after a patient has committed suicide under treatment.

The fact that the statistical foundation for knowledge about suicide-risk evaluation is based on a weak prediction of individual suicides, was not reflected upon by our informants. Another issue, of silence, was explicitly noticed by one of the clinicians, who described an urgent need to explain his or her role after the suicide, but says, "it was not mentioned". The mute space which sometimes surrounds the responsible clinician after a patient has committed suicide, was also pointed to by some of the leaders.

Discussion

By using the two terms, 'coordination' and 'cooperation', to study coaction in the meeting with the unexpected, we have discovered things and asked questions in accordance with organizational theory. Coordination is an organizational function that leaders are responsible for. The

leaders in our study experience their coordinating work as effective. The success criteria for their coordination work after a patient's suicide is to facilitate organizational communication between a formally-defined set of positions at different hierarchical levels, in a quick and correct way. The leaders coordinating tasks are guided and supported by the hospital's administrative routines and established ways of working. When the unexpected suicide occurs, the leader knows exactly what he or she must do, since the principles of coordination are the same in all cases of suicide.

Cooperation is a different way of working together. Compared to coordination, it is to a lesser degree practiced in the hospital's departments and sections. However, some of the clinicians in our study describe their experiences or needs for cooperation in situations when they are stuck and need help from colleagues who share their competence and responsibility. The principles of voluntary participation and equal expertise or responsibility are important qualities for this type of coaction between peers. Only some of the clinicians have succeeded in initiating cooperative networks with their peers. Cooperation is when an expert who has experienced the loss of a patient as a result of suicide, asks one or more experts who have had the same experience, or who may be likely to have it, to go through the patient's history thoroughly from start to finish, in order to understand it better and to learn more about what happened. This way of working together as experts has the potential to strengthen the involved parties' clinical judgment, but our respondents have not seen many examples of this way of coaction after a suicide from their own experience.

Whether the use of clinical judgment has any effect at all on the prediction of suicide is uncertain. The experts think differently about the effect of clinical predictability. Rønneberg and Walby (2008) advocate that psychiatry, as well as other medical specialties, can become, in the long run, a fairly trustworthy prognostic science. In their opinion, Norway should follow Denmark's example and establish person-identifiable patient records, which show that in Denmark, the population's attributable risk of suicide is approximately 40% of those who have been hospitalized in a psychiatric daycare department. Nikolas Rose positions himself on the other side of the continuum, and thinks that suicide amongst patients under psychiatric treatment is a genuinely unpredictable phenomenon; this fundamental

unpredictability cannot be eliminated by psychiatrists or psychologists (Rose 1996, 1998). Berg and Teigen disagree that the efforts in regard to clinical predictions are a waste, but the problem with these predictions is that they make us more pessimistic than necessary (Berg & Teigen, 2003). Larsen and Teigen remind us that suicide, after it has happened, will always seem to have been forewarned, even though it could not be predicted in the past (Larsen & Teigen, 2015). This difference in perspectives does not show up in statistics, but can cause unfair scapegoating of clinicians, and unrealistic hopes for scientific studies promising suicide prevention.

Concluding remarks

As we have seen in the analysis above, the leaders and clinicians in our study have different ways of coping with the unexpected. The leaders stabilize the organization after a patient has committed suicide, by using administrative routines which are the same in every suicide case. As *coordinators*, our leaders experienced that their past knowledge could be used in new cases. Over time, they accumulate trust in the procedures connecting all the different participants at multiple hierarchical levels, both inside and outside of their own section or department. Together, all these participants coordinated in formalized relations to each other have a capacity to handle even the most complex and unpredictable events, according to the leaders.

The clinicians in our study have fewer ready-made guidelines for action in the face of an unforeseen suicide. As opposed to the leaders, who already know what to do, the clinicians seek to learn from the case as it unfolds. They do not want to close the case before they understand it. If the suicide is reviewed systematically, which rarely happens, according to our respondents, the clinician wants it to take place in a closed collegial circle where issues of responsibility and guilt are set aside to work together, to cooperate.

In the Bow-tie Model (Chapter 1, Torgersen, 2018), 'loss of control' is a phenomenon that is closely linked to the moment the unforeseen occurs. To the leaders in our study, this way of picturing the unpredictable matches the experience and the way of coping with it. The leaders practice ways of working together which effectively stabilize the organization

after a suicide, while the situation for the clinicians is different. 'Loss of control' for them is not a phenomenon lasting for a short period after the moment of the incident. On the contrary, for the clinicians in our study it looks like the 'loss of control' is a long-lasting condition. Our study indicates that professional recovery after a patient's unexpected suicide is not a 'straight-forward process' after the examination of the individual suicide has been taken out of the clinicians' hands and transferred to an external investigation body, The Inspection Unit of the NBHS.

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CHAPTER 25

Military Strategies for *Samhandling* in Unforeseen Situations – A Historical Perspective

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Abstract: The purpose of this chapter is twofold. Firstly, a rather paradoxical situation will be discussed. Even though most military practitioners seem to agree on the characteristics of war, two almost diametrically-opposed norms for how to *samhandle* have arisen: a centralized one and a decentralized one. We argue that the decentralized approach, called *Auftragstaktik*, is the most effective. In the second part of the chapter we discuss the pedagogical challenge of educating personnel to thrive in a decentralized organization, which must operate effectively in unforeseen and threatening environments. Based on the teachings of Moltke the Elder (1800–1891) and the much more recent writings of Torgersen, Steiro and Saeverot (2015), we argue that a crucial step in educating for the unforeseen is to give the students the opportunity to solve new problems by themselves, gaining experience that is, as far as possible, self-generated and thereby becoming more aware and confident in dealing with new situations.

Keywords: *Samhandling*, *Auftragstaktik*, interaction, leadership, education, problem solving, unforeseen

Introduction

The purpose of this chapter is to describe the historical roots of mission command as a norm for how to *samhandle* ["interact"] when facing the unforeseen in high-risk military operations. Throughout history, both practitioners and researchers have seemed to agree that war and conflict imply a high degree of uncertainty. Due to this pervasive uncertainty, the development of military command systems has, according to van Creveld (1985:264), "From Plato to NATO…been an endless quest for certainty." Where is the enemy? Who is the enemy? What is the weather going to be like? Not to mention your own forces' activities and intentions. In a rather sharp contrast to the agreement when it comes to uncertainty as a defining character of military operations, there has been and perhaps still is, strong disagreement when it comes to the design of military command systems (Murray, 2011). However, one command system stands out in an almost mythically canonized way, namely *Auftragstaktik* (Shamir, 2011).

As a command system, *Auftragstaktik* embraces both a tactical norm (maneuver warfare), and a norm for how to *samhandle* (mission command), which will be the main focus in this chapter. In Norway's case, mission command was implemented in response to a lesson identified after a tragic accident where 16 soldiers died, as a measure to improve the ability to *samhandle* when facing uncertainty (NOU 1991:19). However, in an interesting comment to the implementation of mission command in Norway, Lind (2001:19) writes that the Norwegian government did not have "the slightest idea of what it is." And in more recent research, it is claimed that mission command has not been implemented yet, more than 20 years after it was formally implemented (Krabberød, 2017). But also international research indicates that implementing mission command is challenging (Muth, 2016; Shamir, 2011; Vandergriff, 2015). One challenge that has been identified, perhaps the most important, is pedagogical – how to educate military personnel in the use of mission command. Thus the challenge of how to develop and train military personnel to be able to act according to the mission command norm will be discussed.

The non-repetitive character of war

If we define complexity as unpredictability that can vary from a high to a low degree, then chaos will represent states or situations where it is meaningless to calculate probabilities. Anything may happen. War will always be characterized by uncertainty and chaos, because there is a thinking opponent who thinks he or she can win; if not, there would be no war (Herwig, 1988:75). This makes the uncertainty and chaos aspect fundamental; you can never be sure what the enemy's next move will be. In addition, there is what Clausewitz (1832/1976:119) termed "friction", which are the "factors that distinguish real war from war on paper." Clausewitz describes friction as a force that makes the apparently easy so difficult. In the Bow-tie Model (Chapter 1, Torgersen, 2018), these challenges are presented as three phases (warning signs, event/accident (UN-0) and recovery).

In modern times, two very different kinds of organizational designs have been established as formulas for how a military organization should *samhandle*, in order to avoid the demoralizing effects of mastering a continuous stream of unpredictable high-risk situations, and win. In one design, the intention is to enforce order on the battlefield by focusing on pre-planning, centralization and strict internal organization as mechanisms to secure effective *samhandling*. In the other design, the intention is to use the chaos of the battlefield as an advantage. The purpose is to increase the enemy's perception of chaos and thereby increase the enemy's friction, by exploiting windows of opportunity quickly and in unpredictable ways. This school focuses on agility, initiative and decentralization. The mechanism for ensuring *samhandling* is the intention and not the plan. Thus, in an almost paradoxical way, two diametrically-opposed organizational designs have been developed as norms for handling the same challenge: effective *samhandling* when facing the unforeseen.

Order and structure as mechanisms for *samhandling*

When the Dutch wanted to start an uprising against their Spanish rulers, they needed to develop a new way to fight if they were to be able to defeat

the superior Spanish army. Fortunately for the Dutch, a large part of the Spanish army was taken by a heavy storm in the English Channel on its way to conquer England. Additionally, the Spanish fleet was attacked by English warships and a significant part of the Spanish forces were lost. This gave the commander of the Dutch forces, Maurice of Nassau, a golden opportunity to organize a new army.

Inspired by his brother, who was a historian and had studied ancient Roman drill manuals, Maurice of Nassau developed an army organized like the Roman Legion, but using muskets as their main weapon. He found out that the soldiers had to perform 16 movements between firing the musket until it was ready to fire again (Parker, 1988:21). These movements could be drilled so that they were performed automatically, regardless of the chaos that ruled on the battlefield. The timespan for completing the drill laid the basis for the number of rows the soldiers were organized in. They were set up in eight rows, where the first row fired their weapons and then stepped back and began performing the 16 movements. At the same time, all the others took one step forward. When the full drill was completed, the row that had fired their weapons first, had moved, step-by-step, forward to the front row again, and were loaded and ready to fire their second shots (Parker, 1988:20). All soldiers were led by officers and all movements were commenced on command. If the enemy tried to outflank them, only one command (e.g. turn right) was required to turn the front towards the enemy.

An important prerequisite for this drill to work in battle was that the soldiers must arrive on the battlefield in the same formation they were going to fight in. Thus, Maurice implemented close-order drills as an important part of his tactics. The soldiers were drilled to stop on the same foot, raise their guns simultaneously and fire at the same time. If the enemy came from an unexpected direction, the troops could be moved quickly to the new location or direction. The crucial thing was that they did not lose the basic eight-row order, which was the basis for the sequence of firing and recharging the musket (Rothenberg, 1986:43). In this system, there was no room for independent action or initiative, beyond fulfilling one's role in the larger system. Obedience, in the form of complete and immediate execution of orders, was the requirement.

According to Max Weber, it was this tactic that made gunpowder a significant force multiplier on the battlefield; it was not the gunpowder that developed the tactics (Weber, 1978:1152).

In the war against the Spanish, Maurice's way of fighting turned out to be superior. The Spaniards were not able to develop a tactic that could beat the Dutch, and all the rulers of Europe marveled at what Maurice had developed and tried to copy his tactics. One of those who found inspiration in Maurice of Nassau's tactics was King Gustav Adolf of Sweden. He developed the tactics to be used offensively, each line now going forward and passing by the others while they were charging. In that way, the army could roll forward.

In the Battle of Breitenfeld in 1631, this way of fighting turned out to be superior once again. The Swedes had been assigned a role as the Saxons' reserve troops in the battle, but after General Tilly, the leader of the German-Roman forces, had broken the Saxons, he turned his forces to the Swedes' flanks and attacked. However, in what seemed to Tilly as an incomprehensibly short time, the Swedes had maneuvered their forces. What Tilly thought was the Swedish flank had now become their main front, and the Swedish forces rolled systematically towards Tilly's. Tilly failed to reorganize his forces and they were crushed. Nine thousand prisoners of war were enrolled in the Swedish army and trained in its way of fighting, which made the Swedish army even more terrifying (Rothenberg, 1986:52; Wilson, 2009:472–75). Gustav Adolf's great victories and the unexpected success of the new tactics made almost everyone copy them, except in the Ottoman Empire, where they still believed more in individual skills than organization. The Ottoman Empire thereby started its long decline, which led to a full dissolution of the empire. In this light, Napoleon's statement that, "whereas one Mameluke was the equal of three Frenchmen, one hundred Frenchmen could confidently take on five times their number in Mamelukes" (Høiback, 2014:293), is rather interesting; that is, organization is the key.

Out of the ruins of the Thirty Years' War, Prussia survived. From being a poor scattered backdrop, the Hohenzollern's kingdom grew strong, by becoming the best in class on strict organizational structure on the battlefield. Frederick the Great's victorious army functioned on the basis of

the maxim, "No one reasons, everyone executes" (Palmer, 1986:99). However, in the battles of Jena and Auerstadt, Prussia lost to Napoleon's army both times. To Prussia, these were shocking defeats, and they led to a prolonged and profound reform in the Prussian, and later German, forces. In the Prussians' own analyses of what had failed, it became apparent that not only did Napoleon's soldiers have higher morals but, perhaps even more importantly, the French forces were able to utilize windows of opportunity faster than the Prussians; they were far more agile.[1]

Auftragstaktik – harvesting the fruits of chaos as a strategy for *samhandling*

Learning is a difficult exercise, also for military organizations (Murray, 2011). For what should be learned? There may be many explanations for a defeat, but if you change too much, it may be that the things that worked well will also be affected. However, many organizations conclude that "bad luck" or the failure to follow plans or procedures are the main explanations if something goes wrong, and consequently little is changed. Be that as it may, the Prussians did not follow this path and their defeat to Napoleon led to massive innovation and organizational development.

Scharnhorst, who himself participated in the Jena-Auerstadt battles, was responsible for the reforms and started a thorough process. Mercenaries fight without heart and had to be replaced by conscripts. Nobility was no guarantee of effective leadership, and all officers had to attend a military academy. And during a war, the officers had to have the opportunity to make decisions based on their own judgment, so they could act without first sending a request for permission through the chain of command, thus saving time. It was not the lack of courage but rather the lack of wisdom and initiative that had been the main problem when they were beaten by Napoleon. The problem, as perceived by Scharnhorst, was

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1   It is interesting to note that Maurice's reforms gained their renaissance in civilian working life, when Fredric Taylor introduced them as principles for organizing the workplace. Taylorism, or "Scientific Management" as his school is called, studied the workers' movements to reduce all the unnecessary ones and standardize the most effective in task-work procedures. Along with organizing the production lines, this led to an explosion in productivity, and became an important formula for organizational design in the United States.

the norm "*Nie eine Schritt ohne Befehl*"; that is, the operation was to be carried out according to plan and if changes were to be made, they would be implemented by the commander-in-chief (Oetting, 1993:42–43).

In 1857, Helmuth von Moltke was appointed Chief of the Prussian General Staff, a position he held for 30 years, and he gave new impetus to the reforms Scharnhorst had started. Moltke abandoned the idea that internal order and structure could tame the chaos of war. As Chief of the General Staff, he was stunned by the huge amounts of paper and the degree of detail that were needed to formulate orders to his own forces. Moltke claimed that, "as a rule, an order should contain only what the subordinate, for the achievement of his goals, cannot determine on his own." (Muth, 2016). The non-repetitive character of war implies that no one can know in advance which decision is the best; on the contrary, decisions in war are taken in a fog of uncertainty, by the person on the spot. "To know" is a luxury reserved for historians (Oetting, 1993:105).

Moltke was convinced that on the battlefield, haste was essential. Thus, in Moltke's system, the worst sin was to be passive and wait for orders. The second worst was not to think, and to execute orders that the enemy might have made irrelevant, instead of acting on the basis of one's own judgment of the situation (Oetting, 1993:117). Fast and self-reliant action was the new norm. It was crucial to have the shortest UN-interval (unforeseen-interval, see Chapter 1). To begin with, only army commanders were authorized to make adjustments based on their own judgment, but after a while, this authority was decentralized to corps commanders, and then to commanders of regiments, company commanders and finally, in 1877, it was set as a requirement that the army should be a decentralized organization. Everyone, from the oldest General to the youngest soldier, was expected to show initiative and take appropriate action.

As commander-in-chief, Moltke did not perceive it as his primary task to make detailed plans for how his forces should solve their missions. His job was to try to keep up with what was happening, in order to have an updated situational awareness and, on that basis, send out strategic guidelines and intentions, for the purpose of supporting and coordinating further actions (Wittmann, 2012). Soldiers had to learn to act on less information. They had to be given less restrictive instructions and more

leeway, by using general directives (Bungay, 2011). Any plan, regardless of how meticulously it was laid out, would be offset when meeting the enemy (Gross, 2016:29). In the system that emphasized strict internal order and structure as mechanisms for effective *samhandling*, the response to a lack of information was to seek more, and the response to subordinates that did not do exactly what they were told was to give them supplementary instructions and tighten control, and the response to uncertainty and risk was better and more detailed plans.

How radical Moltke's system was cannot, probably, be overestimated. The belief that order and structure could tame the battlefield was replaced by an acknowledgment that war consisted of unforeseen events, that had to be exploited when and where they arose, and without certain knowledge of the outcome. Rather than meeting friction with structure, the fruits of chaos should be harvested. By exploiting windows of opportunity faster than the enemy, the ambition was to create more unforeseen events for the enemy; new elements of surprise, i.e. new DU-intervals, that the enemy had to use time and energy to figure out. The basic assumption in Moltke's strategy is that as the enemy no longer manages to make sense of the surroundings and create a meaningful basis for *samhandling*, he will mentally collapse and surrender. This formula for *samhandling* is called *Auftragstaktik* (Shamir, 2011).

However, *Auftragstaktik* is a very ambitious norm. It is naïve to think that harmonized *samhandling* will occur spontaneously, and an organization cannot be ordered to function in a decentralized manner. *Auftragstaktik* is a certain organizational culture (Vandergriff, 2015). Moltke emphasized that *Auftragstaktik* was something that had to be trained, practiced and lived, on all levels in the organization. It had to be socialized (Muth, 2016). This had implications for officer selection, personnel administration and, last but not least, education.

Through conscious training, the officers developed an intuitive knowledge of their commanding officers', peers' and subordinates' thinking and how they approached tactical challenges. This established a basis for an implicit mutual adjustment when facing unforeseen situations. In an interview with John Boyd (1982), German World War II General Blumentritt explains:

"a common outlook, based upon a body of professional officers who have received exactly the same training during the long years of peace and with the same tactical education, the same way of thinking, identical speech, hence a body of officers to whom all tactical conceptions were fully clear." (Boyd, 1982:74).

After completing education at the academy, officers in the German army served in the same unit their entire career, where they also continued their education. If a unit had casualties during battle, they were not replaced individually. In order to maintain the degree of cohesion and common outlook needed to operate in a decentralized fashion, a whole unit was replaced by another unit. (Van Creveld, 1982:75–76). Cohesion and common outlook were deemed more important than merely unit size.

In Martin van Creveld's (1982) comparative study of the *Wehrmacht* and the US Army during World War II, he shows that, although the conception of how to fight a war was relatively similar, and the American doctrine was almost a pure translation of the German doctrine in which *Auftragstaktik* was described, the two forces ended up fighting very differently. In a study of the US officer's education before WWII, Muth (2011) claims that an important reason why the US Army failed to deal with chaos as well as the German *Wehrmacht*, despite having attempted to copy *Auftragstaktik*, was to be found in their pedagogical approach. The officers had not learned to trust their own judgment when having to make decisions in unforeseen situations. Instead, as cadets, they had been trained in hunting for the school's solution.

Educating for the unforeseen

Torgersen, Steiro and Saeverot (2015:297) raise the question whether it is at all possible to train for something that is not yet known. Is it possible to put in place some educational principles for how to train in a structured way, in order to reduce the UN-interval? Torgersen, Steiro and Saeverot (2015) believe that it is possible to present what they refer to as a "fourth way". Particularly interesting in this context is that the authors explicitly write that they base "the fourth way" on "military experience-based learning models" (Torgersen et al., 2015:297). They further argue that

the model focuses on "generic general skills and the competence needed to solve complex military missions" ("the demands of war") and that, "the goal is to develop the soldiers' competence to act when facing the 'demands of war'." (Torgersen et al., 2015:301).

The "fourth way" differs from the other three in that it is based on "indirect education"; that is, the students are given the opportunity to solve new problems by themselves, to gain experience that is, as far as possible, self-generated and thereby they become more aware and confident in dealing with new situations. The problem with the other three "direct education models" is that the teacher remains the master and thereby controls the student's thinking when acting in unforeseen situations. Done that way, it shines through that there is one, and only one, solution to the problem, and that is the teacher's solution. Thus, the student's mindset is directed towards finding out how the teacher would solve the problem, rather than reaching a solution by himself. Hence, the teacher in fact prevents the student from becoming confident in his or her ability to act in unforeseen situations. The same problem applies when role modeling is an important part of an education; the student is socialized into a pattern that has to be followed. (Torgersen, Steiro & Saeverot, 2015:301–304).

But as we have explained above, two very different ways of organizing have crystallized in order to be able to *samhandle* effectively in war, that is, reduce the UN-interval faster than the enemy. One strategy that focuses on strict internal order and adherence to a detailed plan, and another strategy, *Auftragstaktik*, where the focus is to ride the chaos and thereby confuse and demoralize the enemy. And according to military historians, how you train will decide whether the organizational culture will be a centralized, order culture or decentralized (Boyd, 1986; Vandergriff, 2006; Shamir, 2011). It has even been argued that by using improper pedagogy, military organizations have ended up with an order culture, even though they believed that they were training for *Auftragstaktik* (Muth, 2011; van Creveld, 1982; Vandergriff, 2015). It may therefore appear that "the demands of the war" can give rise to widely different educational arrangements.

The issues with direct education, as outlined by Torgersen, Steiro and Saeverot (2015), are described in a number of studies as an explanation

for why military organizations fail to implement a decentralized organization that will be effective when facing the unforeseen in high risk environments (Creveld, 1985; Muth, 2011; Vandergriff, 2006). And in a similar manner, but with positive signs, indirect education seems to harmonize with Moltke's and several others' logic of how to educate soldiers in order to develop and maintain an *Auftragstaktik* culture.

The essence of the pedagogy that formed the basis of the *Auftragtaktik* was that the cadets should learn to think, and the instructors focused on what the cadets did in new and complex situations. The crucial thing was whether the cadet showed willingness to solve the problem and not what the cadet had already learned. It was not the solution in itself that was the learning objective, but how the cadets reasoned before they arrived at a decision, and their ability to elaborate on and defend their choice to their peers. By exercising defending and explaining difficult decisions that were made in new and complex situations, the cadets developed their character. The worst thing a cadet could do was to not make a decision. Inability to make independent decisions, or inability to substantiate their decisions could result in relegation.

Leadership in war was a function of the officers' ability to apply their professional judgment in chaotic, unexpected situations, which is quite different from applying preplanned responses, that is, standardized drills and procedures, to predictable situations. In Moltke's system, the emphasis was on learning how to think about a problem, rather than what to think in pre-defined, clear-cut situations (Vandergriff, 2006). As exemplified by a superintendent of the German Military Academy:

"In training officers, I will pose a problem for them in field exercises that cannot be solved within the framework of their explicit orders. For example, to go through one element of your division and lead a river crossing [sic!]. But there was also a hill to the right, and enemy forces were moving toward that hill to threaten the division flank. The young officer had to see that the proper response was to change his own orders and protect the division flank by taking the hill, thereby making it possible for the division to cross the river later. This is the essence of *Auftragstaktik*, to be free to interpret orders so as to fulfill the larger goal. If they can't see that, they get poor marks. If the pattern persists, they will eventually be

marked as either too stupid or to servile to ever be effective field commanders, and get pushed aside into less responsible positions. " (Rochlin, 1995:6).

Conclusion

To be able to *samhandle* effectively in the face of the unknown, under time pressure and high risk, is to put high expectations on an organization. In modern military history, two fundamentally different strategies for *samhandling* in response to the "demands of war" are presented, one based on strict, internal order and one based on initiative and "riding" the chaos, which is called *Auftragstaktik*. History has shown that if you are to succeed in operating according to the *Auftragstaktik* standard, you must be very deliberate when it comes to pedagogy. "The fourth way" seems to be a fruitful contribution to that deliberation.

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Interaction in Aerial Warfare: The Role of the Mission Commander in Composite Air Operations (COMAO)

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Abstract: This chapter explores the leadership practices of Mission Commanders. The major focus is on key features in leadership practices that contribute to effective *samhandling* in the execution of Composite Air Operations and handling of unexpected events. "Aerial warfare" is the term used to describe the use of military aircraft and other aeronautical equipment in warfare. Air power has become the preferred instrument for politicians and commanders to achieve strategic and operational objectives across a spectrum of conflicts, ranging from humanitarian aid to combat action. Air campaigns like OD/UP and MINUSMA are conducted through a series of parallel and sequential Composite Air Operations (COMAO). COMAO is the term used when dissimilar types of aircraft interact in coordinated actions to achieve defined military objectives within a given time and geographical area. The study indicates that *joint practice* and a *joint process for learning and leadership* play vital roles in the successful conduct of COMAO in war. Joint practice during exercises like RED FLAG provides the opportunity to develop the interactional skills that are needed in modern aerial warfare. Important principles in joint practice are that you train as you fight, you experience a progression in challenge and that all participants participate in the exchange of ideas and lessons learned.

Keywords: *Samhandling*, interaction, training, joint processes, joint learning, aerial warfare, COMAO, unforeseen

Introduction

"Aerial warfare" is the term used to describe the use of military aircraft and other flying machines in warfare. This includes a wide range of aircraft, helicopters, missiles and unmanned aerial vehicles designed to establish control of airspace, attack targets, maintain air mobility and conduct intelligence gathering, surveillance and reconnaissance (NATO, 2016). Because of its unique attributes, air power has become the preferred instrument for politicians and commanders to achieve strategic and operational objectives across a spectrum of conflicts, ranging from humanitarian aid to combat action. Consequently, the Royal Norwegian Air Force (RNOAF) has deployed air assets to a wide range of operations in Europe, Asia and Africa during the last two decades. Most recently, RNOAF deployed F-16 combat aircraft to operation Odyssey Dawn (OD) and Unified Protector (UP) in Libya (2011), and C-130 transport aircraft to operation MINUSMA in Mali (2016, still ongoing).

Air campaigns like OD/UP and MINUSMA are conducted through a series of parallel and sequential Composite Air Operations (COMAO). COMAO is the term used when dissimilar types of aircraft interact in coordinated actions, to achieve defined military objectives within a given time and geographical area. It normally involves between 20–100 aircraft. In order to achieve effect through interaction in COMAO, a key leadership principle is *centralized control and decentralized execution* (NATO, 2016). Centralized control places the responsibility and authority for planning, directing and coordinating air capabilities with a single commander and his staff. The centralized authority is usually located at a Combined Air Operation Center (CAOC). Decentralized execution involves delegating execution authority to sub-commanders, to make on-scene decisions that exploit opportunities in complex, rapidly-changing or fluid situations. The latter leadership role is referred to as the Mission Commander (MC). The MC is given the task through an Air Tasking Order (ATO). The ATO describes essential task information for the COMAO, such as objectives, participating forces, target, time frame, Rules of Engagement and deconfliction parameters. Even though the ATO contains a lot of information, it serves only as a broad set of parameters for the COMAO. Through planning and coordination

with all participating forces, the MC must develop an air operation plan that enhances interaction, ensures effectiveness, as well as minimizing threats to the COMAO.

Being the MC is thus an extraordinary leadership challenge. The role involves having overall responsibility for the COMAO, in combination with solving specific tasks as a flying crew member within the COMAO. Key leadership qualities needed to succeed are the ability to (Fredriksen, 2012):

- Create effective interaction with professionals within and across organizational boundaries.
- Create and maintain interaction with co-located and geographically-distributed forces.
- Maintain high situational awareness (SA) in dynamic and rapidly-changing situations.
- Make sound decisions under time pressure, with limited information and means of communication.
- Cope with stress.

This chapter explores the leadership practices of Mission Commanders, with the aim of discussing key features in their leadership practices that contribute to effective interaction in the execution of COMAO operations and handling of unexpected events.

Theoretical framework

In this chapter, High Reliability Organizations (HRO) is the chosen theoretical framework, since it fits the description and the development of operations and risk management in the RNOAF. HRO is a theoretical perspective that describes organizations with high complexity, that experience extraordinarily few accidents despite the assumption that complex organizations cannot avoid accidents in the long run (La Porte & Consolini, 1991; Weick & Sutcliffe, 2015). HRO is often portrayed as an opposing view to Normal Accident Theory (NAT) (Perrow, 1984). RNOAF acquired the F-16 as their primary fighter aircraft in 1980. In the period

between 1980–1989, 14 serious accidents, killing six pilots, were recorded. This drew attention to the need for safety and risk management in the organization, and the subsequent measures led to a significant drop in accidents. The latest accident resulting in the loss of an F-16 aircraft was recorded in 2001. Since the year 2000, the F-16 fleet has been continuously updated with new technology. The operational demand has expanded to involve more complex operations, and a shift in Norwegian defense policies has brought the F-16 community to combat action.

In the context of organizational structure, a COMAO can be described as a multi-team system (MTS). An MTS is defined as two or more teams that interact directly and interdependently in response to environmental contingencies, towards the accomplishment of collective goals (Zaccaro, Marks & DeChurch, 2012). While pursuing different proximal goals, all teams share at least one common distal goal; in doing so, they exhibit input, process and outcome interdependence with at least one other team in the system (Mathieu et al., 2001 in Zaccaro, Marks & DeChurch, 2012). Figure 26.1 depicts a typical COMAO organization, where the team level represents the smallest fighting unit in the COMAO. A fighting team in air combat is called a *formation*, and normally consists of four aircraft.
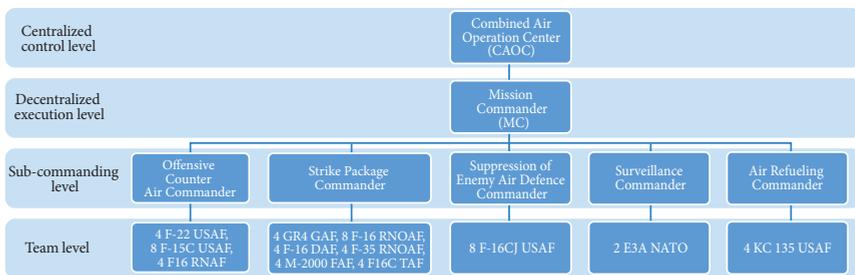
**Figure 26.1** An example of the organizational structure of a COMAO.

Multi-team systems are usually formed to deal with highly turbulent environments. They consist of teams from different organizations that may have very different core missions, expertise, norms and operating procedures. Yet, they need to create effective interaction quickly to solve a common task that can withstand critical situations and unexpected

events. In accordance with DeChurch et al., (2001) "..they *represent a point on the organizational environment continuum precisely where leaders are most needed"* (DeChurch et al., 2001, in Zaccaro et al., 2012). Despite its importance, there is little research on the topic of leadership in MTS.

Research methods

Exploring the leadership practices of MCs, this study takes a pragmatic approach (Creswell, 2009). A pragmatic approach allows for a greater freedom of choice with regards to methods, techniques and procedures for collecting data about the research problem. Data has been collected through observation of COMAO execution, interviewing MCs and pilots to better understand the leadership required to maintain effective interaction and decision-making in the event of dealing with unexpected situations. The leadership practices that will be described are practices that work within the social and historical context of the RNOAF and NATO. They may not apply directly to other professions or organization cultures, but might inspire critical reflection on general leadership practices regarding interaction and handling of unexpected events.

Creating effective interaction in COMAO

Creating effective interaction and handling unexpected events successfully, is the product of many factors. The aim of this chapter is not to explain all of them, but to explore how MCs contribute in making COMAO relatively safe in aerial warfare. In accordance with HRT, the assumption is that they are doing something that others can learn from. They are assumed to be good at it. Observing the field of study, three distinct factors were discovered that enhance interaction in COMAO: a joint practice of COMAO, a joint process for learning, and leadership. Each factor will be explored in detail. Leadership characteristics are described together with joint practice for learning and, in a separate section, focused on trust.
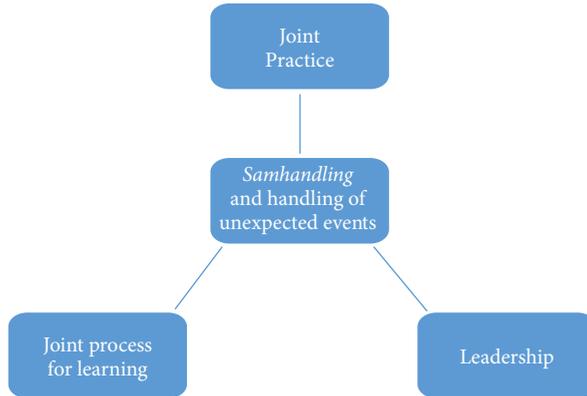
Figure 26.2 Factors developing effective interaction and handling of unexpected events in COMAO.

Joint practice

"(OD/UF Libya) Due to technical problems, we were unable to contact the other participants in the COMAO prior to flight. We only received a coordination card from the Combined Air Operation Center and executed the mission. It all worked out very well since we had practiced COMAO training with the same nations in different exercises previously."

F-16 pilot, RNOAF

Developing effective interaction in training between formations from different armies and nationalities is the key to success in warfare. In the pilot community, this is referred to as establishing *mutual support*. Since WWII, it has been a well-established practice that mutual support between aircraft is a force multiplier: A formation of two fighters outperform two fighters employed singularly. Even though today's fourth and fifth generation multi-role aircraft are less specialized than their WWII ancestors, they still operate under the same principle of mutual support. For example, an F-16 has a combat endurance of 1.5 hours, but when it is supported by an air-refueling aircraft, its endurance increases to human factor limits (approximately 6–8 hours). Interaction in COMAO is a matter of establishing mutual support across organizational boundaries.

Interaction – *a skill that can be mastered*

Scholars present different definitions and perspectives on the essence of interaction (Eggen & Nyrønning, 1999; Torgersen & Steiro, 2009). In the practice of aerial COMAO, effective interaction that sustains the demands and threats in a war campaign is viewed as a *skill* that can be mastered through practice. If NATO practices COMAO in peacetime, they will gain experience and knowledge that will also work in war. In other words, interaction and the mastering of unexpected events are controllable factors if you follow certain principles in training. One principle is to *train as you fight*. This implies that the training must be in accordance with what you will actually do in combat. This, which might be viewed as an obvious lesson today, can be traced back to the US combat experience in Vietnam. Prior to the Vietnam War, the US Air Force experienced many restrictions in training. Air crew were not properly prepared for the threats they faced in the war, which resulted in heavy casualties. In order to mitigate these lessons, Exercise RED FLAG was initiated to better prepare aircrew for combat. For the first time, USAF airmen started to train systematically during peacetime, employing COMAO (Norwood, 1994). RED FLAG provided realistic training in a combined air, ground, space and electronic threat environment, and created a learning environment where ideas could be exchanged between participants. Due to its success, RED FLAG is today one of many exercises where NATO aircrew interact in COMAO training. The sole purpose is to reach a level of proficiency that will sustain the demands of modern aerial warfare.

A second important principle of COMAO training is that it needs to be conducted with a *progression in challenge*. Since NATO is the dominating air power in the world, both in terms of numbers and technology, a pitfall in the training is that a realistic opponent in an exercise scenario is an inferior opponent. In other words, you risk facing an opponent who does not challenge your abilities. For that reason, COMAO exercises, which usually last for ten days, are designed with a progression in challenge. They generally start out with realistic best-case and expected scenarios based on likely war scenarios in the world today, and progress to worst-case scenarios and occurrences of unexpected events. In this way,

aircrews are exposed to different interaction problems in controlled scenarios and can learn from different situations.

A third principle is that all participants must be willing to expose their own mistakes to give others a chance to learn from them. As they say, people learn from their own mistakes, but smart people learn from others' mistakes. Hence, joint exercises provide NATO forces with a unique opportunity for *collective learning,* that can be described as a community of practice, according to Lave & Wenger (1991). Joint practicing of the operational skills required for effective interaction in combat leads to a development of standardized concepts of operation, tactics and standard operating procedures (SOP). In most COMAO exercises, participants come together at a common air base. They meet face-to-face for planning and learning processes, and interact in social programs in the evening. All these activities facilitate the development of trust and knowledge about differences in norms and culture (Hislop, 2009:165–175).

Norwegian fighter pilots who served in Libya found that COMAO exercises serve their purposes in war (Fredriksen, 2012). The way COMAO is conducted in war does not change from how it is practiced in training. Knowing the structures of interaction in advance creates a greater opportunity to be successful from day one in a war. It also reduces pilot stress and increases pilots' work capacity, so that they are able to cope with the unique challenges that only occur in war.

Joint process for learning

Every COMAO follows a standardized working process of four phases led by the MC: a planning phase, a briefing phase, a performance phase and a debriefing phase. The cycle lasts about twelve hours: four hours planning, two hours briefing, four hours performing, and two hours debriefing. This process is embedded in the practice, and is comparable to the Experimental Learning Model (ELM) (Kolb, 1984), where the planning, briefing and performing phases can be viewed as the *concrete experience*, the debriefing phase as *reflective observation and abstract conceptualization*, and the following day COMAO as *active experimentation*.

This process is not only embedded in the conduct of the overall COMAO. It is present on all sub-levels in the COMAO hierarchical structure. Parallel to contributing to the COMAO learning process, all air crews need to participate in the learning process on the sub-commanding level, the formation/team level and on an individual level.
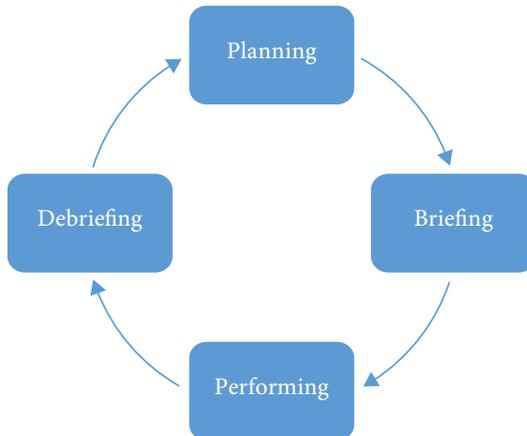
Figure 26.3 COMAO learning process.

Planning

"The planning phase is the most challenging process to lead. First of all, you need to come up with a good plan. Then you have to make sure that everybody shares a common understanding of the plan. If not, there will be misunderstandings and chaos."

MC, RNOAF

The planning process serves two main purposes: (1) To create a plan that will solve a specific task and meet established safety requirements, and (2) create a collective situational awareness (SA). The former is similar to a rational analytic decision-making process. The MC normally uses a checklist that guides him/her through the most important steps and issues that need to be solved. There are established common MC checklists, but many MCs prefer personal guides that are tailored to their own experience and planning knowledge. Before the actual planning starts, the process begins with a brainstorming session that is often referred to as "the 4 Ts":

Table 26.1 The 4 Ts brainstorming structure in a COMAO planning process (based on the syllabus in the Tactical Leadership Program COMAO Course, https://www.tlp-info.org/home/composite-air-operations).

COMAO Planning process: The 4 Ts	
TASK	Analyzing the task given in the ATO:
	What is the commander's intent?
	What are we supposed to achieve?
	What is a satisfactory end-state?
	What are the resources?
	What are the limitations?
TARGET	What are the goals?
	Which targets are to be attacked?
	At what time?
	What kind of damage level is required?
THREATS	What may stop us from achieving the goal?
	What can intelligence tell us about the enemy?
	Weather, clouds, terrain, time of day?
TACTICS	Analyzing task, target and threats: What is a suitable plan for this COMAO?

After having decided upon an overall game plan, the actual planning phase progresses with detailed planning, coordination and decision making, that must be resolved before the COMAO can fly in a safe manner. Representatives from all participating formations participate in the planning process. This practice has several advantages:

- The MC can monitor progress in the planning process and interact with sub-commanders in problem-solving immediately when needed.
- The MC can call for a status meeting (usually lasting only ten minutes) to get and give all participants an overall status of the process.
- All formations flying in the COMAO have one representative who has SA over the process and the overall plan for the COMAO, and who can relay information to planning processes that are happening at formation and individual level.

Together, this contributes to collective SA. About 20 % of the air crew flying in the COMAO are directly involved in the creation of the plan, and

know their own specific task and what role it plays in solving the overall objective of the COMAO.

Contingency planning

A plan will always be the product of many assumptions. If the assumptions are incorrect, it may lead to the occurrence of unexpected events that can be dangerous or reduce the COMAO's ability to achieve its objective. The MC needs to prepare for changes in the assumptions. In the planning process, this is called *contingency planning*. Contingency planning is a risk-assessment and risk-management process, often associated with models and processes like the Bow-tie Model (Torgersen, 2015:48–53) and Operational Risk Management (ORM)(OPNAVINST 3500.39B, 2004). The latter is incorporated as standard procedure for all safety work in the RNOAF (BFL 0101–1). Due to time pressure in the planning phase, a *mental* ORM is performed. This means that the ORM process is carried out verbally, as opposed to a more time-consuming written process. Subject to so many different types of hazards, this may seem inadequate. Since separate contingency-planning processes are completed on all hierarchical levels in the COMAO organization, it actually covers a wide aspect of potential dangers.

The contingency-planning process usually reflects changes in four assumptions: the enemy's expected course of action, the environment, technical equipment and reduction in capabilities (aircraft that perform specific tasks). Changes in any of these factors are compared with what the ATO depicts as an Acceptable Risk Level (ARL) for the COMAO. The ARL is a guideline for how many people and aircraft the commander is willing to lose to achieve the goal of the mission. The MC uses *deduction*, by reflecting on scenarios that may be unique to this specific mission, and *experience,* when reflecting on different scenarios that are known to happen in COMAO. The result of this process ends up in a picture of changes that might lead to a cancellation of the entire COMAO (known as a NO GO criteria), and for changes in the assumption that will require adjustments to the main plan. A complete planning process will therefore result in a main plan, a set of NO GO criteria, and a number of alternative plans that will take effect when unexpected events occur. As a principle, all alternative plans are kept as close as possible to the main plan.

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All planning information is written down on a coordination card that all participants receive in the MASS BRIEFING.

Leading the planning process, the MC needs to have enough experience and knowledge of all the capabilities in the COMAO to create an initial plan that makes use of all the resources at hand. The MC must be able to engage in fruitful discussions with sub-commanders and formation leaders, and make decisions that take into account individual needs without hampering effective interaction in the overall COMAO plan. Keeping oversight in the process, delegating and engaging in problem-solving are important qualities. Working under time pressure, the MC needs to demand progress in the work, balancing communication to respect cultural diversity.

Briefing

> "What separates the excellent MCs from the others is their ability to convey the plan in the MASS BRIEFING in such a way that everybody understands the big picture and how their task is important in the plan."
>
> MC, RNOAF

The briefing, or MASS BRIEFING as it is called in COMAO, may be considered the most important leadership process in creating a collective SA (Fredriksen & Moen, 2013:209–212). All participants in the COMAO attend the MASS BRIEFING, as it is considered to be too dangerous to have participants flying who are not thoroughly familiar with the overall COMAO plan. The content of the brief is a repetition of the 4 Ts, that balances the level of details to what is relevant for all the participants. Details that are only relevant at the sub-commander or formation level are covered in a separate briefing held after the MASS BRIEF. At the end of the briefing, all participants should know what the plan is, why, what their individual task is in the main plan, as well as the different contingency plans.

The briefing process follows norms. It always starts punctually with a roll call of all formation members. The briefing is a one-way communication process lead by the MC, and it is supported by sub-commanders and other personnel who have been delegated responsibilities in the COMAO planning phase. In order to ensure efficiency, questions are always addressed at the end, and they are limited to clarifying or confirming information.

Either the plan is safe and sound or the COMAO must be cancelled. At this point in the process, there is no time to make big changes.

The MASS BRIEFING tests the MC's communication skills. The plan needs to be visualized for the participants. They must understand every time-critical interaction that happens in the COMAO, potentially-dangerous situations that can occur with non-compliance, and which events that could trigger changes in the plan.

Performing

> "The MC needs to have enough brain bytes available to maintain SA on the COMAO, and not only the action that is going on within his own formation. I have seen many times that trigger events occur that should alter the main plan, but the MC for some reason doesn't act on it."
>
> MC, RNOAF

In the performance phase, the COMAO plan is set out in reality. In academic terms, this is when the theory is tested. The main focus for the MC is to maintain high SA and to monitor the COMAO. A UHF radio is the means of communication between the different formations in the COMAO. Since radio communication is limited to one person speaking at a time, it is difficult for the MC to give instructions to the other elements during flight. It requires significant communication discipline and a solid communication plan that establishes how information is prioritized on the common UHF frequency. Adherence to the communication plan is the most important factor to maintain a high collective SA.

If the assumptions in the plan are correct, the COMAO will be executed in an orderly fashion with effective communication. The collective SA in the COMAO will be high, resulting in actions being performed without the need for further coordination and communication. This is referred to as implicit coordination (Cannon-Bowers, Salas & Converse, 1993). When unexpected events happen (a trigger event), it is of utmost importance that this is recognized by the MC, and that he/she reacts to it in accordance with the contingency plan. If this is the case, an unexpected event may not create a problem for the COMAO. If not, a dangerous situation might develop, either because formations are flying in

accordance with a plan that is not based on the right assumptions, or because formations are executing different plans. In both these cases, the collective SA is drastically reduced and actual communication increased, making it even harder for the MC to establish control and give instructions. Degraded SA often leads to formation prioritizing safety actions rather than executing the planned task.

The role of improvisation

Since the COMAO planning process covers a lot of contingencies, the occurrence of unexpected events that the MC is not prepared for are rare. During the interviews with RNOAF MCs, all had problems remembering such events. This does not mean that the role of MC can be performed with an absence of improvisation. A COMAO plan almost always requires small adjustments in the performance phase. These adjustments, or improvisations, follow specific patterns. First of all, they are variations on the existing plan. The communication needed to initiate improvised actions cannot be open for discussion or vast amounts of information exchange, due to the means of communication. Hence, it is often transmitted as orders to be recognized and confirmed. The changes implemented in improvised actions are limited to as few as possible, and decision making is delegated to the most suitable level of authority in the hierarchical structure of the COMAO. This action limits the problem-solving process to the formations effected by it, and leaves it up to the specialists to make the right decision. Decisions made in the improvisation process are a balance between obtaining goals and maintaining safety, but safety will always predominate.

Debriefing

"The hard part is to identify the really important lessons that are valid for everybody in the COMAO and communicate them clearly."

MC, RNOAF

The debriefing is an organized and structured reflection on action (Schön, 1983, 1987; Folland, 2012; Moldjord, 2016). The purpose of this

process is to create learning. As in all steps in the COMAO learning process, the debriefing is conducted on all hierarchical levels in the COMAO organization. The MASS DEBRIEF focuses on the overall execution of the COMAO. The goal is to identify learning points that are relevant for all participants. The later formation debriefings will cover more specific learning points relevant for the formation or individual pilots. In total, the debriefing process will cover a spectrum of operational and tactical learning points, down to individual pilot switch-actions and maneuvers in specific situations.

The air crew uses two terms in the learning process: *lessons identified* and *lessons learned*. The goal of the debriefing is to identify important lessons that the participants can add to their knowledge for future COMAO operations. "Lessons identified" are not considered learned until the application of action has changed. As in most performance cultures, the debriefing is mainly concerned with what went wrong and correcting these errors. The process seldom dwells on the positive aspects of the COMAO, mainly because they have a high-performance expectancy and limited time to cover all possible learning points in the debriefing.

The debriefing process mainly addresses four questions (Fredriksen & Moen, 2013:215–217):

1. Were there any safety issues?
2. What happened?
3. What went wrong? Why?
4. How do we change it next time?

Safety is always paramount in COMAO exercises. What cannot be performed safely in a training environment will become hazardous in the fog of war. In this part of the debriefing, anybody can address issues concerning any aspect of the COMAO. Bringing up safety issues in the beginning of the debriefing has two important functions: (1) Important learning points are identified and can be corrected. (2) Real safety issues evoke emotions. If emotions such as fright and anger are not dealt with, they will have a negative impact on the analytic learning process.

The re-construction of what happened is really the key to create valid learning. In a COMAO scenario where 100 aircraft are performing different tasks in a dynamic air-combat scenario, nobody will have complete SA of what happens. While in war, aircraft are shot down and ground targets are destroyed, in a COMAO exercise, munition drops and missile firings are simulated in the aircraft. Even though these actions are assessed in real time in the air, they need to be validated on the ground after flight, to make sure the assessment was correct. Different tools, like a recorded radar picture, are used to reconstruct the COMAO execution and replay it chronologically for the participants in the debriefing. Munition drops and missile shots are called out at the correct time, with validation by the pilots performing the action. At the end of this run-through, the MC and the COMAO participants have a picture of how the plan was actually executed in the air by the COMAO, which targets were destroyed, how many enemy aircraft were shot down and their own losses. This information is compared to the task and the overall objective of the mission, highlighting what could have been done differently to increase performance.

Leadership trust

> "In some cases, my confidence in the MC and the plan have been so low that the mindset leading my own formation has been to avoid collision with other formations and get us all safely back on the ground. These missions have no tactical value, except the learning of how not to do it."
>
> MC, RNOAF

On all levels, in any organization, leadership is appraised as an important factor in task performance. However, in COMAO, leadership seems to be of the utmost importance to the overall task performance. The main reason for this is the constant time pressure that comes with the task. Time is often described as *your worst enemy*, especially in the planning phase, as the MC needs to keep pushing for results to meet deadlines given in the ATO. Trust is a factor that correlates with interaction and performance, especially in a high-risk and high-stress environment (Costa et al., 2001, Kramer, 1999; Rousseau et al., 1998). Temporary MTS,

like a COMAO, gives very little time to build trust. "Swift trust" building describes a condition where there is too little time to perceive deep relational trust (Meyerson et al., 1996). Expectations and stereotypes are imported from other settings, and play an important role in this process. The initial phase of working together in the COMAO is therefore crucial for establishing trust (Wildman et al., 2012). In the initial planning meeting, the MC needs to give an impression of control over the situation. This is conveyed by demonstrating self-confidence, and by providing an initial idea of how the task and the process can be solved, as well as through the ability to delegate tasks. Further, the MC needs to be open minded to other solutions suggested by participants, challenge new ideas and only accept them if they contribute to a better plan for the overall COMAO. Language skills seem to play a vital role in establishing "swift trust". The MC needs to be confident in speaking English. He or she should have a good grasp of the basic professional terms used by the different capabilities in the COMAO, and understand typical problems that may degrade their performance. In the planning phase, the MC needs to keep the pressure up in order to achieve results. Showing signs of hesitation will only cause frustration and reduced trust. Therefore, tasks are often delegated to nationalities and formations that have shown solid performance in the past. This type of MC knowledge is only gained through experience and participation in COMAO. Hence, the MC is always a very experienced and qualified pilot.

Conclusion

This chapter has explored the leadership practices of Mission Commanders (MC) in Composite Air Operations (COMAO), giving insight into details in the practices that contribute to interaction and the handling of unexpected events, in an organization that can be described as an HRO and an MTS. The study indicates that *joint practice* and *a joint process for learning* and *leadership* play a vital role in the successful conduct of COMAO in war. Joint practice during exercises like RED FLAG provides the opportunity to develop the interaction skills that are needed in modern aerial warfare. Important principles in joint practice are that you train

as you fight, that you experience a progression in challenge and that all participants participate in the exchange of ideas and lessons learned. In developing interaction skills, COMAO exercises have a structured process for learning, consisting of four phases: planning, briefing, performing and debriefing. This learning process is present on all hierarchical levels in the COMAO organization. The handling of unexpected events is prepared for in the contingency-planning process. This process is similar to common risk-assessment processes. Actual unexpected events in the performance phase are handled through execution of alternative plans and improvisation. All actions are evaluated and corrected in the debriefing. The role of the MC is vital in all phases of the learning process. Leadership trust plays a significant role in the overall performance of the COMAO. The lack of trust may reduce task-oriented behavior and increase safety-oriented behavior in the performance phase. The development of "swift trust" is established in the planning phase. Self-confidence, language skills, an ability to create ideas and solve problems, make progress, and have knowledge of different capabilities and their special interests are important characteristics in building "swift trust". Therefore, the role of MC is given to very experienced pilots who are trained in COMAO operations.

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CHAPTER 27

Samhandling, Preparedness and Supply Chains

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Abstract: Supply-chain preparedness means to design inter-organisational struc-
tures, to organise supply-chain resources, and to plan and train to ensure efficient
response if this is called for. Acknowledging that supply chains are made up of
two or more organisations, and that interaction describes relations between two or
more actors, the purpose of this research is to explore whether the introduction of
the concept of interaction (*samhandling*) to supply-chain thinking adds to our un-
derstanding of efficiency and the effectiveness of logistics preparedness.

We position our work along three dimensions: a profit – non-profit classification,
a descriptive – normative dichotomy, and a micro – macro continuum. Information
was retrieved both through semi-structured interviews and by studying secondary
sources. Interaction and preparedness is assessed through an empirical case: the
operation Atalanta. By applying interactional indicators, enablers and barriers to
relationship success can be studied at both micro, meso, and macro levels. Without
understanding the mechanisms leading to interactional competence, success (or
the lack thereof) in supply-chain preparedness is difficult to address properly. Thus,
managers need to assess the interactional constructs at all levels when planning and
training for preparedness.

Keywords: *Samhandling,* interaction, preparedness, supply chain management,
defence logistics, collaboration

Introduction

Why are inter-organisational relations important for preparedness? The Cold War ended, as the Soviet Union and the Warsaw Pact collapsed after the fall of the Berlin Wall in 1989. During the Cold War, the defence strategies of smaller NATO members aimed at establishing and supporting strongholds along national borders, to prevent or delay invasion from an identified adversary. From a logistics point of view, this meant employing pre-determined nodes and links for feeding troops and transporting equipment from other parts of the country and from allied partners, to these strongholds. The conclusion of the Cold War, together with the Balkan crises and the War on Terror, caused a redirection of the NATO alliance. Peace and security would be ensured through engagements outside the NATO home territories. After almost two decades, in which NATO and its member states directed their attention towards expeditionary operations, the pendulum swung the other way again, as a consequence of Russian involvement in Georgia in 2008, and indeed, the Russian – Ukrainian conflict since 2014. Preparedness and homeland defence is again at the centre of defence planning.

Running parallel to this, and rooted in the Neoliberal ideas of the 1970s and 80s, the New Public Management (NPM) paradigm was adopted in several nations, including Norway (Måseidvåg, 2011). NPM is built on the premise that the public sector should put more emphasis on results, management, competition, markets and consumers (see e.g. Hood, 1995). Such ideas, commonly applied in the commercial sector, manifested themselves as competitive bidding, outsourcing, Public Private Partnerships (PPP) and Private Finance Initiatives (PFI) in public organisations. The belief in a 'peace dividend' (see e.g. Garfinkel, 1990; Mintz & Huang, 1990) after the Cold War made the Defence sector particularly prone to such ideas. Organisational downsizing and outsourcing alter the relations and dependencies between the Defence forces and external agents. Unless managed wisely, this will probably have consequences for the Defence forces responsiveness. The ability to quickly respond, i.e. to be prepared to act, assumes logistics systems designed for responsiveness. As (Mentzer et al., 2001) point out, optimising the supply-chain output presupposes a supply chain orientation; a recognition that processes need

to be aligned throughout the whole supply chain. Understanding how supply chains for high-readiness defence units are designed and managed is important for dealing with the seeming divergence between being efficient during the dormant period and effective in action (Kovács & Tatham, 2009). Acknowledging that supply chains are made up of two or more organisations, and that interaction describes relations between two or more parties, the research question reads:

> *Would the introduction of interaction to supply chain thinking add to our understanding of efficiency and effectiveness of logistics preparedness?*

An open systems perspective

To answer this question, this research builds on the most common epistemological stance within Scandinavian logistics research: the open systems perspective. Performance of a supply chain depends not only on activities and processes within a focal company, but also on the ties, bonds, and links to other parties. From a supply chain perspective, which will be defined shortly, this encompasses all parties that directly or indirectly control resources of value for the focal party, and that perform activities linked to activities within the focal party.

This work is positioned along three dimensions: a profit – non-profit classification, a descriptive – normative dichotomy and a micro – macro continuum. The investigated context is interaction in defence supply chains. The conception of interaction follows the operationalisation of the Norwegian term *samhandling*, as described by (Torgersen & Steiro, 2009). The main rationale for defence organisations is to offer welfare, in the form of safety and security, to a population and not to maximise for example, return on investments. This research will therefore contribute to enhancing our understanding of interaction in a *non-profit context* (although the commercial parties which make up the civilian part of the defence supply chains have other goals). The aim is to explore how interaction is perceived in logistics and supply chain management literature; hence a *descriptive approach* to research. The micro – macro continuum in a supply chain perspective means that the individual constitutes the micro perspective, whereas the supply chain, with its many participants

and activities directly and indirectly influencing processes and outcomes, represents a macro perspective.
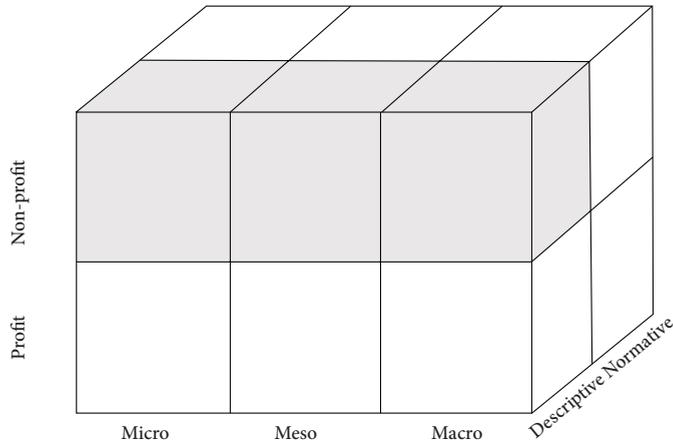
Figure 27.1 Positioning of research.

Between these there are processes linking the individual to its organisation (be it a project, a parent organisation or the whole supply chain); processes and dependencies which can be defined as a meso perspective. (Torgersen & Steiro, 2009) describe constructs related both to interpersonal relations, relations between individuals and organisations, and inter-organisational relations. Hence, these findings relate to both the *micro, meso and macro* perspectives.

Reviewing articles published in peer-reviewed logistics and Supply Chain Management (SCM) journals between 2007 and 2017 revealed theoretical knowledge about supply chain interaction. In *Science Direct*, the search term 'supply chain interaction' was applied to titles and key works. This resulted in 83 hits. Similarly, a search for 'Supply chain collaboration' and 'Supply chain interaction' under titles, 'Supply chain interaction' under keywords and abstracts, and 'Supply chain preparedness' under abstracts in *Academic Search Premier,* resulted in 65 articles. And an additional 83 hits were found by searching for 'supply chain interaction' under titles and keywords in Google Scholar.

Semi-structured interviews, with personnel from both the Defence forces and a logistics provider involved in the planning and execution of

Operation Atalanta, provided valuable insight into the status of interaction in defence supply chains. This was part of the EU operation against piracy in the Gulf of Aden in 2009. Norway contributed with one frigate, and a commercial logistics provider worked closely together with the National Support Element (NSE) in serving the frigate.

Preparedness and supply chains

A supply chain is *'an integrated process wherein raw materials are manufactured into final products, then delivered to customers.'* (Beamon, 1999). The supply chain includes various flows, where the flows of products, services, finances and information are assumed to be the most central. Applying a supply chain perspective indicates a strategic view of materials and distribution management, emphasising joint benefits across functional and corporate borders (LaLonde & Pohlen, 1996; Mentzer et al., 2001; Kemppainen & Vepsäläinen, 2003).

Managing a supply chain (termed Supply Chain Management, or SCM) as an integrated system encompasses both coordination and structuring decisions (Truong & Azadivar, 2003). This requires a supply chain orientation (SCO), defined as *'the recognition by an organization of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain.'* (Mentzer et al., 2001). An SCO assumes a willingness to: assess inter-organisational trust and commitment; recognise interdependencies between participants in the supply chain; focus on organisational compatibility regarding goals and objectives, operating philosophies and corporate cultures; emphasise key supply chain processes; and, apply top management support and visions (ibid). Supply chain management thus presumes not only a recognition that supply chains exist, but also that supply chain participants acknowledge the interconnectedness and interdependencies between them.

In their work, (Chopra & Meindl, 2013) argue for the need of a strategic fit between company strategy and supply chain designs. They claim that, *'a company may fail either because of a lack of strategic fit, or because the overall supply chain design, processes, and resources do not provide the capabilities to support the desired strategic fit.'* (p. 33) To ensure strategic

fit, one must assess the supply chain's capabilities – whether the supply chain needs the ability to be responsive or efficient. (Fischer, 1997) argues that efficiency is a preferred strategy when demand is predictable, whereas strategies ensuring responsiveness are best suited when needs are unknown or uncertain. In such situations, the supply chain needs the ability to respond quickly to: fluctuations in required quantities and products; handle short lead times; and, provide a high service level (Chopra & Meindl, 2013; Demeter, Gelei, & Jenei, 2006; Fischer, 1997; Gunasekaran, Laib, & Cheng, 2008; Parmigiani, Klassen, & Russo, 2011). Since demand in a preparedness context is uncertain or even unknown, one would expect supply chains for preparedness to have the properties of responsiveness rather than of efficiency.

(Zacharia, Nix, & Lusch, 2009) find a strong relationship between supply chain collaboration and business performance. Finding interdependent supply chain partners, investing the time and resources to understand them and to collaborate intensely, are critical to achieving successful operational and relational outcomes (p. 116). Thus, one needs to understand the partners' processes, objectives, and values, openly share information, and ensure that supply chain goals are understood and shared. As proposed by (Simatupang & Sridharan, 2005), '*in order to ensure effective collaboration, the chain members are encouraged to clearly define mutual objectives and associated performance measures and link their performance systems with decision synchronisation, information sharing, and incentive alignment.*' (p. 271). This is supported by (Parmigiani et al., 2011), who find that relational capabilities in responsive supply chains reflect the ability to collaborate and exchange knowledge that promotes flexibility and innovation in the supply chain (p. 218).

Hence, choosing supply chain partners and deciding how to interact with these, are important aspects of supply chain management. In fact, (Truong & Azadivar, 2003) show that supplier selection, partnership, inventory ownership, information sharing, and trust and commitment are central elements of a supply chain strategy. Such cooperation is often thought of as being close and long-term (Marasco, 2008; Skjøtt-Larsen, 2000), since inter-organisational factors take time to develop, and managing close supply chain relationships is resource demanding.

On preparedness

To be trustworthy, defence organisations should demonstrate a real, or perceived, ability to respond when certain adverse events or disasters occur. Carter (1999), cited in (Pettit & Beresford, 2005), defines 'disaster management' as *'an applied science which seeks, by the systematic observation and analysis of disasters, to improve measures relating to prevention, mitigation, preparedness, emergency response and recovery.'*

(Kruchten, Woo, Monu, & Sotoodeh, 2008), in their study of the impact of disasters on critical infrastructure, claim that research on emergency preparedness can be identified in the intersection between hazard and disaster research. Building on Tierney et al. (2001), they identify three phases related to disasters: pre-impact, trans-impact, and post-impact. (Kovács & Tatham, 2009), comparing defence organisations with humanitarian organisations and their ability to respond to large-scale disruptions, pointed out that *'[m]ilitary organisations need to prepare for (and engage in) warfare or peacekeeping missions […] [this] require[s] the speedy mobilisation of resources and capabilities, from a "dormant" to an "active" state.'*

When relating this to a supply chain perspective, disaster preparedness should encompass measures such as: ensuring compatible communication and ICT systems; pre-stocking of emergency supplies; pre-designed purchasing agreements; preparation for cooperation with other organisations; establishment of planning teams; analysis of capabilities and hazards; development and implementation of plans; creation and validation of scenarios; development of detection plans; and, development of mitigation plans (Hale & Moberg, 2005; Kovács & Spens, 2007; Pettit & Beresford, 2005).

In this research, I define preparedness in a supply chain perspective thus: *as a means to design inter-organisational structures, to organise supply chain resources, and to (jointly) plan and train to ensure efficient response if response is called for* (Listou, 2015).

When discussing relations between public and private parties, (Smyth & Edkins, 2007) find that such relations are often reactively managed, due to a lack of trust and confidence, and weak interfaces between the private supplier and the public client. Often, relationship development and management depends on the initiatives of individuals, without systematic leadership, organisational management support, systems or procedures.

This might influence the effectiveness of public participants' preparedness measures.

Supply chain literature and interaction

The SCM literature search identified works that seek to explore or explain how partners in a supply chain work together, and how this influences supply chain success. Different authors apply different constructs for describing and analysing relations between business partners, such as coordination, cooperation, collaboration and integration.

(Zacharia et al., 2009), when analysing supply chain collaboration and effects on performance, refer to (Malone & Crowston, 1994), who define supply chain coordination as managing interdependencies between firms. They posit that there are three distinct approaches to managing such interdependencies: competition, cooperation, and collaboration. These approaches represent a continuum from competition, which represents the least direct contact between participants, to collaboration.

(Xu & Beamon, 2006), although not defining coordination, claim that coordination is a strategic response to problems arising from inter-organisational dependencies within supply chains. They describe a framework for selecting the appropriate coordination mechanism, consisting of a resource-sharing structure, decision style, level of control, and risk/reward sharing between firms.

(Singh & Power, 2009), cited in (Soosay & Hyland, 2015), define supply chain cooperation as firms exchanging basic information and having some long-term relations with multiple suppliers or customers. At the same time, they state that coordination, where a continuous flow of critical and essential information takes place using information technology, is at a higher level than cooperation. In this respect, their view differs from Zacharia et al. (2009), who view cooperation as a subset of coordination. Furthermore, they claim that collaboration, including high commitment, trust and information sharing, is again a more advanced level than coordination. Zacharia et al. (2009), share this opinion, defining high level of *collaboration* as high levels of commitment, numerous joint activities, overlapping operations and relationships that cause changes in each other's organisations. This requires a commitment of time and resources on the part of each firm.

(La Forme, Genoulaz, & Campagne, 2007), in their framework for analysing collaborative performance, define collaboration as *'a way by which all companies in a supply chain are actively working together toward common objectives…characterised by sharing information, knowledge, risks and profits. At this level, the company announces information related to its sourcing strategy, goals or stakes, in order to improve the supply performance.'* In their meta-analysis of literature on supply chain collaboration, (Soosay & Hyland, 2015) distinguish between horizontal collaboration and vertical collaboration. Whereas the former describes collaboration between firms/organisations at the same level in the supply chain, the latter relates to supply chain issues, which is the one of interest in this work. Identifying 12 different theoretical bases (including resource-based theory, social-exchange theory, stakeholder theory and transaction cost theory, to mention a few), they conclude that most studies takes a dyadic perspective, for the most part between buyers and suppliers. Adding to this, (Simatupang & Sridharan, 2008) show that (vertical) supply chain collaboration should include collaborative performance systems, decision synchronisation, information sharing, incentive alignment, and innovative supply chain processes.

(Chen & Daugherty, 2009), when describing supply chain integration, claim that this term is often used interchangeably with the related but distinct concepts of cooperation and collaboration. Referring to (Harrison, Van Hoek, & Skipworth, 2014), (Soosay & Hyland, 2015) show that some authors conclude that cooperation is 'the indispensable step to supply chain integration', and that collaboration goes beyond (supply chain) integration, by including long-term commitments to technology sharing and closely-integrated planning and control systems. (Fabbes-Costes & Jahre, 2007), in their systematic literature study, set out to test the established conception that (more) supply chain integration has a positive effect on supply chain performance. They identify four layers of integration between supply chain participants: 1) integration of flows; 2) integration of processes and activities; 3) integration of technologies and systems; and, 4) integration of participants. They analyse dyadic relations, both upstream and downstream (between a focal company and either a supplier or customer), triadic relations (supplier – focal company – customer), and extended relations (i.e. more than three parties). Contrary to

conventional wisdom, they do not conclude that more integration leads to better performance of the supply chain.

The literature review was designed to find articles about relationships within supply chains. Based on the above, one might conceive that SCM literature describes a hierarchy of relations, from competition – cooperation – coordination – collaboration, as depicted in Figure 27.2.
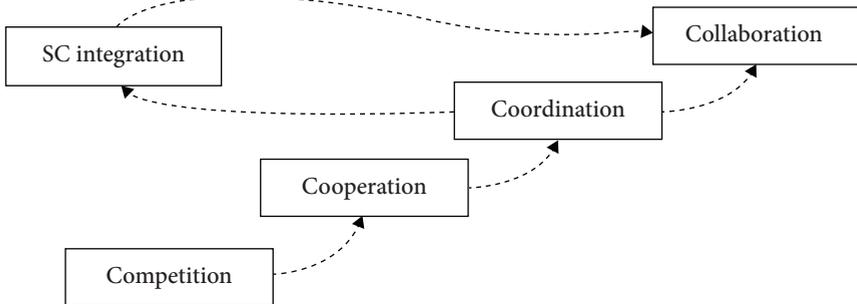
Figure 27.2 Hierarchy of relations.

Supply chains and interaction (*samhandling*)

Although identified works recognise interactional mechanisms, such as power, trust, and social contracts, most of them seem to focus on the macro level; the units of analysis are the organisation, relationships between organisations, or the supply chain as a whole. Thus, when (Fabbes-Costes & Jahre, 2007) could not find proven effects of supply chain integration on performance, they analysed articles focussing on inter-organisational relations, and not explicitly inter-organisational or inter-personal relations.

Whereas supply chain literature seems to focus predominantly on relations between organisations, Torgersen & Steiro (2009) build on an array of literatures when defining interaction (*samhandling*). Their indicators cover both micro, meso, and macro relations. Does this matter when trying to improve supply chain effectiveness in preparedness situations?

A case presented in Listou (2013) helps to shed light on this question. The case study investigated supply chain relations before and during Operation Atalanta 2009. In this operation, in which a Norwegian frigate participated in the UN-initiated anti-piracy operation, the Norwegian

Defence Forces relied on a civilian logistics provider to supply and sustain the frigate in the Gulf of Aden. The supplier was co-located with the National Support Element (NSE), which is the mediating point between the deployed frigate and operational headquarters in Norway. Based on interviews with involved personnel from both organisations, studies of secondary sources such as evaluation reports, e-mail correspondence and meeting minutes, cooperation both before the operation started (the preparedness phase) and during the operation was assessed (Listou, 2013). The findings are summarised in Table 27.1 (Interactional Factors, from Torgersen & Steiro, 2009):

Table 27.1 Interactional aspects and Operation Atalanta (Listou, 2013).

The ethical dimension *Before:* Not discussed at individual level *During:* Consensus about work ethics and moral standards	**Sense of involvement** *Before:* Not established since personnel not assigned *During:* Involved personnel contributed actively	**Coordination of tasks** *Before:* Not detailed in advance *During:* Worked very well
Complementary expertise Identified at institutional level, not individual level	**Shared situational awareness** *Before:* At institutional level, not individual level *During:* Evolved between NSE personnel and logistics provider	**Role awareness** *Before:* At institutional level *During:* Evolved at individual level
Precise communication Personnel acquainted with maritime vocabulary	**Institutional logic** Personnel familiar with maritime operations and ships services	**Balance of power:** Institutional level: Defence needed external competence, logistics provider wanted cooperation. Not discussed at individual level
Transparency, confidence, trust *Before:* Not at individual level; personnel didn't meet before operation started *During:* Evolved at individual level during operation	**Understanding of the organisation and culture** *Before:* At institutional level: supplier knew the Defence Forces. Informal talks prior to engagement *During:* Differences between military and commercial culture	**Mastery of tools** *Before:* No compatible information systems *During:* Relied on Gmail
Joint learning *Before:* Not at individual level *During:* High degree of joint (informal) learning, both at individual and institutional level	**Instinct** *Before:* Not assessed *During:* Logistics provider developed good sense of Defence needs	**Training in interaction** No; new supplier, no history together, no joint training

As pointed out by Listou (2015), the Defence Forces and the logistics provider did not work closely together before Operation Atalanta. Defence personnel and supplier personnel did not know each other and hence did not develop social contracts before the operation and cooperation started. Although the logistics provider organised a joint assessment trip to the Gulf of Aden during operation planning, the officers who were to man the NSE were not appointed at the time. The logistics provider was not included in the planning and training of the force. As the supplier maintained, joint training would be most welcome, since they have employees that aren't familiar with the military system and cooperation during an operation runs smoother if personnel have developed social contracts beforehand.

If we relate this to the supply chain literature hierarchy presented in Figure 27.2, one could claim that the relations at an organisational level were at a Cooperation level during the preparedness phase, and at a Coordination, or possibly Collaboration, level during the operation. In the after-action evaluation report, both parties claim that the operation was a success, since the frigate was operational at all times. However, quantitative key performance indicators (KPIs) were not defined beforehand. As such, this confirms the impression of (Fabbes-Costes & Jahre, 2007), that effects of supply chain integration are difficult to measure quantitatively. If so, then 'success' must be assessed otherwise. In this case, the parties point to the fact that inter-personal cooperation (i.e. interaction) between Defence and logistics provider personnel worked smoothly. Although, as the assessment of the interactional indicators show, this was not planned or catered for beforehand and as such, interaction was not emphasised during the preparedness phase. Hence, the level of interaction was not a result of deliberate organisational actions. This supports the findings of (Smyth & Edkins, 2007), that success in public-private cooperation is often a result of individual initiatives, not rooted in a deliberate strategy.

Conclusions

A supply chain is a business process that crosses organisational borders. In an open systems perspective, one acknowledges that supply chain

output depends on all participants directly or indirectly controlling activities and resources necessary for the supply chain. Preparedness poses some other challenges to supply chains than ongoing business does. Preparedness is a form of insurance that one acknowledges the need for but hopes will not be called for. If resources on stand-by for preparedness are not called for, then supply chain effectiveness is difficult to assess. Hence, preparedness organisations need to demonstrate a presumed ability to act. This includes establishing routines for efficient interaction at all levels – both micro, meso, and macro, and between personnel, both within the focal organisation and in inter-organisational projects.

SCM literature seems to focus predominantly on inter-organisational relations and to a lesser degree, on inter-personal relations. Relations can be organised along a continuum ranging from competition to collaboration, although it is not clear how to distinguish between these levels. Furthermore, there are different opinions about the connection between this continuum and the concept of supply chain integration; does integration require relations at a coordination level, and is supply chain integration a prerequisite for supply chain collaboration?

By applying the interactional indicators when analysing inter-organisational relations, enablers and barriers for relationship success can be studied at both micro, meso, and macro levels simultaneously. As illustrated in the Atalanta example, interaction was not emphasised during the operation planning, at least not at the micro (individual) level. The operation and cooperation was evaluated as a success, which could be the effect of a lucky combination of personnel being available when the posts were manned. If so, this would indicate that interaction took place at a macro level, whereas the micro and meso levels were not addressed.

Without understanding the mechanisms leading to interactional competence and without defining indicators to assess interactional processes, success (or lack of success) in supply chain preparedness is difficult to address properly.

Hence, managers need to assess the interactional constructs when planning and training for preparedness. Moreover, these constructs must be assessed at all three levels. If not, success of inter-organisational

cooperation during operations (i.e. after the preparedness phase) would most likely depend on individual initiatives and competence, not on deliberate strategy.

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Section IV: Theory Construction and the Way Forward

This research aggregates experiences and findings from all chapters of the book. A number of SUR structures are derived based on semantic theory construction. These are organized into three interchangeable categories (EdSUR, OrgSUR and OpSUR), described in an overall definition and visualized in a model, which in turn, can form the basis of a SUR theory. Extended learning and educational models will contribute to achieve this. Further SUR research is needed, and one of the ways forward should be cross-cultural, using a global perspective, where different languages and cultures can contribute to a better understanding of SUR issues.

CHAPTER 28

Basic Structures for a New Theory of *Samhandling* Under Risk (SUR) – A Model

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Abstract: This final chapter aggregates experiences and findings from the other chapters of the book. The book's overall research question is as follows: *What are the basic structures of the concept of samhandling under risk and how can samhandling be created when the conditions are unpredictable?* A number of SUR (*Samhandling* Under Risk) structures are derived based on semantic theory construction, and these are described in an overall definition and visualized in a model, which in turn can form the basis of a SUR theory. These are organized under educational, organizational and operational structures, as three superior competencies needed to facilitate effective SUR. The essence is that there is a different basis for this type of assessment than with traditional risk analysis, in order to achieve good *samhandling* under risk and unforeseen conditions. This is concerned with what is needed when little or nothing goes according to plan. It is then necessary to emphasize on such matters more in depth and addition address other factors to achieve SUR through *samhandling* where the conditions are predictable - where completed plans and clear objectives work. For the learning level, valuation of inaccurate knowledge and qualities is required to extract information from the disorder. For the organizational level, it is important to create and/or maintain shared leadership and at the operative level, improvisation is essential. When working with a SUR paradigm, one must be able to accept unclear goals, be prepared to lose control and create room for surprises. Leaders with SUR skills will be required to prepare

organizations for this. Training and SUR should be incorporated into strategic plans, management training and leadership development. An expansion of established pedagogical models is also needed to achieve this aim. Invisible learning is one approach. *Samhandling* does not simply happen in a vacuum, and the chapter encourages further SUR research in a global perspective, where different languages and cultures can contribute to enhanced understanding of SUR issues. As a starting point for such an approach, we explore how the term is expressed in the Japanese language. A more global approach to SUR structures can contribute to a deeper understanding of what is needed, to avoid unwanted misunderstandings and crises, learn from each other and solve complex and unforeseen situations through *samhandling*.

Keywords: *Samhandling*, interaction, SUR, semantic model, training, strategy, global understanding, organizational learning, unforeseen.

Introduction

In this anthology, it is argued that *samhandling* plays a key role in meeting the unforeseen, as a capacity in predicting the unforeseen, during an impact and in the aftermath of an incident. This is very evident and presented in detail in Chapter 14 (Steiro & Torgersen, 2018). The core is, however, that in particular the study of Torgersen & Steiro (2009) and the majority of studies we have undergone have examined collaborative processes under predictable conditions without the risk of material, personnel or values, and related to work processes where the goals have been clear and unambiguous. In other words, unforeseen events have not been studied as part of the conditions in which *samhandling* has taken place. In the present anthology, however, we have focused on *samhandling* under risk and unforeseen conditions.

The overall and fundamental research question we have asked is: *What are the basic structures of the concept of samhandling under risk and how can samhandling be created when the conditions are unpredictable? Or more concentrated: What should be emphasized in order to achieve samhandling under risk and unpredictable conditions (SUR)?* (see Chapter 1). In other words, this question implies how the traditional underlying processes of *samhandling* (cf. the 15 indicators given in Chapter 2) behave during risk and whether there are other conditions that are important under such conditions especially for organizations such as emergency services and armed forces.

Nevertheless, it is essential for us to point out the following: *Samhandling Under Risk* (SUR) focuses on competence levels and strategic approaches for what should be emphasized *in addition* to basic competencies and basic capabilities (Torgersen, 2015) to interact under unpredictable conditions. Here, the level of competence is important regarding individual, group and the organizational level. In our perspective, the competence consist of both explicit and tacit knowledge. On the organizational level competence on tactical, operational and strategic/ play an important factor and the interplay between the different organizational levels. There is no doubt that basic capabilities and conditions, must be at the bottom for effective *samhandling* and coping with unforeseen events. i.e.;

- experience with past events;
- clear communications;
- coordination;
- best possible common situation awareness;
- theoretical and practical competence about events and exercises;
- drilling of known and necessary procedures;
- availability and coping of necessary equipment

The same applies to the satisfaction and performance of the underlying processes (the 15 indicators, or structures) for *samhandling* (Torgersen & Steiro, 2009, see also chapter 2 of the present book, Torgersen & Steiro, 2018), if one wishes *samhandling* at a high level of ambition and which differs from "cooperation" and only "communication." In the vast majority of events, it is also sufficient to have basic capabilities in place and focus on *samhandling* at a low to medium ambition level. Under such conditions, it will also be possible and sufficient to develop and use clear goals for both competence development and evaluation (i.e. SMART goals) in planning, implementation and evaluation of exercises.

However, the research contributions in this anthology have demonstrated that this low-level ambition is insufficient when the conditions are unpredictable and the situation involves risk. In that case, competence for and emphasis on *other underlying processes*, in order to extract the effect of such *samhandling* processes (at a high ambition level). These are the underlying processes we denote «SUR structures», and as we will clarify in this chapter.

Identifying and defining SUR structures

We have used the semantic view of theories and theory construction STC (Kvernbekk, 2005; Giere, 1988; Suppe, 1989; van Fraassen, 1988) as the principle and method to identify underlying processes for SUR. STC is a meta theory, which describes the constituents of data as the basis for models, theories and related key concepts. STC is a theoretical meta study based on both empirical and theoretical sources, in this case the chapters of the book.

Semantic theory construction (STC)

The essence of STC is that a theory consists of, or is built up by several selected models and associated concepts. This in turn relies on a selection of collected data, both empirical and in-house. At all stages of such a model and theory building, professional and meaningful (semantic) assessments are conducted as a basis for selection and construction. Similarly, we have examined all chapters in this anthology and drawn up key approaches and concepts (basic structures). This process have been responsible for the main message in the chapters, and relates to basic processes that have been derived and/or discussed. These foundations have been emphasized as the most important for *samhandling* at risk and the unforeseen, related to the various themes and academic approaches in the various chapters and main parts.

Based on this, we have further consolidated and concentrated the various basic processes, and aggregated these terms (structures), and expressed this in combined theses for the three main parts of the book. The individual authors have also contributed to the quality assurance of the various joints and semantic aggregation processes, among which they have proposed adjustments and agreed to recognize their main messages in the aggregated and generalized formulations and concepts. Having said that, such aggregated and semantically derived formulations and models will not be able to capture and express the actual nuances and detailed findings found in the individual studies. To achieve this, the individual chapters must be studied. However, it is emphasized that our chapter is an independent contribution, and the

other chapter authors are not assigned any responsibility for the content of this chapter.

SUR-structures and models

The purpose of such general model statements, on the other hand, is to express overall opinion and ideas on the main findings in general. Findings can be used, under the mentioned conditions, for further theoretical building and empiric studies, and as principles in both strategical and practical approaches for managers, stakeholders and others in their efforts to develop competence for SUR, adapted to their own organization and situation. Table 28.1 shows the main findings from the STC work with selected SUR-structures (see also Figure 28.1, p. 527).

Further, we have summarized and aggregated these structures into an overall definitions or verbal models for SUR related to each academic approach represented in the anthology (Table 28.2).

Table 28.1 Overview of some identified SUR-structures from the different parts of the anthology.

Part in this anthology/ Academic Approach	Identified and selected SUR-structures, alphabetic range (from the chapters in the part)
1 Educational *samhandling* structures (under risk) – EdSUR	• *Concurrent learning and framing of objectives and measures* • *Extract knowledge out from disorder in information and surroundings* • *Take into account the moods* • *The value of not precise knowing* …
2 Organizational *samhandling* structures (under risk) – OrgSUR	• *Cultural awareness in and between organizations* • *Knowledge of different leadership styles and organizational hierarchies between interaction organizations* • *Social support* • *Shared leadership* • *The avoidance of organizational narcissism* • *Trust* …
3 Operational *samhandling* structures (under risk) – OpSUR	• *«Auftragstaktik» (Mission command)* • *Collective acceptance for swift trust, loss of control and flow by chaos* • *Competence exchanging* • *Creating room for surprise* • *Faith of mastering* • *Skills in improvisation* • *Utilization of sequential, parallel and synchronous interaction* …

Table 28.2 Fundamental structures of a basic model for SUR.

Part in this anthology/ Academic Approach	Constructed thesis/Verbal basic models
1 Educational *samhandling* structures (under risk) – EdSUR	*SUR-oriented learning structures implies an emphasize the value of not precise knowing, development for concurrent learning and framing of objectives and possible measures during the situations, taking into account the moods, and in fellowship extract knowledge out from disorder in information and surroundings.*
2 Organizational *samhandling* structures (under risk) – OrgSUR	*SUR-oriented organization and leadership structures implies an emphasize of social support, shared leadership, cultural awareness and trust in and between organizations and stakeholders, knowledge of different leadership styles and organizational hierarchies between interacting organizations, and the avoidance of organizational narcissism (culture).*
3 Operational *samhandling* structures (under risk) – OpSUR	*SUR-oriented operational structures implies an emphasize on faith of mastering, «Auftragstaktik» and improvisational skills, competence exchange and collective acceptance for swift trust, loss of control, flow by chaos and creating room for surprise, and utilization of sequential, parallel and synchronous interaction.*

With these structures as a basis, the following general definition is introduced regarding SUR:

> *Samhandling* Under Risk (SUR) implies an emphasis on specific educational, organizational and operational structures, and these structures can have different importance for the effectiveness of *samhandling* in order to master challenges in the phases of warning signs, incident moment and recovery (cf. the Bow tie model presented at the start of the anthology).

The definition above states that it is necessary to emphasize some other basic processes to achieve *samhandling* under risk and unforeseen conditions, than in normal situations without risk. However, it does not mean that current processes which are necessary in normal situations (the 15 indicators introduced in Torgersen & Steiro, 2009) can be forgotten or downgraded. These must be the foundations. In other words, SUR-structures function as an addition or supplement, but necessary to achieve effective *samhandling* in the meetings with risk. At the same time, the shades and emphasis of the structure will have to be adapted to the situation and to what tasks the *samhandling* will support. For example, different

phases in the Bow-tie model could require emphasis on different SUR-structures, both in general and depending on the situation and context.

Organization structure and importance for *samhandling*

The SUR-structures can be seen as similar to those found in other research focusing on flexible organizations in general. Decades of research have found that organizations, to be successful, must be both structured and flexible (Faraj & Xiao, 2006; Weick, Sutcliffe, & Obstfeld, 1999; Kettl, 1983). The ideal in both cases would resemble the successful self-organizing firms that Brown & Eisenhardt (1997) found in the computer industry and was argued would be valuable for other organizations as well. We also believe this is of great importance in particular for emergency services and armed forces.

Successful firms did not rely on either a purely mechanistic or purely organic process or structure. Instead, successful firms had well-defined managerial responsibilities and clear project priorities while also allowing the design processes to be highly flexible, improvisational, and continuously changing. In this anthology, we have looked in depth on what structures are necessary based on what we have seen. We denote that organizations in order to be successful in meeting with the unforeseen; three elements should be taken into account; the educational structure, the organizational structure and operational structure. These three elements should be aligned, assessed and be the subject of continuous development. Demands in operational structures, cannot be seen without looking to the educational and the organizational structure and the other way around.

In order to succeed with adaptation to the surroundings, leaders needs to interprets and communicate the conditions their organization stand in an appropriate manner, and take necessary measures. The leadership commitment is often seen as the most crucial point in change management (Selznick, 2011, 1957; French, Bell & Zawacki, 1990; Torgersen & Steiro, 2009; Steiro, 2015). Top management commitment is also found to be the

most important factor with regards to safety management (Hopkins, 2008; Rosness et al., 2004; Kjellén, 2000).

## SUR, leadership and culture

From our point of view, it is important to clarify that an adequate focus on SUR structures in an organization, may in many organizations, require leadership to reach insight in the basic frameworks. This includes the understanding of both the nuances of the concept and the prerequisites.

Social support, both from colleagues and leaders, is of great importance for SUR. Leaders play further a crucial role to make sure that the basic competence is in place regarding i.e. emergency preparedness planning, exercises and enable material and resources to be available. SUR-theory (Figure 28.1) is of limited value if only the single individuals base their actions on such insights. Not least, the leadership skills and roles of SUR will also be necessary to avoid the development of unfortunate organizational culture, such as "organizational narcissism" (Schultz & Hatch, 2002), which can hinder involvement and competency internally and between organizations and other competence environments than itself and its own profession and culture (see also chapter 16, Heier, 2018). Cross-sector *samhandling* requires organizational knowledge and understanding, and the willingness to adapt between the players in order for the interaction to be effective. It can affect both actual and experienced learning outcomes, both internally in the individual sector, and the more general cross-sector learning, of both exercises and crisis management.

The SUR thinking should therefore permeate the entire organization at all levels. To achieve this, a clear knowledge-based leadership can be one of several measures. Such leadership and knowledge flow will also be necessary between organizations. In this way, different organizations can develop experiences with SUR, both internally and between different organizations (emergency services and/ or armed forces) when such inter-organization is required, for example, in major crises and incidents in society.

A concise theory of SUR

In summary, figure 28.1 shows an overall theory model for SUR based on central main findings in this anthology

EDUCATIONAL structures (EdSUR)
- Concurrent learning and framing of objectives and measures
- Extraction of knowledge from disorder in information and surroundings
- Taking moods into accorunt
- The value of not knowing precisely

ORGANIZATION structures (OrgSUR)
- Cultural awareness in and between organizations
- Knowledge of different leadership styles and organizational hierarchies between interacting organizations
- Shared leadership
- Social support
- Avoidance of organizational narsissme
- Trust

OPERATIONAL structures (OpSUR)
- «Auftragstaktik»
- Collective acceptance for swift trust, loss of control and flow by chaos
- Competence exchanging
- Creation of space for surprise
- Faith in master
- Improvisation skills
- Utilization of sequential, parallel and synchronous interaction

Samhandling Under Risk (SUR) implies an emphasis on specific educational, organizational and operational structures, and these structures can have different importance for the effectiveness of samhandling in order to master challenges in the phases of warning signs, incident moment and recovery

SAMHANDLING UNDER RISK

Parameter level – Indicators (selected)   Model level – Definition   Theory level – Construct/term

Figure 28.1 SUR-theory: A theoretical assembly model of *samhandling* under risk (SUR), under parameter level (selected from this anthology), model level with main definition and conceptual framework (SUR).

All these factors (in parameter level, Figure 28.1) must be seen in relation to each other and be seen as interdependent. We can illustrate this theoretical and organizational interplay. Looking into the development of the armies between 1930–1945, The US Armed Forces and the German Army had a different interpretations of the "Preussian thoughts and principles" (Muth, 2012; Chapter 25, Krabberød & Jacobsen, 2018). While the German officers where encouraged to come up with solutions. The US officer cadets where searching for the The Military Academy's answer, which is in pedagogical terms often called "the school's answer", implying that something is either right or wrong, there is always an answer, you just have to find it. In difference from the German officers, American cadets where not accustomed to such an approach at the start. The US Military

wanted to adopt to structures like the German "auftragstakik", but did not recognize that the pedagogic had to change accordingly (Muth, 2012). However, this is a historical example and the US Military changed to a system quite similar and can be seen in the forefront in this field (Albert & Hayes, 2003). Nyhus, Steiro and Torgersen (2018) in Chapter 6 discuss the importance of the instructors' role in facilitating a learning environment that is suited for training for the unforeseen and find that instructors role may differ within the same academy and producing differences both in outcome and process.

Pedagogic use of learning for SUR

It is insufficient that managers and employees only know the SUR-structures. The SUR structures and the foundation on which these are based should actively blend with the organization's strategic management plans, curricula's, and manuals and guidance documents for planning, implementation and evaluation of training plans and exercises. It is necessary that this is a leadership responsibility to make it happen. Thus, SUR competencies will be a part of the leadership role and leadership skills, as much as with employees with executive roles. However, such competence must be developed and trained continuously over time. SUR-oriented view of learning must also cover more organizational levels, both individual, group, organization and cross-sectoral approaches. Even cross cultural and global approaches may be necessary (Kawamura & Nonaka, 2016). It is a continuous and integrated whole in knowledge development, a form of synergy (von Krogh et al., 2000). Our perspective on "learning" in this context is pedagogical use of learning (didactic), i.e. learning through educational intervention. This means systematic planning, implementation (execution) and evaluation of SUR-oriented learning through teaching and training. In addition to this, process-oriented organizational learning will take place, but such models have a more general and less direct intervening approach to the learning process, e.g. SECI model of knowledge dimensions (Nonaka, 1990; Nonaka et al., 2000), see more in Chapter 1, Torgersen, 2018). However, central focus is on both tacit and

explicit knowledge (Polanyi, 1958). For SUR, we believe that learning of tactical knowledge can be particularly important and it constitutes an educational problem. Established educational models have essentially explicit knowledge as a starting point.

SUR-based didactic approach

It is not sufficient that managers and employees only know the SUR structures. In order to continuously develop such competence, it is necessary to emphasize the EdSUR structures in all types of training. In particular for leadership education related to risk organizations. However, such competence development must be both planned and implemented in practice, with specially adapted exercises. In addition, in order to do that, the use of extended didactic models is needed (Torgersen, Steiro & Saeverot, 2015). Adjusted learning perspectives and strategic planning tools are needed for both education and concrete training programs (see also Chapter 18, Magnussen, 2018). Torgersen (2015) also showed that traditional planning models for training, training and exercises were insufficient to cover competence development in unforeseen events

SUR-oriented view of learning

Although modern education and learning are extensive and consist of many different perspectives, there are certain trends. One such trend is the so-called visible-learning paradigm. Since the release of the book *"Visible learning – A Synthesis of Over 800 Meta-Analyses Relating to Achievement"* in 2009 the New Zealand researcher John Hattie has had a huge impact on Western education, in particular for education in schools, but also in general for all types education and training. Although Hattie's book consists of an impressive empirical material, he also finds support from certain theoretical assumptions on what learning and teaching signify. One of Hattie's projects is therefore to develop a theory of what good teaching might be (Hattie, 2009). Central to his visible-learning paradigm we find *direct instruction*. This theory involves a clear and defined learning content with clear learning goals, so that the message is conveyed as

directly and clearly as possible, for example through verbal instruction and demonstrations (cf. explicit knowledge). As for the learners, they can experience what is to be learned without disturbance or interference. Such visible learning can also be easier "measured" and evaluated. Tennyson & Foshay (2000) point to similar models for learning and training in different kinds of organizations, for example different use of goal attainment models. We do not doubt that visible learning may be good methods for learning and training, regarding basic capabilities and perhaps some *samhandling* structures under predictable and safe conditions. However, there are obviously a number of aspects that are not thematized within the visible learning paradigm, for example, the unforeseen, existential and ethical aspects, creativity, autonomy and critical dimensions (cf. tactic knowledge).

Invisible learning

In order to educate for *samhandling* structures under risk and unpredictable conditions, other educational approaches are therefore needed. Such aspects do require an indirect or, what we call *invisible approach* as they do not contain general or objective truths. Torgersen & Saeverot (2015) developed a didactic planning model to train for unforeseen events. Central to this model was that learning goals, which naturally were not known or apparent under such conditions, had to be replaced by other and more generic competence objectives, including improvisation. This model also emphasizes indirect training methods. To build expertise for SUR, Torgersen and Saeverot (2015) discovered that such an approach will be more appropriate than visible learning methods.

Because of the ongoing impact of the visible-learning paradigm in Western education and training, what we term invisible education/learning and indirect pedagogy (Saeverot, 2013; 2018), runs the risk of being marginalized. In terms of practical pedagogy and management, there are many forms of invisible education. Take for example the instructor or leader who praises one of the operators or students publicly because he has done a good job at an exercise. Such a kind of public praise corresponds to an indirect appeal to the other operators to follow the footsteps

of the acclaimed operator. The leader or instructor has been indirect in two ways. First, by communicating through one of the operators, instead of communicating directly to the whole group. However, such indirect forms of communication often work poorly in the long run, as operators can easily reveal such strategies. This is also related to the fact that the above-mentioned strategy is invisible, yet restrictive, as it is relatively obvious what the manager's intention with this kind of praise is. Another possibility is that leaders can seek to find new and more advanced forms of invisible and indirect actions. Perhaps these leaders should invent new forms of indirect communication forms, while sharpening the awareness about these forms, to make it easier to ward off any manipulations?

Another example is concurrent learning, as previously described (Chapter, 14, Steiro & Torgersen, 2018). Concurrent learning is important to build expertise for SUR, focusing not only on the individual's learning or unique expertise, but also that the learning process occurs jointly and that each other's uniqueness gives strength to the whole (cf. "ba"(場)). What is interesting is that the concept of concurrent learning corresponds to the "three arms" symbol of the Japanese expression «kyō (協)». Such learning needs to be achieved by raising the awareness of all involved. However, in order to train on this, it is not possible to produce detailed learning goals or individual sub-processes that are needed to achieve good concurrent learning. The reason being that such a learning process will be continuous and thus not have a final goal of the learning outcome. The training on concurrent learning can therefore best be done with invisible approaches, even if supplemented by direct methods where possible.

Almost all forms of instruction and learning are more or less invisible and indirect. Hence, it is more a question of different degrees of invisible instruction and learning (cf. the concept of "Degrees of unforeseen" in Torgersen & Saeverot, 2015). At the core of the degrees of invisible instruction is that both the learning content, work tasks, problems and solutions, as well as whoever is going to work on the challenge, is unclear when the exercise or training starts.

In other words, the information is not only unclear, but also missing. During the learning process, the amount of information may increase, but not necessarily the clarity. Thus, one goal being to train the participants

to find ways to interact, whilst finding both goals and solutions together. In addition, such training will exert both the acceptance and the ability to make decisions based on such information, including decisions on dilemmas under pressure based on unclear information. Such decisions can be seen separately and as part of the process of *samhandling*. This can be seen as a basis for choosing appropriate measures and solutions along the way, often in successive ranges depending on whether or not the decisions and measures work, how long they give the desired effect and the extent to which new other unforeseen events occur. Such invisible methods should be introduced and trained with gradually increasing "cloudiness".

Towards *samhandling* in global SUR commitment

In essence, as we also suggested in connection with educational approaches for SUR, our perspective has largely been rooted in a western cultural and linguistic point of view. Thus, based on our overall basic research question, another question will also appear: *How do other cultures and languages perceive the phrase "SUR"?* Professor Einar Thorsrud had similar approaches and experiences when his concept of partially autonomous team and participation was adopted by the Japanese from the 1960s and beyond and used as an essential component of Total Quality Management, largely adopted by Edward Deming (Fischer & Sortland, 2001).

Japanese expressions of *samhandling* under risk

As a prerequisite for further SUR research in a more global perspective, we have considered Japanese expressions of *samhandling* under risk. Given the definition of the Norwegian term, *samhandling*, there are several candidates in the Japanese language. After examining the connotation of each word, the best Japanese word to convey the meaning of *samhandling*, as used in this anthology will be identified below.

First of all, the Japanese word "*sōgo-sayō* (相互作用)" seems to be a good choice. This word means "interaction," that connotes a series of actions

by actor A and reactions by actor B or some other actors. However, the word does not have connotation of "collaboration" or "working together" to achieve "common goals." Simple meaning of "interaction" or "series of actions and reactions" would not be a good choice for translation.

Another Japanese word for "interaction" in English is "*sōgo-kōi* (相互行為)." The Japanese word "*kōi*" means "act" or "action." Being almost synonymous to the word "*sōgo sayō* (相互作用)," it lacks meaning of "working together" or "collaboration" to achieve a shared goal. Both "*sōgo-sayō* (相互作用)" and "*sōgo-kōi* (相互行為)" have no hidden assumption of relationship of actors with mutual trust or equal and complementary partnership.

When we look for Japanese words for the English word of "cooperation," "*kyōryoku* (協力)" and "*kyōdō*" (協同) are listed in the English-Japanese dictionary. The left part of ideogram, "*kyō* (協)" (which we briefly presented above, in connection to concurrent learning), consists of a symbol of "multiple (or many)" and the right part of the symbol signifies "three arms (helping hands)," meaning "working together." The Kanji characters "*ryoku* (力)" and "*dō*" (同) mean "power" and "same/equal/meet/ put together" respectively. Thus, "*kyōryoku* (協力)" connotes to "work together toward common goal," and "*kyōdō*" (協同) also has connotation of "working together or collaboration in order to achieve a shared goal." Another Japanese word with the same pronunciation, "*kyōdō*" (共同) also implies "two or more people work together" on an equal basis, or sometimes it simply means "common/shared" as in "common cemetery."

In addition, there exists another Japanese word with the same pronunciation: "*kyōdō* (協働)." This word has rather special connotation. Compared to the other two Japanese words, "*kyōdō*" (協同) and "*kyōdō*" (共同), this heterography conveys deeper meaning. The second part of the word, "*dō* (働)" means "work." Literal meaning of "*kyōdō* (協働)" is simply "work in cooperation." However, the concept assumes collaboration among diverse actors. Whereas "*kyōdō*" (協同) presumes more or less equal partnership with clear sense of division of labor or roles to play, "*kyōdō* (協働)" implies ad hoc collaboration among various actors with different skills and expertise.

In fact, the word "*kyōdō* (協働)" was used for translation of "co-production" in English, when the academic concept was introduced to Japan

in 1990's. The idea of "co-production" was first developed by Elinor Ostrom and other scholars at Indiana University in late 1970's in the field of public administration (Ostrom, et al., 1978; Alford 2013; Pestoff, 2013). The original concept of "co-production" presupposes collaboration between government and citizens, or producer and consumer of public service[1]. The argument for "co-production" eventually led to a new theory of service-dominant approach in the field of public service management, namely "New Public Governance" with increased participation by not only individual citizens but also by civil society organizations (Pestoff, 2013:384). The concept also presupposes mutual trust and voluntary commitment among the actors. In such a perspective, can therefore, "*kyōdō* (協働)" be the best Japanese word equivalent to the Norwegian concept of *Samhandling*.

If we understand the concept of *Samhandling* as "*kyōdō* (協働)" or "co-production or collaboration by diverse actors" with ad hoc or improvised division of labor based on each actor's own merit or competence, it will be of the utmost importance in a risk situation, such as an earthquake or war of unimaginable scale with unexpected disaster.

The Japanese word, "*fusoku no jitai* (不測の事態)" means "unexpected/ unpredictable situation," or "contingency" in English. The word "*fusoku* (不測)" signifies a situation or incident that is not "expected" (*yoki* 予期) or cannot be predicted (*yosoku* 予測), in other words, unpredictable or unexpected.

SUR and "ba"

Unexpected situation would not occur in vacuum. It takes place in a certain socio-cultural context. This context can be called "*ba* (場)", that is "a shared context in motion," and in which "knowledge is shared, created, and utilized." "Ba" can be physical, virtual, mental space, or any combination of them. The key concept in understanding "*ba*" is "interaction" since "*ba*" is where knowledge creation takes places as dynamic human

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1   In Japanese, "*kan-min kyōdō* (官民協働)" means "collaboration or co-production by public and private sectors."

processes (Nonaka, Toyama & Konno, 2000:14). "Ba" can also embrace different and interacting levels (individual, group, organization and cross organization/ culture. Continuous knowledge creation is required human process for organizational innovation. *Samhandling* is a Norwegian concept for human process of knowledge creation which will be accelerated and energized within a specific *ba* in an unexpected risk situation.

Conclusion and the way forward

A traditional view to the unforeseen has been that there is always something unplanned, unexpected or unforeseen that happens, and it is impossible to build competence and prepare for every possibilities. But, based on the studies in the present anthology and the developed SUR structures, we believe that there are still opportunities to approach some solutions and measures. However, it requires a different basic view of thinking, for risk analysis and unpredictable events – in addition to the traditional approaches. Overall, we see *samhandling*, at high ambition level, as essential for meeting the unforeseen. It is by no means the full answer, but as we see it, a valuable contributor. *Samhandling Under risk (SUR)* is both dependent of educational (EdSUR), organizational (OpSUR) and operational (OpSUR) structures.

The key point is that top leadership sets the frames of operation, and the actors in the sharp ends finds out how to execute. This means that all levels in an organizations are important but in different ways. Our concluding assumption is that decentralization and flexibility is essential in meeting the unforeseen. In order to achieve effective SUR, it is essential that *samhandlende* organizations know and accept each other's organizational structure and culture – more than they are structurally similar. In that sense, we need leadership as enablers for this to happen. The SUR-thinking, as stated in this anthology, and summarized in the SUR model, should be used as part of strategic plans, action plans and plans for specific education and exercises on the basis of preparedness and leadership in almost all organizations and in particular for emergency services and armed forces. To develop robust SUR competence, new educational and training models is needed and one approach might be invisible learning approach.

Unforeseen events can hit everyone in society and therefore, also to be focused on a political level, both nationally and globally. Our approach to SUR, including the comparison with how other countries and cultures relate to SUR, also show so far that it could be the basis for developing a more global approach to the SUR structures. We believe that it can contribute to a deeper understanding of what is needed to avoid unwanted misunderstandings and crises, and not least how different countries and cultures can learn from each other and solve situations through *samhandling*.

Samhandling does not simply happen in a vacuum.

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