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Soldiers´ Reach for Optimized Performance

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SUMMARY

This dissertation is concerned with the challenge of better understanding how soldiers develop skillfulness needed to deal with the various challenges they face in their life-worlds, as soldiers. The study bears on empirical material gathered through participating observation and qualitative interviews with Norwegian soldiers during winter exercises: soldiers mainly belonging to force-producing military units for upcoming missions in Afghanistan. Special emphasis is placed on how relevant experiences, intuitive/deliberate behavior and context-sensitivity may influence the soldiers' skill execution. The notion that the soldiers' practice arena is more or less isolated from the arena where the soldiers are expected to deliver high-leveled performances contributes to substantiate these aspects further.

The dissertation consists of two parts: an introductory part and four individual papers. The first part introduces the subject matter, the philosophical and methodological perspectives underlying the study's approach, a specific outline of the methodical steps taken and reflections over the methodical approach. The researched phenomenon: "*Soldiers' reach for optimized performance*" is perspectivated empirically by the qualitatively gathered material, and theoretically mainly by Hubert and Stuart Dreyfus' phenomenological approach to skill acquisition. Their description of expertise, the highest level in their 'skill model', is particularly elaborated on in relation to the soldiers' developmental process leading towards high-leveled performances. The introductory part finally presents an extracted résumé of the individual papers and how the papers thematically correspond to each other.

The impetus behind writing **Paper I**: "Mindless Coping in Competitive Sport: Some Implications and Consequences" was to employ a skill domain where the very nature of the activity - the rationale for participating - is concerned with the demand for optimizing the participants' performance. In particular, Dreyfus and Dreyfus' description of intuitive expertise - to respond to immediate situations with no recourse to deliberate actions or mental representations - was elaborated upon in order to question whether their approach is able to capture the experiential reality upon which it ultimately must be based. To focus on expertise in competitive sport emerged as a useful exercise in order to provide further contrast with the nature of the soldiers' expertise. The paper should therefore contribute to a wider entity by expanding on the *reach for optimized performance,* as represented by athletes.

In **Paper II**, "Should Soldiers Think before They Shoot?" a moral military dilemma is presented in order to investigate the extent to which Dreyfus and Dreyfus' approach to skill acquisition should be considered as a useful framework to better understand soldiers' reach for

optimized performance. Exemplified by the challenge of discriminating between combatants and non-combatants in Afghanistan, the article seeks, in particular, to investigate whether the prerequisites for development of experience-based intuition are fulfilled inside the frames of military operations. Further, the ethical implications and consequences of intuitive behavior are elaborated upon.

Paper III, "From Expert Skills towards Optimized Performance" deals with the 'transfer problem' – how the soldiers' expertise is influenced when transferred to an unfamiliar operational theatre. In order to enlighten how the soldiers' expertise may be hampered by facing a new culture and changed operational concepts, arguments from phenomenological philosophy are presented. Heidegger, with helpful assistance from Dreyfus and Dreyfus, describes how our primary mode of being - fluently coping with our environment – gets interrupted when facing specific circumstances. The paper also discusses possible consequences and implications when expertise is transferred to an unfamiliar context and whether it is possible to develop relevant expertise through practice prior to deployment to operations in other territories.

Paper IV, "Winter as the Number One Enemy? Lessons Learned from North Afghanistan" is also concerned with the reach for optimized performance but, in contrast to the other three papers, the discussion leaves the level of the individual soldier and elevates to examining how soldiers' capabilities can be better employed to reach strategic goals, exemplified by winter operations in Afghanistan. The initial motivation for this paper was concerned with the observation that soldiers' expertise was not utilized during deployment to Afghanistan, even when the conditions for such transfer seemed possible and appropriate. As such, the paper suggests different ways to better employ the units' existing expertise in new operational settings.

Keywords: Skill development - Intuitive behavior – Expertise – Phenomenology – Military context – Soldiers – Dreyfus' skill model

PART I

1) INTRODUCTION

We are all dependent on developing sufficient skills to cope with different challenges in our daily lives. For most of us, our skills help us to get around in our surrounding world as fluently as possible. However, in some domains the demand for specific skills and capabilities becomes more crucial. For an athlete, optimized skills may be the difference between winning and losing. For a soldier, the lack of required skills and capabilities may have fatal consequences; at the outmost, it is a question about life and death. This statement alone emphasizes the importance of skill development and skill acquisition inside the military domain. It is about the process leading towards developing solid soldiers with skills and experience sufficient to make the right actions and decisions in a world characterized by complexity and ambiguity. It is about how soldiers struggle to be best possibly prepared for upcoming situations, that may be impossible to foresee, but still, situations that soldiers are expected to handle in the best possible way. As such, it may be about coping with a snowstorm, a wounded child or an attacking enemy, or even these three challenges present at the same time. In general it is about the process by which soldiers develop their *readiness to deal* with the challenges they face in their lives on duty.

This thesis is, as such, concerned with the challenge of getting closer to a better understanding of the phenomenon of how *soldiers' reach for optimized performance*. By the term optimized performance I refer to the best possible praxis for each particular soldier to respond to specific situations, based on their experiences, qualifications and background.[1] The introductory part of this thesis (Part I) will approach the phenomenon from two different angles. To begin, a theoretical perspective (grounded in

[1] An important notion in this picture is to emphasize the distinction between the terms *optimized* performance and *optimal* performance. Optimal performance are, on the contrary to optimized performance, responses that are better understood as the best possible way to respond in absolute terms, with no recourse to situational aspects like stress and ambiguity or the qualifications of the involved soldiers.

phenomenological philosophy) about skillful coping and skill development will be given (Chapter 2). The theoretical introduction will be further mirrored and challenged by qualitatively conducted empirical material about soldiers engaged in a process characterized by an impetus to reach for optimized performance. The empirical material is as such the source and foundation for a description of the soldiers' experiences with their life-world - as soldiers; the life-world of preparing for and engaging in military operations. In Chapter 3, an outline of the project's methodological foundation and the methodical steps taken to approach the soldiers' life-world will be given. In an attempt to give a level-headed, but still critical examination about how the soldiers' life-world has been approached methodically, reflections over the different stages of the gathering of empirical material will be presented (Chapter 4). As an end to the introductory part of the thesis the four papers will be briefly introduced in order to emphasize the relationship between the individual papers and how they respectively contribute to form a whole about the phenomenon: *soldiers' reach for optimized performance* (Chapter 5). The four individual papers are collected in Part II.

Situating the study

In an attempt to provide a preliminary glimpse of what is at stake, it may be helpful to give an example of the kind of challenges that may be faced.

'Tom', a twenty year old Norwegian soldier serves in a recognizance troop recognized for their ability to operate unsupported behind enemy lines. The unit's soldiers are selected on physical and mental criteria, and Tom was one out of a few found to be 'good enough' after ending an exhausting boot camp. He is now in the middle of his first winter as a soldier, practicing basic military winter skills in a mountainous landscape in the north of Norway. His skills and capabilities, mainly developed prior to military service, must be considered as a product of his upbringing and interests, but they should also be considered as the foundation for qualifying to this unit. Even if he can utilize many of his already well-developed skills and abilities like skiing, scouting, orienteering and his strength and endurance, the military still represents a domain where several tasks are totally unknown to him. As such, even though he may be recognized as one of the

unit's finest young soldiers, prior to the military service he had never before touched a weapon, he knew nothing about military procedures and had never encountered terrain with tactical purposes. This implies that he will meet several tasks and skills as an *adult novice*, yet he is still expected to develop into a skillful soldier in a somewhat limited amount of time.

Since Tom is recognized within his unit as a promising soldier, he will probably be offered a contract of employment after his first year as a compulsory soldier. During the next year or two he will probably serve as a soldier in the mountainous North Afghanistan on a deployment lasting for six months. If he wants to go on as a soldier, he will have the possibility of serving in this intelligence troop for several more years. In a world of rapid political changes this may also involve him being prepared to operate in other contexts in the near future; in operations that may be in the jungle, in the desert, in the arctic or in more urban environments.

The example of Tom is suitable to make explicit some of the specific challenges the military has to deal with in regards to skill development. Firstly, the military is dependent on the skills and abilities that young men and women develop prior to military service, yet this is a part of the skill developmental process over which the military have no influence. The higher the level of skillfulness a soldier brings as luggage to military service, the easier the challenge for the force-producing unit in developing solid soldiers. But this aspect in itself involves a challenge; the luggage of skillfulness among the soldiers differs greatly, so in order to optimize the developmental process, the demands for differentiality and individuality must be attended to and incorporated.

Secondly, in only one year, Tom is expected to cope with challenges in a wide spectrum of skills and tasks, summer as winter. This challenge involves the unit prioritizing the skills they want to develop, and the level of skillfulness. There is just not enough time for the soldiers to be highly skillful in every required capability, which in turn has caused a paradigmatic understanding of demanded skillfulness; '*good enough'* to cope with the challenges they meet. But what counts as good enough? Inside a domain where such criteria are explicitly nonexistent, it turns out to be difficult to come to a common agreement about such a question. This also contributes to the question of how

we should understand the nature of soldiers' expertise; is 'good enough' in a wide range of different skills sufficient to qualify for being an expert?

Furthermore, even if Tom develops skills suitable to cope with the challenges he faces during practice in Norway, the current political situation implies that the operational theatre where his skills and capabilities will probably be utilized may be outplayed on another continent, under the influence of unfamiliar contextual conditions. The extent to which it is possible for Tom to prepare for such conditions prior to his first deployment, and to which his already developed level of skillfulness will be influenced by a transfer to different contextual conditions are fair questions to propose. And even if the engagement in Afghanistan can be seen as normative for the current development of our military capabilities, the current situation must also be understood as temporary. Other conflicts in other places in the world may quickly change the direction of our employment of armed power. This notion implies that Tom should also develop skills general enough to be suitable for conflicts characterized by totally different demands and requirements for specific skills and capabilities.

Finally, since Tom is a talented young man with several interests, he also has several other options in life than becoming a soldier. This implies that the military has to offer Tom challenges meaningful enough for him to want to offer his services to the military in the long term. Therefore, the modern military organization not only has to focus their strict strategic goals and ambitions, these goals and ambitions also have to harmonize with those of the soldiers in order to equip the military with the required skills and capabilities of the soldiers.

As shown with the example of Tom, how soldiers reach for optimized performance must be considered as containing a wide range of challenges, both for the soldier and for the military organization as a whole. And the challenges pointed at in this brief presentation may only be considered as focusing on a narrow part of the whole picture. But in a thesis like this, it is necessary to choose and to prioritize some of the interesting aspects and challenges involved, in order to contain a manageable amount of topics. In the following, I want to make explicit what I have prioritized as the researched phenomenon and the reasons for this.

Towards the researched phenomenon

The changes inside the Norwegian military in the last ten years are of a character that may be recognized as transformative. The changes have been caused by several factors, but our engagement in Afghanistan must be regarded as a major impetus in this process.[2] So, even if our military organization nowadays appears to be effective and well tuned towards challenging joint operations, I will argue that the maintenance of the soldiers' skill development process still belongs in a traditional sphere. Even if we aim for an organization recognized for focusing on *quality*, *flexibility* and development of *individual capabilities*, the reality may be represented by more traditional characteristics focusing on *quantity*, *procedures*, *standardization* and *collective value orientation* (Sennet, 1998). A fruitful way to meet this tendency may be to present an alternative approach to *skill acquisition* that aims to fulfill the requirements for development of skills, but that better supports the structures of a transformed and modern military organization.

The approach which will be presented and used as a foundation for further discussions about military skill development, should meet the already mentioned desired features of modern skill development: it should aim to focus on skill acquisition at a personal/individual level[3]; it should aim to focus on quality by describing the process leading towards expertise, as approached from a phenomenological philosophical point of view; finally, it should aim to describe how humans may utilize their experience-based intuition to respond fast and flexibly, with wisdom and intelligence, to upcoming situations. This understanding does not, however, imply that the presentation will be an attempt to provide an idolized support for the approach. Rather, the aim is to give a

[2] The radical transformation must be said to have already started in 1999, initiated by the USA (Heier, 2004). The conflicts in the Balkans highlighted the need for more mobile forces, for greater technological equality between the United States and its allies, and for interoperability. In 1999, NATO launched the Defense Capabilities Initiative (DCI), an effort to enable the alliance to deploy troops quickly to crisis regions, to supply and protect those forces and to equip them to engage effectively (Ek, 2008). Based on the DCI experience a new initiative, focusing on key operational capability areas, was prepared for agreement at the November 2002 Prague Summit. This initiative was named the Prague Capabilities Commitment (PCC).

[3] It may be argued that focusing on the level of individual skill development only will capture a part of the total picture concerning development of optimized performance, since soldiers, more or less, always have to operate in a social context where interpersonal cooperation and team work is a part of their skill execution. But, in order to have a manageable amount of topics, this part has been placed outside the scope of interest in this thesis.

critical and level-headed presentation in order to utilize its recourse to perspectivate the ongoing praxis of skill development inside the military domain. As such, the thesis will hopefully contribute to enlightening specific topics regarding military skill development, approached by arguments founded mainly in phenomenological philosophy. The approach in question, which will be elaborated upon further in Chapter 2, has been developed by Dreyfus and Dreyfus. But, before attending to their 'skill model' in greater detail, it may be informing to place their approach in the landscape of approaches to skill acquisition in general.

Perspectives on skill acquisition

> "Despite the fact that skilled behavior underlies nearly every human activity, our understanding of the factors that contributes to attainment of expertise is far from complete" (Summers, 2004, p. 1).

With this as our point of departure, it may be fruitful to briefly present some of the contributions that have been proposed. Since skill acquisition is on the agenda, the term *skill* deserves a further introduction. Following Summers' statement, '*that skilled behavior underlies nearly every human activity'*, it indicates that skill has to do with our *ability* to deal with our life-world in an appropriate way. It is also common to understand skill as something that is learned, and which develops through practice and experience (Moe, 2004). As such, to be skilled or to show skillfulness must be understood as our ability to employ our acquired skills in an appropriate way, in relevant settings. This should also indicate that the demands for being perceived as skillful and the requirements for developing skillfulness vary with the different tasks and challenges we face. To brush our teeth and to climb Mount Everest are tasks both dependent upon sufficient skills, even though the latter is perceived as being more difficult to attain. Skills must also be considered as containing both a *cognitive or intellectual* component and a component consisting of *bodily movement*. To what extent we use our cognitive or bodily capacities is commonly understood as being dependent on the task in hand; the task demands specific capacities to be employed in an appropriate way. To play chess may be

considered as requiring mostly our cognitive capacity, whilst walking is considered as the opposite. But by presenting the terms cognitive and bodily, and the relation between them, I am putting my stick into the hornet's nest of academic understanding of the topic. This is in fact to pinpoint the discussion about how different scientific traditions have tried to understand human behavior in general. Are we minds or are we bodies, or are we something, somewhere in between?[4] In our practical lives, skills should probably be understood as containing both of these underlying capacities; we execute our skills by a flexible combination of thoughts and movements, like when we drive our car or play tennis.

According to Summers (2004), the Second World War brought forth new interest in the field of skill acquisition. The need for better selection of soldiers and development of demanded skills for the battlefield was a driving force inside the domain of skill acquisition. At this time, the *behaviorists* still had a hegemonic position to how different research topics should be approached scientifically, and they contributed to important insights about cause and effect, the role of feedback, repetitive movements, transfer of learning and reward in strengthening behavior (Ibid). But the behaviorists' lack of interest in focusing on higher mental processes - about how our responses to the world are produced inside the brain - created a paradigmatic change in the second half of the 20th century.

The change happened to occur correspondingly with the 'cognitive revolution', the breakthrough in the field of Artificial Intelligence, which emerged in the development of the digital computer. The view that the brain, quite similarly to a computer, could be understood as a device able to receive and process information - based on rule-governed programs - and then produce a bodily output, received wide support and great influence in the domain of skill acquisition. Led by the cognitive psychologists, the understanding of the brain as an information-processing device opened the landscape of studies regarding memory, attention, conscious awareness and decision-making; topics previously denied by the behaviorist tradition (Ibid). Perhaps the most influential approach to skill acquisition, founded in the information-processing tradition, was

[4] To present this discussion is not inside the scope of this thesis, but the topic will implicitly be discussed in Chapter 2.

proposed by Fitts and colleagues (Fitts, 1964, Fitts & Posner, 1967). They proposed a cognitive developmental process corresponding to increased experience. Their three phase model emphasized that the developing agent gradually shifts from deliberate problem-solving towards automatic processing of information, and explains the increased fluency in performance as a product of this process.[5] What may be understood as a further development of research based on the information-processing tradition, emerged as a reaction to the mainly laboratory-based approach to skill learning. The introduction of research on expert performance in real-life situations, and on expert behavior as opposed to novice behavior, contributed to new insights into the skill acquisition process.[6]

Even though the information-processing tradition has dominated the scene of skill acquisition over the last 40 years, objections to this way of understanding human behavior have been raised, and this is where Dreyfus and Dreyfus' approach comes into play. Their main objection to the information-processing tradition is that their understanding of human behavior is based on the brain as a device working by the application of rules. With support in philosophers such as Martin Heidegger, Maurice Merleau-Ponty and Ludwig Wittgenstein, Dreyfus and Dreyfus' 'skill model' is used as a philosophical argument to get closer to an understanding of skillful behavior. Rather than detecting facts and rules and then relating these facts and rules to human behavior, they propose to start by describing our everyday experiences with the world (Dreyfus 1992).

[5] Fitts and colleagues' three phases are termed the cognitive phase, the associative phase and the autonomous phase. It has been claimed that the general nature of the description of skill learning has caused little effort to test the model, and as a result, it has been incorporated into most information-processing models of skill learning. (Summers, 2004). In Paper I, Fitts and colleges' information-processing approach will be further discussed.

[6] Ericsson et al (2006) presents a collection of work where such an approach has been employed in different fields.

2) Perspectives on skillful coping

How do we, as human beings, *cope* with the different challenges in our daily lives? How do we respond to the particular situations in the world that we continually encounter? How do we utilize our experiences to ease our being-in-the-world? These bold questions are in fact what Hubert L. Dreyfus and Stuart E. Dreyfus try to enlighten through a description of how our relation to the world is transformed as we acquire skills. Their emphasis on *skills* and *skill acquisition* may perhaps be seen as a narrow path towards these existential questions, but it may make more sense when their understanding of skills and the process leading towards skillfulness is further elaborated upon, and that is the aim of this chapter.[7]

Dreyfus and Dreyfus' approach to skill acquisition is seemingly easily attainable and fascinatingly comprehendible without further academic qualifications. The structured presentation shows how *adults* acquire new skills through five distinct stages,[8] Dreyfus and Dreyfus (1986) state that each stage contains "qualitative different perceptions of his task and/or mode of decision-making as his skill improve" (p. 19).[9] The stages contain features that are recognizable for practitioners without recourse to particular skill domains, and as such the skill model should have universal possibilities for application; both concerning more cognitive/intellectual tasks and tasks requiring bodily responses.[10]

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[7] Dreyfus and Dreyfus' phenomenological approach to skill acquisition is commonly known as "The Skill Model", they even use the term themselves (see for instance Dreyfus, 2004b, p.264). Even though their approach must be seen as a tight collaboration between the two brothers for more than 40 years, they have each contributed in different ways. The philosophical underpinnings and buttressing is mainly maintained by Hubert, the philosopher. When I discuss their approach of pure philosophical concerns, I normally refer to Dreyfus (singular). This is because Hubert is the one who has both asserted and defended their views when philosophical questions have been discussed. When their approach is discussed in relation to the nature of skill acquisition, development of skills and the application of their approach, I will consequently refer to them as Dreyfus and Dreyfus (plural).

[8] Dreyfus and Dreyfus' approach to skill acquisition should be understood as gender neutral. Independent of the developing agent's sex, the process will proceed in the same way.

[9] Selinger and Crease identify and explicate some of these qualitative differences (Selinger & Crease, 2002). Particularly interesting in their elaboration on the skill model is that the learner, at each stage, undergoes not just cognitive and behavioral transformations but affective ones as well. As an example, at the lowest stages the learner commits himself to the activity "detached", while at the highest levels with "involvement". They have identified several such affective modes in this fine presentation.

[10] The terms describing the different stage levels (novice, advanced beginner, competence, proficiency and expertise) have more or less been used unchanged since it was initially presented in 1980 (Dreyfus &

And this is in fact also their goal; to describe a general pattern about the process leading from the initial inexperienced novice towards the highly experienced expert. [11]

The Skill Model:

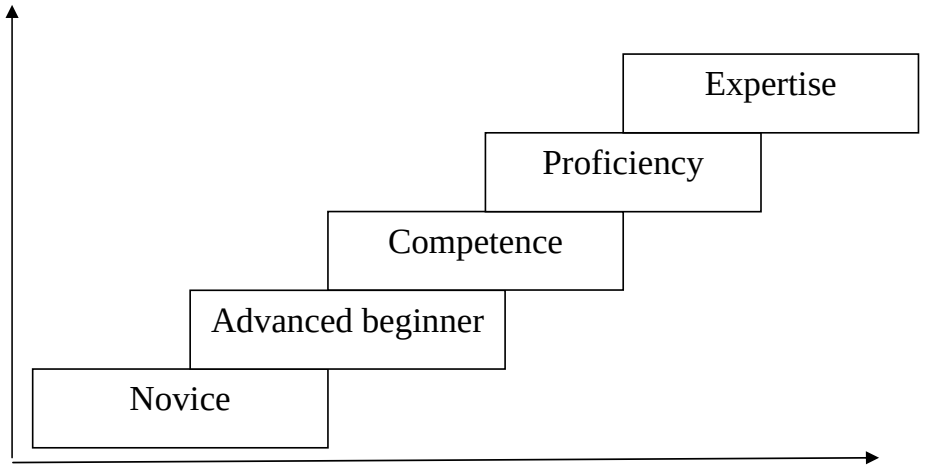

Fig. 1[12]

But, even though the model of skill acquisition serves as a cornerstone in Dreyfus and Dreyfus' writings, the process leading towards expertise should be considered as only one part of their project. Their description of our skill acquisition process (the skill model) is used as a phenomenologically grounded argument to enlighten important challenges from both scientific concerns and from society in general.[13] As such, their skill model must be regarded as the top of an iceberg, of which the underlying philosophical foundation is extensive. In order to really understand what Dreyfus and Dreyfus aim to achieve, it is necessary to dig deeper than the surface represented by the

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Dreyfus, 1980a). It is though possible to see a clear development from a philosophy rooted in the cognitive language towards the phenomenological.

[11] For a brief outline of the skill model's different stages, see Paper II pp. 200 -202. This presentation also gives examples to how this process may look in the case of the skill-developing soldier.

[12] The figure must be understood as my attempt to present Dreyfus and Dreyfus' skill model in a visual way.

[13] For a brief overview of different topics that the skill model has been used to discuss and enlighten see Selinger and Crease, 2002.

skill model. Through an outline of Dreyfus and Dreyfus' phenomenological approach and philosophical underpinnings, I will try to explicate the basis for their arguments. In doing so, I will also contrast Dreyfus and Dreyfus' approach to other scientific traditions which have contributed to the same topics, though with different perspectives.

Proceeding Dreyfus and Dreyfus

To better understand what Dreyfus and Dreyfus are aiming for, it may be helpful to emphasize how their approach is highly influenced by Martin Heidegger, and in particular his magnum opus *Sein und Zeit/Being and Time* (1927). Or perhaps more correctly, Dreyfus and Dreyfus' approach may be seen as an elaboration on Dreyfus' interpretation of Heidegger. Dreyfus (2004b) states: "Martin Heidegger was the first philosopher to see skillful coping as the basis of our understanding of the world and ourselves" (p. 265).[14] Although Heidegger did not use the term 'skill' explicitly in his writings, Dreyfus sees skills as Heidegger's premise for our primary mode of understanding what occurs when we are fully engaged in an activity.[15] To be fully engaged or *absorbed in our coping*, as Dreyfus prefers to call it, must be seen as Dreyfus' understanding of human *expertise*; the highest stage in their skill model. What stands out as important for both Heidegger and Dreyfus is that this mode of being is non-mentalistic; usually we respond to the world not as minds, but as embodied copers: "…nothing – not even propositional content – mediates our relation to everyday reality; that, at a level of involvement more basic than belief, we are directly at grips with the things and people that make up our world" (Dreyfus, 2004a, p. 54).

What Dreyfus and Dreyfus' approach proposes is to supplement Heidegger's attempt to ground all intelligibility in our general capacity to find our way in our familiar world, without needing to think about what we are doing. This is achieved by showing in detail how our skills develop from the initial novice steps and into possible everyday

[14] In Being and Time, the English translation of Sein und Zeit, coping is not used as a term to describe this capacity. Dealing is used with similar meaning (Heidegger, 1962, 67/95). Dreyfus has preferred the term coping in most of his writings, but has also lately started to use dealing instead.

[15] Heidegger used the skill of hammering to undermine the traditional Cartesian account of the relation of mind and world (Heidegger, 1962, 69/98).

expertise (Dreyfus, 2004b). What they describe is, in my opinion, not how we *learn* these new skills, but rather which cognitive capacities and strategies we rely on, or are guided by for decision-making when we are engaged in activity at each stage.[16] And it is the level of *experience* we occupy, in relation to each particular skill, which determines what kind of capacities and strategies we use. Here we touch upon perhaps one of Dreyfus and Dreyfus' most important contributions in their attempt to supplement Heidegger. Experience is considered by Dreyfus and Dreyfus as the crucial ingredient in the skill-developing process. It is only through relevant experiences from prior *situations* that a developing agent becomes able to respond in an appropriate way to similar situations in the future. Dreyfus and Dreyfus' emphasis on experience leads us to their definition of skills: "[To] come into situations with readiness to deal with what normally shows up in that sort of situation" (Dreyfus & Dreyfus, 1986, p. 117). And this readiness is made possible by our experiences. Dreyfus and Dreyfus make their approach more situational, yet more context sensitive than that of Heidegger. While Heidegger aims to describe the ontological structures underlying our primary way of encountering other things, Dreyfus and Dreyfus emphasize that our experience-based skills, developed through a sensitive engagement with particular situations, enable us to respond appropriately to a world consisting of ever changing contexts. Based on past experiences, the body becomes gradually tuned to respond to the solicitations of upcoming situations and this is the way that our successful coping is able to continually enrich the way things in the world show up for us (Dreyfus & Dreyfus, 2005).

Before proceeding further, it may be useful to look explicitly at the kind of behavior with which Dreyfus and Dreyfus are concerned. Their understanding of absorbed coping, or being fully engaged in activity, is the process in which we are pre-reflectively responding to a situation. It is not before a response, nor is it after the

[16] There is of course also an element of learning in this picture since the agents gradually increase their knowledge and skills, but if Dreyfus and Dreyfus had been particularly interested in learning, I guess such elements would have been further elaborated upon in their works. Their emphasis is on behavior characterizing each stage, not specifically on how to excel to the next stage. They do, in some places, give hints about how learning supports the skill acquisition process, but this is only briefly done. Examples can be found in Dreyfus (2004) and (2007a), they describe their reliance on reinforcement learning based on Sutton and Barto (1998). In Dreyfus and Dreyfus (1999) described their approach in relation to apprenticeship learning. In (2002a) they stated that their approach described how people learn through instruction, even if they admitted that children may learn through other strategies, like imitation or trial and error learning.

response. Cognitive processes, like reflecting on action, that we may employ both *anticipatory* prior to, and *retrospective* after a situational response may play an important role in skill development; however, these processes are not within the scope of Dreyfus and Dreyfus' approach.[17] Dreyfus and Dreyfus' approach must as such be understood as a phenomenological description of rock-bottom human behavior as it shows itself when we are involved in action *during* execution of our repertoire of skills.[18]

Dreyfus and Dreyfus' phenomenological approach

To better understand Dreyfus and Dreyfus' description of the cognitive transformation that takes place during the process of skill acquisition, it may be helpful to present the way in which they employ the distinction between the two categories of knowledge: knowledge accessible through deliberation and reflective thoughts, and knowledge accessible through intuition. In their groundbreaking critique of Artificial Intelligence (AI), *Mind over Machine*, they used the categories "knowing-that" and "knowing-how" to explicate the differences (Dreyfus & Dreyfus, 1986).[19] According to Dreyfus and Dreyfus, John Dewey introduced the distinction to call attention to the kind of expertise asserted by Dreyfus and Dreyfus:

> We may ... be said to know how by means of our habits. ... We walk and read aloud, we get off and on street cars, we dress and undress, and do a thousand useful acts without thinking of them. We know something, namely, how to do them. ... [If] we choose to call [this] knowledge... then other things also called knowledge, knowledge of and about things, knowledge that things are thus and so, knowledge that involves reflection and conscious appreciation, remains of a different sort. (Dewey, 1984, as cited in Dreyfus & Dreyfus, 1992, p. 117).

[17] For a further discussion about different kinds of reflection see van Manen (1991).
[18] Breivik states this as the lack of an important ingredient in skill acquisition: "Dreyfus underestimates the need for planning, preparation, and improving both in everyday life and in sport. He places us in the middle of action where we are mindlessly performing our daily duties, but he forgets the vast amount of conscious activity that surrounds the mindless coping. It is like eating fillet mignon but forgetting that it needs to be caught, butchered, and prepared and that the dishes need to be washed afterward" (Breivik, 2007, p. 126).
[19] The distinction between these kinds of knowledge is normally associated with the writings of Gilbert Ryle (see for instance Ryle, 1984). Dreyfus and Dreyfus' reliance on Heidegger were not so visible at the time they wrote "Mind over Machine". Heidegger is only mentioned a few times in the prologue, and his terminology is more or less absent in this book. After Hubert Dreyfus' commentary on Heideggers "Being and Time", "Being-in-the-world" (Dreyfus, 1991), Heidegger's thoughts and terminology become more and more visible in the writings and thoughts of Dreyfus and Dreyfus.

"Know-how" is therefore coincidental with Dreyfus and Dreyfus' understanding of the expert's way of being-in-the world: "Intuition or know-how, as we understand it, is neither wild guessing nor supernatural inspiration, but the sort of ability we all use all the time as we go about our everyday tasks" (Dreyfus & Dreyfus,1986, p. 29). It is in fact only the highest expertise stage in their skill model that is recognized for containing pure intuition.[20] "Knowing-that", on the contrary, is propositional knowledge of and about things obtained through a deliberate, effortful subject/object mode. Dreyfus and Dreyfus' approach to skill acquisition can, as such, be understood as a description of the process leading from rational deliberation and reflection towards experience-based intuition. Again, it is important to emphasize that Dreyfus and Dreyfus' aim is to describe *adult* skill acquisition; as they state:

> Many of our skills are acquired at an early age by trial and error or by imitation, but to make the phenomenology of skillful behavior as clear as possible I will consider the case of an adult acquiring a skill by instruction" (Dreyfus, 2002a, p. 368). [21]

Dreyfus and Dreyfus' approach to skill acquisition is also highly influenced by Merleau-Ponty's analysis of the way the "body-subject" or "embodied coper" tries to get a maximum grip on his or her surroundings by means of the intentional arc. Dreyfus even termed the skill acquisition process: "The establishment of the intentional arc" (Dreyfus,

[20] At the two highest levels of skillfulness, proficiency and expertise, Dreyfus and Dreyfus see decision-making as a twofold process. The agent must both understand the situation and respond to it. What separates the two stages is that the proficient understands the situation intuitively, but uses deliberate choice to respond to it, while the expert is able to understand the situation and to respond to it intuitively. According to Dreyfus and Dreyfus this is inevitable because there are far fewer ways of seeing what is going on than there are ways of reacting (Dreyfus, 2004c).

[21] Selinger and Crease (2002) cite Sheets-Johnstone's sharp objections of Dreyfus and Dreyfus' description of only adult skill acquisition when they question the phenomenological foundations in Dreyfus and Dreyfus' phenomenological approach. Sheets-Johnstone's main argument is that to take the adult human body as the phenomenological starting point is a methodological mistake; it overlooks "the originating ground of our knowledge, our capacities, our being" (Sheets-Johnstone, 1999, p. 232). She argues further that our adult behaviour is an outcome of our particular background. Through our childhood we acquire experiences that are essential to our adult behaviour: "Whatever the particular adult skill-learning situation– playing the piano, driving a car, playing chess, making trousers – it is a compound of experiences sedimented with skills and concepts accruing from our history" (Sheets-Johnstone, 2000, p. 359).

2002a, p. 368). Dreyfus and Dreyfus' aim with the skill model becomes quite clear when they state:

> According to Merleau-Ponty our skills are acquired by dealing with things and situations, and in turn they determine how things and situations show up for us as requiring our responses. To appreciate this claim we need to lay out more fully than Merleau-Ponty does how our relation to the world is transformed as we acquire a skill (Dreyfus &Dreyfus, 2002a, p. 368).

Dreyfus and Dreyfus propose that our way towards expert knowledge starts by employing propositional knowledge represented by rules and procedures. Since the novice has no relevant experiences with a particular skill, the task environment must be decomposed into context-free facts and features that can be recognized without the desired experience (Dreyfus, 2004c). Based on these facts and features, the rules and procedures for determining actions are used by the beginners to guide their actions: "just like a computer following a program" (Ibid, p. 177). The developing agent will gradually leave behind the rules and procedures because one's own experiences are perceived as a better guide to the real world than the context-free facts and features. As such, the propositional knowledge will be supplemented by knowledge acquired through one's own context-dependent experiences. A more radical shift, however, takes place after the third stage of competency. After this stage there is a recognizable transition from the analytic, rule or procedure-following approach to the increasingly intuitive behavior of the absorbed 'coper'. Even though the developing agent gradually frees himself from the rule-based behavior, it is still necessary to decide deliberately what action to take in each situation, until such time as he has acquired enough experience to make these decisions without recourse to deliberate thoughts:

> It seems that beginners make judgments using strict rules and features, but that with talent and a great deal of involved experience the beginner develops into an expert who sees intuitively what to do without applying rules and making judgments at all … Normally an expert does not deliberate. He does not reason. He does not even act deliberately. He simply spontaneously does what has

> normally worked and, naturally, it normally works (Dreyfus & Dreyfus, 1992, p. 117).[22]

Through their approach, Dreyfus and Dreyfus want to allocate more attention to the limits of rational deliberation and to appreciating the value of experience-based intuition, since we engage in a huge amount of our lives in this mode. And yet, "knowing-that" is the mode of behavior studied by most philosophers, probably because deliberation is the way of acting that we tend to notice (Dreyfus & Dreyfus, 1992).

Heidegger and the readiness-to-hand mode

Heidegger made a similar distinction to Dewey. Rather than referring to two kinds of knowledge he distinguished between two modes of being: *readiness-to-hand* (zuhandenheit) of equipment when we are involved in using it and *presence-at-hand* (vorhandenheit) of objects when we contemplate them (Dreyfus, 2007a).[23] Dreyfus and Dreyfus' 'later' understanding of everyday expertise is to be found in Heidegger's mode of readiness-to-hand, and as such it more or less corresponds to the "know-how" knowledge presented in '*Mind over Machine*'. For Heidegger, human agents ordinarily encounter entities as *equipment* in order to cope with certain sorts of bodily tasks: "In our dealings we come across equipment for writing, sewing, working, transportation, measurement" (Heidegger, 1962, p. 68/97). But, as Dreyfus interprets Heidegger, the equipment in itself is not the important aspect, the importance is in what the equipment is for: "[T]he ready-to-hand is not a *what* but a *for-what* … Heidegger wants to get at something more basic than simply a class of objects defined by their use … Rather, he sees that, *for the user*, equipment is encountered as *a solicitation to act*, not *an entity* with

[22] Dreyfus and Dreyfus showed in *Mind over Machine* (1986) that also Pierre Bourdieu had a similar understanding of such daily expertise, though he termed it 'virtuoso': "Only a virtuoso with a perfect command of his "art of living" can play on all the resources inherent in the ambiguities and uncertainties of behavior and situation to produce the actions appropriate to each case, to do that of which people will say, "There was nothing else to be done," and do it the right way (Bourdieu, 1977, p. 8).

[23] Heidegger introduced a number of modes. For a further discussion see for instance Wheeler (2005, pp. 128-145).

a function feature" (Dreyfus, 2007a, p. 1143).[24] Dreyfus and Dreyfus' *absorbed coper* designates how their expert responds to situations that Heidegger thinks of as revealing of the ready-to-hand or *availableness*, to use Dreyfus and Dreyfus' (1991) own term (p. xi).

Dreyfus and Dreyfus' approach differs from Heidegger's approach due to at least one important notion. One of Heidegger's pioneering contributions to philosophy was that theoretical definitions and descriptions bear on knowledge acquired through praxis:

> In characterizing the change-over from the manipulating and using and so forth which are circumspective in a 'practical' way, to 'theoretical' exploration, it would be easy to suggest that merely looking at entities is something which emerges when concern *holds back* from any kind of manipulation. What is decisive in the 'emergence' of the theoretical attitude would then lie in the *disappearance* of *praxis.* So if one posits 'practical' concern as the primary and predominant kind of Being which factical Dasein possesses, the ontological possibility of 'theory' will be due to the absence of *praxis* – that is, to a *privation* (Heidegger, 1962, pp. 357/409).

As such, Heidegger proposes that theoretical "knowing-that" knowledge is only attainable through a disappearance of the ready-to-hand mode. Dreyfus and Dreyfus, on the contrary, consider "knowing-that" as a necessary basis for development of "knowing-how"; it is only reachable if you have previously experienced similar situations analytically and deliberately.

Several characteristics of Dreyfus' interpretation of the "readiness-to-hand" mode turn out to be an important ingredient in Dreyfus and Dreyfus' understanding of expertise.[25] Firstly, the expert has to be *engaged in* activity: "Our most basic way of understanding equipment is to use it" (Dreyfus, 1991, p. 64). A corresponding view is to be found in Heidegger's writings:

[24] When Dreyfus emphasizes that we encounter equipment through how it solicits an action in us, he proposes a view quite similar to the ecological psychologist James J. Gibson's affordance theory. Gibson's work has become influential in changing the way we consider visual perception. According to Gibson, perception of the environment inevitably leads to some course of action. The environment invites us to respond to it in particular ways – they afford possibilities for action. Such perception is seen as a direct, immediate way with no sensory processing (Gibson, 1979). For Dreyfus, the solicitations from the environment (the particular situations we engage in) change with increased experience. A situation will solicit different responses from an expert than from a novice (for a further discussion, see Paper III).

[25] Dreyfus' interpretation of Heidegger is sometimes so closely intervened with his own views that it turns out to be difficult to distinguish what counts for his own viewpoints and what counts for Heidegger's. When Dreyfus presents "Heidegger's Critique of Husserl's (and Searle's) Account of Intentionality" (Dreyfus, 1993) it becomes hard to distinguish if this is Heidegger's critique of Husserl/Searle or if it is Dreyfus' critique, highly inspired by Heidegger.

> The less we just stare at the hammer-thing, and the more we seize hold of it and use it, the more primordial does our relationship to it become, and the more unveiledly is it encountered as that which it is – as equipment (Heidegger, 1962, pp. 69/95).

Secondly, Dreyfus and Dreyfus' emphasis on the tendency for equipment to become transparent to us as we are absorbed in coping, also finds its origin in Heidegger:

> The peculiarity of what is proximally ready-to-hand is that, in its readiness-to-hand, it must, as it were, withdraw [Zurückzuziehen] in order to be ready-to-hand quite authentically. That with which our everyday dealings proximally dwell is not the tools themselves [die Werkzeuge selbst]. On the contrary, that with which we concern ourselves primarily is the work – that which is to be produced at the time; and this is accordingly ready to hand too. (Heidegger, 1962, pp. 69/99)

But it is not only equipment that becomes transparent when the expert is absorbed in coping; the expert's ability to perceive himself consciously in the totality of an action also becomes transparent.[26] Dreyfus cites Aron Gurwitsch, a perceptive reader of Heidegger, when he elaborates on this notion:

> We do more and greater justice to it [the situation] the more we let ourselves be guided by it, i.e. the less reserved we are in immersing ourselves in it and subordinating ourselves to it. We find ourselves in a situation and are interwoven with it, encompassed by it, indeed just "absorbed" into it (Gurwitsch, 1979, p. 67, quoted in Dreyfus, 1991, p. 67).

For Dreyfus and Dreyfus, it is important to emphasize that the transparency of ourselves in absorbed coping does not imply that we are not *aware* of the totality of the situation, and as such, we may be able to give a precise account of our actions afterwards: "We can and do observe our surroundings while we cope, and sometimes, if we are learning, monitoring our performance as we learn improves our performance in the long run"

[26] Although Dreyfus emphasizes on transparent equipment and a transparent agent, he argues that this should not be confused with Polanyi's (Polanyi, 1974) notion of 'tacit knowledge', despite seemingly containing similarities: "The reference to hidden rules shows that Polanyi, like Plato, fails to distinguish between performance and competence, between explanation and understanding, between the rule one is following and the rule which can be used to describe what is happening" (Dreyfus, 1992, pp. 330–331). Dreyfus cannot accept that expert performance is governed by rules, even though Polanyi claims that they are "hidden".

(Dreyfus, 2007a, p. 1143).[27] But what we do not have access to, is a deliberate and rational account of how one's actions are produced, because, according to Dreyfus and Dreyfus, the nature of intuition makes these processes invisible to ourselves. Also important to Dreyfus and Dreyfus is that conscious attention to how we produce our actions will hamper our skill execution: "In this case he [Heidegger] wants us to see that, to observe our hammer or to observe ourselves hammering undermines our skillful coping" (Ibid).

Again, following Heidegger, Dreyfus and Dreyfus argue that experts look to reflection and deliberate behavior (calculative rationality) only when absorbed coping is obstructed or when they run into a problem (Dreyfus, 2004b). In fact, Dreyfus argues that in Heidegger's term 'unreadiness-to-hand' (unzuhande) (Heidegger, 1962, pp. 74/103) he introduced a new mode of being. For both Heidegger and Dreyfus and Dreyfus, such 'breakdowns' are critical in their accounts. While we normally deal with things and equipment in a readiness-to-hand mode, such non-reflective behavior may be interrupted by different circumstances.[28] Heidegger proposed that the shift from readiness-to-hand mode towards unreadiness-to-hand mode will cause us to again encounter the world as subjects perceiving entities as objects; as presence-at-hand. Such breakdowns may occur under three different circumstances. Heidegger's c*onspicuousness* occurs, when we perceive: "…entities … as something unusable or not properly adapted for the use we have decided upon" (Heidegger, 1962, pp. 73/102). Dreyfus has termed this kind of circumstance "Malfunction". According to Dreyfus this kind of 'unreadiness-to-hand' is easy to overcome because: "…for most normal forms of malfunctioning we have ready ways of coping, so that after a moment of being startled, and seeing a meaningless object, we shift to a new way of coping and go on" (Dreyfus, 1991, p. 71). Heidegger's second circumstance *obtrusiveness* occurs when the equipment is not available [not 'to hand'] at all; the equipment is missing. Dreyfus has termed this kind of circumstance "Total

[27] A recent discussion about this topic can be found in Montero (2010). She argues that Dreyfus and Dreyfus overlook the importance of "bodily sensory awareness" and even "cognitive bodily awareness" when such is of an unconscious kind. Dreyfus and Dreyfus reject the latter stance that cognitive bodily awareness can be of an unconscious kind. But Dreyfus and Dreyfus do not refuse bodily sensory awareness. What they object to is that such awareness can help us out in regard to how one has come to these responses (personal correspondence with Stuart E. Dreyfus, 2010).

[28] Heidegger's outline of the 'unreadiness-to-hand and Dreyfus' corresponding interpretation of Heidegger is to be found in Heidegger, 1962, pp.73-76/102-107, and Dreyfus, 1991, pp. 70-82

Breakdown" and it involves a transformation from involved deliberation towards theoretical reflection. Heidegger's third circumstance, *obstinacy*, occurs when something: "…'stands in the way' of our concern" and: "Anything which is unready-to-hand in this way is disturbing to us, and enables us to see the *obstinacy* of that with which we must concern ourselves in the first instance before we do anything else" (Heidegger, 1962, pp. 73-74/103). Dreyfus has termed this kind of circumstance "Temporary Breakdown". Temporary breakdown implies that something blocks our ongoing activity. Instead of being transparently absorbed in our coping, we have to act deliberately by paying attention to what we are doing (Dreyfus, 1991).[29]

An important notion in Dreyfus' application of Heidegger is that Dreyfus incorporates a slightly different understanding of equipment; experience in itself may be seen as a kind of equipment. If we approach a particular situation with lacking experience to deal with it, the aspects of the situations are brought into view in different reflective ways. If our experience-based intuition is considered as malfunctioning for the particular situation, we shift to a new way of coping and go on. If we have no experience with the particular situation at all, if sufficient experience is missing, the expert has to regress to the presence-at-hand mode, characterized by the lower stages in Dreyfus and Dreyfus' model. [30] This also corresponds with the view that they see expertise as task-specific. If an expert approaches a situation with insufficient experience to handle it, the expert is not any longer an expert regarding that particular task or situation.

Dreyfus and Dreyfus have been criticized for understanding the dichotomy between intuition and deliberation too rigidly; that we use deliberation and analysis as long as our experience is not sufficient to respond intuitively, and we then respond intuitively until we arrive at situations in which we do not have relevant experiences to cope.[31] Sutton and colleagues state such a critique when they write: "We deny that any

[29] Heidegger's circumstances for interruption of the ready-to-hand mode are further discussed in Paper III.
[30] This topic is further discussed in this thesis (Paper I, pp. 75 -78).
[31] Dreyfus and Dreyfus do in fact state that the expert: "If decisions are important and time is available" may use another kind of deliberate behaviour than "calculative rationality" that we tend to use when facing a situation with insufficient experience: "[D]eliberate rationality does not seek to analyze the situation into-context free elements but seeks to test and improve whole intuitions" (Dreyfus & Dreyfus, 1986, p. 36). Dreyfus and Dreyfus state that this kind of deliberation is preferable because it does not forsake the expert's know-how; it is more a deliberate way to refine one's own intuition (Ibid).

invocation of intelligence must be intrinsically intellectualist or rationalist, and argue that there is a rich, under-explored space between deliberative calculation and 'mindless' intuition" (Sutton et al, 2011, p. 3). Breivik has quite a similar approach:

> According to Dreyfus we seem not to be consciously aware of what we are doing for the most part of our days and lives. But this is surely too simple. An interrogation of our own experiences shows that we are much more flexible switching between absorption and deliberation, mindless coping and conscious improvement on a regular basis (Breivik, 2007, p. 127).

Schön (1983, 1987) also emphasized that reflection may help us in refining our responses *while* responding to a particular situation. Through his concept "reflection-in-action" he outlined his view:

> We may reflect in the midst of an action without interrupting it. In an *action-precent* – a period of time, variable with the context, during which we can still make a difference to the situation at hand – our thinking serves to reshape what we are doing while we are doing it. I shall say, in cases like this, that we reflect-*in*-action (Schön, 1987, p. 26).

Schön emphasized that such reflection is distinctly different from reflection *on* action, which he also understood as a deliberate process. On the contrary: "…reflection-in-action is a process we can deliver without being able to say what we were doing" (Schön, 1987, p. 31). Schön further stated that it is possible to reflect-in-action even if we do not have access to reflect upon our reflection-in-action. An interesting notion is that such reflection-in-action is caused by a surprise: "Something fails to meet our expectations" (Schön, 1987, p. 26). Schön's reflection-in-action may be understood more as a kind of unreflective situational awareness, and it may as such be seen as somewhat similar to Dreyfus and Dreyfus' view about awareness in absorbed coping.[32]

Since Dreyfus and Dreyfus' expertise must be understood as being inevitably connected to our absorbed embodied actions, they have been criticized for being too narrow in their approach to expertise. Selinger and Crease argue that Dreyfus and Dreyfus exclude a certain kind of knowledge which is also commonly recognized as

[32] From the tradition of cognitive psychology, different approaches on the role deliberation plays in highly skillful performance have been proposed. See for instance Hammond (2006) about the cognitive continuum theory, and Ericsson (2006) about his claim that experts often uses refined mental strategies to guide their behavior during skill execution.

expertise. Selinger and Crease pinpoint this notion when they draw a distinction between "expert x" and "expert in x" (Selinger & Crease, 2002, p. 258).[33] 'Expert x' corresponds to knowing-how/readiness-to-hand, while 'expert in x' corresponds to knowing-that/presence-at-hand. An 'expert x' could be an 'expert soldier', while an 'expert in x' could be an 'expert in soldiering'. There is no doubt that an expert in soldiering could give trustworthy descriptions and communicate propositional information on soldiering, but he would probably face problems on the battlefield (Ibid). Collins has a similar approach to expertise as Selinger and Crease (2004, Collins & Evans, 2007). He proposes a third kind of knowledge placed between propositional knowledge and embodied knowledge. '*Interactional expertise*' is: "[T]he ability to converse expertly about a practical skill or expertise, but without being able to practice it, learned through linguistic socialization among the practitioners" (Collins, 2004, p. 125). Dreyfus and Dreyfus would probably object to the claim that such a kind of expertise falls outside their understanding of expertise; it is just another kind of task in which the expert is expert. An expert teacher or an expert coach may teach their students/athletes in an intuitive style even though they are not expert practitioners themselves. But Collins' interactional expertise also brings forth another perspective concerning skill acquisition that may be seen as absent in Dreyfus and Dreyfus' approach; how interaction with others may influence our skill acquisition. Dreyfus and Dreyfus' approach has been described as *asocial*: "…he [Dreyfus] phenomenologically investigates how all human beings acquire skills regardless of who they are, what field they are apprenticing in, and when and where they learn their skills" (Selinger & Crease, 2002, p. 257). Also added to this list should be: with whom and in what way? To describe a skill developmental process that can be understood as isolated from the social world surrounding us has been met by skepticism and critique. 'Community of Practice' and 'Legitimate Peripheral Participation' are examples of approaches that reject the view that learning may take place isolated from a social context (Lave & Wenger, 1991).

[33] Selinger and Crease use 'expert in x' and not 'expert on x'. I believe that 'expert on x' is maybe even better to describe the 'knowing-that' dimension of knowledge.

The rejection of the mental

As shown in this presentation, Dreyfus believes that we employ deliberate reflection both during our development of skill acquisition towards expertise and when we are reconstructing reality through *mental representations* when obstructed in absorbed bodily coping. This view implies that Dreyfus' non-mentalistic arguments only concern their everyday intuitive expert:

> Indeed, my point in introducing the first four levels of skill acquisition was to make a place for mental representations and then to argue that, when we finally become expert, our everyday way of dealing with things and people switches over from the planning and goal directedness of the first four stages to what is normally experienced as a spontaneous response to the demands of the whole situation (Dreyfus, 2002b, p. 413).

Dreyfus' rejection of mental representations has its philosophical foundation in his interpretation of the works of Merleau-Ponty:

> According to Merleau-Ponty, as an agent acquires skills, those skills are "stored," not as representations in the agent's mind, but as the solicitations of situations in the world. What the learner acquires through experience is not *represented* at all but is *presented* to the learner as more and more finely discriminated situations. If the situation does not clearly solicit a single response or if the response does not produce a satisfactory result, the learner is led to further refine his discriminations, which, in turn, solicit ever more refined responses (Dreyfus, 2007a, p. 1144).

Dreyfus' rejection of the expert's use of mental representations has become an important ingredient in the discourse brought forth by the skill model. In fact, what Dreyfus is trying to do is to reject the foundation for the philosophy of mind (including representationalist phenomenology and analytic philosophy) and cognitive psychology, which sees mental representation of the world as our way to intelligible human behavior. With philosophical concerns in mind, Dreyfus (1991) states that Descartes was the first philosopher to believe that: "There must be some content in our minds – some internal representation – that enables us to direct our minds towards each object." This "intentional content" has been investigated … by Husserl and more recently by Searle (p.

5).[34] As such, Dreyfus has created a dichotomous relation in the world of existential philosophy between *they* (Husserl and Searle) and *us* (Heidegger and Dreyfus), which Dreyfus uses to clarify philosophical stands (Breivik, 2007). [35] Because of this dichotomy, which has been perceived by some scholars as being quite provocative, Dreyfus has now and then entered the ring of philosophical cat-and-dog fights. Such fights have turned out to be very fruitful for the philosophical discourse in their contributions to pinpointing different philosophical arguments through mutual attacks and defenses. Dreyfus' 'quarrel' with Searle (1999-2000) about *intentionality* is one[36], and his argument with McDowell (2005-2007) about the role of *rationality* and *linguistic concepts* in absorbed coping is another.[37]

Dreyfus' rejection of cognitive psychology is also interesting as this scientific tradition has gradually acknowledged intuition as an obvious ingredient in human decision-making. Even if Dreyfus objects to the premises for their understandings of intuition, there is no doubt that it is the same phenomenon that concerns both parties. Hogarth has presented an understanding of intuition that must be understood as representative of this tradition's understanding of the phenomena: "intuitive responses … *are reached with little apparent effort, and typically without conscious awareness. They involve little or no conscious deliberation*" (Hogarth, 2001, p. 14). In common with Dreyfus and Dreyfus, this tradition does not view intuition as coincidental or some kind of mystic capability that just happens, but rather as knowledge acquired through experience which again influences behavior. In accordance with Dreyfus and Dreyfus, to

[34] Dreyfus even goes as far as to acknowledge Edmund Husserl to be the father of the information-processing model of the mind. He claims that: "Edmund Husserl… argued that concepts were hierarchies of rules, rules which contained other rules under them" (Dreyfus & Dreyfus, 1986, p. 4). As such, Husserl's account is incompatible with Dreyfus and Dreyfus' understanding of absorbed coping.

[35] Dreyfus also adds other philosophers and thinkers to this dichotomy. In the *they* group they normally also place thinkers like Plato, Descartes and Kant, while the *we* group is often supplemented with thinkers like Aristotle, Wittgenstein (later), Gibson, Merleau-Ponty, Taylor, Haugland and others, when necessary (see for instance Dreyfus, 2007a).

[36] Moe has given an exemplary presentation of Searle's and Dreyfus' understandings of intentionality (Moe, 2007). The essays, which present the discussion about intentionality, are to be found in Dreyfus (1999, 200b) and Searle (2000).

[37] Although McDowell and Dreyfus agree about the importance of embodied skills, situation-specific discernment and how a situation solicits a response in us, they disagree about the role of rationality and concepts (Rietveld, 2010). While McDowell is eager to claim that such concepts are *operative* in unreflective action (absorbed coping), Dreyfus rejects this stand because he sees concepts as relying on mental properties. The essays that take this discussion to the table are Dreyfus (2005, 2007b, 2007c) and McDowell (2007a, 2007b). For a clarifying comment about the discussion, see Rietveld (2010).

give explicit descriptions for the underlying cognitive processes that lead to specific decisions is also something the cognitive psychology tradition emphasizes. What stands out as problematic for Dreyfus and Dreyfus to accept is that cognitive psychology employs the analogy of the brain as a rule-based *information processing* entity to understand human cognition. As such, intuition is normally considered as a product of *automatic* information processing which contains different properties than the *controlled* processing of information (see for instance Schiffrin & Schneider, 1977).[38]

Research on decision-making, founded in cognitive psychology, has proposed different versions of how intuition is employed. In this presentation, I will briefly present three of these views. Gigerenzer (2008) is one of those claiming that we make use of automated employment of heuristics. Gigerenzer's view about intuition could at first sight be understood as containing similarities to that of Dreyfus and Dreyfus. He believes that intuition is, based on past experiences, about detecting relevant situational aspects and ignoring the irrelevant; not very different from refined discrimination, as found in the already mentioned approach of Merleau-Ponty. So according to Gigerenzer, intuition corresponds to the ability of making decisions based on a limited amount of information, so called "fast and frugal" heuristics. But as opposed to Dreyfus and Dreyfus, he believes that such heuristics may be seen as simple and efficient *rules* that we employ to come to judgments and decisions when facing complex or ambiguous situations, and as such, is in conflict with Dreyfus and Dreyfus' absorbed coping.

Mangan (2003) has proposed a slightly different version of intuition. Through the term 'fringe consciousness' he describes how intuitive processing can create conscious feelings, without conscious access to how these feelings are produced. Price and Norman (2008) further state that such intuitive feelings may guide our behavior by deliberately utilizing it. They claim that cognition, considered as purely non-conscious, would not be sufficient as such guidance and that this way of understanding intuitive feelings proposes

[38] These two modes of being, or maybe more correctly strategies for decision-making are often mentioned as the two-system model for decision-making (Kahnemann, 2002). System 1 refers to the automatic, which is characterized by being effortless, serial and fast, often termed intuitive, while system 2 is slower, intentional (representational) controlled and analytic.

a way to soften the rigid dichotomy between deliberate and intuitive decision-making (Ibid).[39]

Klein has proposed an approach to intuition which at first glance may be seen as highly similar to Dreyfus and Dreyfus' approach. [40] Klein, who may be considered as one of the pioneers in the field of naturalistic decision making (NDM), has emphasized that laboratory models for detecting how experienced decision-makers make decisions in complex and ambiguous real life situations may not capture fully the picture. Instead he started to study expert practitioners in their natural environments to get closer to how they in fact make their decisions. What he found was that highly experienced practitioners base their decision-making on intuition when facing critical situations (Klein 1998, 2004).[41] Instead of comparing different possible actions, like more rational decision-making procedures, decision-makers can use their experience to form mental simulations that suggest solutions, and this is generated intuitively; we come to a plausible way to solve the situation, and this is the only option we even consider (Klein, 1997). Klein also states that experienced decision-makers turn to diagnosis when uncertainty about the nature of the situation is detected (Ibid). For Klein it is important to emphasize that intuition develops through experience, but unlike Dreyfus and Dreyfus, he claims that intuition is based on the ability to *recognize patterns* and to interpret situational cues.[42] In this respect a 'pattern' is understood as information that normally

[39] Dreyfus and Dreyfus will object to the view that intuitive feelings must be used by conscious control to be utilized. This must, from their understanding, require use of mental representations.
[40] When Dreyfus and Dreyfus initially started to develop their skill model at the end of the seventies, Gary Klein was the one that introduced Dreyfus and Dreyfus to the US Air Force. Dreyfus even states: "he [Gary Klein] got me involved in thinking about expertise in the first place" (Dreyfus, 1997, p. 17). Dreyfus and Dreyfus' investigations as to how pilots develop from novices to experts were the direct impetus behind their skill model, and resulted in four papers about the topic (Dreyfus and Dreyfus 1979a, 1979b, 1980a and 1980b). Dreyfus and Dreyfus (1980a) is the paper in which they first introduced the skill model as a five stage developmental process. Klein also acknowledges Hubert Dreyfus for the benefits his ideas have contributed to in the process leading towards the RPD model (Klein, 1998).
[41] An interesting aspect regarding the topic of this thesis is that his recognition primed decision (RPD) model has influenced changes in the ways officers train to make decisions (see for instance Ross et al 2004, Thunholm, 2005).
[42] In *Mind over Machine* (1986) Dreyfus and Dreyfus built their understanding of intuition on the same pattern recognition view. Already in the 1988 paperback edition of the same book, they stated that about the time the book was in print, they realized that other cognitive capacities could better be understood as foundation for intuitive behaviour. In Dreyfus (2004) their arguments for turning away from the pattern recognition approach is outlined. The pattern recognition approach is rejected by Dreyfus and Dreyfus because it is based upon our ability to utilize our memory of prior experience, and according to Dreyfus and Dreyfus, a prerequisite for utilizing memory is through mental representations.

chunks together, so if you find some pattern-related cues you will probably also find others. These patterns are accumulated through experience and stored in our memory, so the more patterns one learns, the easier it is to match new situations to a pattern that has been encountered in the past (Klein, 2003).

As shown, Dreyfus and Dreyfus object to all approaches that see intuition as something to do with mindfulness, mental representation or any kind of information processing. As a consequence, terms like automatic, recognition, diagnosis, memory, computation, judging, thinking, visualizing, valuing etc. are like weeds in Dreyfus and Dreyfus' garden of absorbed coping.

The problematic expertise

Why Dreyfus and Dreyfus chose to name their understanding of their highest skill level as 'expertise' is peculiar. Why did they not just name this highest stage 'absorbed coping', 'absorbed dealing', 'smooth coping' or just 'experience based intuition'?[43] The term is first of all peculiar because it corresponds to neither a common phenomenological understanding of experts, nor a normal scientific way to approach the phenomenon (see for instance Ericsson et al, 2006). When we think of experts we normally think about someone who performs highly skillfully inside a domain, or who has exceptional knowledge about a particular topic. But Dreyfus and Dreyfus (2007) state: "With experience, one can, and generally does, just naturally become what we call an expert. Given enough experience, it is hard to avoid it" (p. 223). In this way, Dreyfus and Dreyfus are placing expertise on a continuum of life-world activities, rather than isolating it (Selinger & Crease, 2002).

Dreyfus and Dreyfus' description of the expert as someone who does not represent high skillfulness in regards to a specific task has been opposed by research traditions that focus on expertise as a level of outstanding performance. The opportune

[43] One explanation concerning this question, probably a bit speculatively, may be found in the origin of their model. When they first headed out to describe how expert pilots make decisions, they described such behavior as intuitive, and they found that such behavior fitted the best pilots; they were intuitive copers. Since Dreyfus and Dreyfus are known for being loyal to their own approach, they have kept it unchanged, even if the content, especially that influenced by Heidegger, has turned the focus more towards how we deal with daily challenges in life.

critical question has been raised: why elaborate expertise if this kind of expertise may represent mediocre performance? It has even been claimed that the Dreyfus and Dreyfus' approach describes only lower and intermediate levels of expertise (Shanteau, 1992a). From a philosophical perspective, it has been questioned whether Dreyfus and Dreyfus' approach is able to grasp the characteristics of those performing at the highest possible levels. Breivik (2007) questions whether Dreyfus and Dreyfus' reliance on Heidegger and Merleau-Ponty supports excellence in a skill domain. While Heidegger hardly mentions high level performance at all, it is also questionable whether Dreyfus and Dreyfus' employment of Merleau-Ponty's concept of "maximum grip" suffices. Breivik (2007) states about this notion: "In any case the individual adjustment to a piece of equipment ["maximum grip"] does not imply a comparison with others or an absolute standard. The performance may still be mediocre in absolute terms" (p. 124).

The question about high level performance is also interesting in respect of my researched phenomena; soldiers' reach for optimized performance. Since I have used Dreyfus and Dreyfus' approach as a theoretical framework in my work, it should perhaps appear strange that I have chosen an approach that seemingly has problems with providing a trustworthy description of optimal performance. Dreyfus and Dreyfus' own answer to this question would probably sound something like: "Don't worry. Even though we are focusing on describing everyday expertise, our approach is also a valid description of those performing at the very best inside a skill domain; they do also rely on intuitive behavior during skill execution".[44] As such, Dreyfus and Dreyfus (2002b) admit that some intuitive experts are better at performing their skills than others. In one of their attempts to suggest a sixth stage - mastery - they state:

> Mastery … is available only to strongly motivated experts who not only have exceptional natural talent but who are also willing and able continually to enlarge the number of intuitive perspectives and actions that, with experience, come naturally and effortless to them (Dreyfus & Dreyfus, 2007, p. 217).

[44] Dreyfus and Dreyfus do, in several places in their writings, use experts known for outstanding performance to exemplify intuitive behaviour. Grandmasters in chess, world renowned athletes like Larry Bird, concert musicians and expert surgeons are among those used to exemplify intuitive behavior as a foundation for highly skillfulness (Dreyfus and Dreyfus 2005).

An important notion for Dreyfus and Dreyfus is that such a level of performance is still executed with support in intuitive behavior, even if the development of such capacities demands a kind of deliberate approach. What the expert needs in order to advance to the mastery level is a new appropriate perspective, which again must be followed by accompanying actions. When these new actions are practiced enough times to be executed intuitively, the expert, according to Dreyfus and Dreyfus, has become a master (Dreyfus & Dreyfus, 2007).[45]

Is intuitive expertise researchable?

Is it possible to observe whether a person is utilizing intuitive or deliberate strategies in their dealings with daily challenges or decision-making in complex and ambiguous situations? Do we have access to how our own behavioral responses are produced cognitively? Is intuition measurable through neurological experiments? Are there other ways to approach intuition? These questions have turned out to be difficult to answer, or maybe more correctly it has been highly difficult to come to agreements about the answers among, and even inside, the different traditions engaged in this topic. I will in the following try to outline some of these disagreements and implications.

Firstly, to *observe* whether someone is utilizing intuition or deliberate strategies during highly skillful actions has transpired to be problematic. If we observe a ski-jumper, a chess-player, a dentist or a soldier during skill execution, all performing in a confident and fluent style, is it then possible to identify some cues or characteristics that may indicate that they are using a particular cognitive capacity during their skill execution? I believe not. If you are convinced that such performance is only reachable through intuitive behavior, you may argue that intuition is in use, but it is of course possible that deliberate strategies are in use as well.

[45] Ericsson and colleagues, some of the most influential researchers on expertise (within the psychological approach), have proposed a similar description of the process leading towards expertise. The "deliberate practice" theory aims to describe the approach which has been found most effective in improving performance. Their approach objects to the view that merely engaging in a sufficient amount of practice, regardless of the structure of that practice, leads to maximal performance (Ericsson et al, 1993).

Secondly, Klein and colleagues employed *interviews* with highly experienced decision-makers to detect how they make decisions in real life situations. Typical of the answers he got was that the decision-makers had problems in diagnosing an explicit reason for why they responded as they did. Answers like "extrasensory perception", "intuition" and "a sixth sense" were the closest they could get to describe how these responses were produced (Klein, 1998). Such answers may indicate that we have a hunch that our decisions are founded on sources other than analytical and deliberate ones. But even if we can detect that intuitive behavior plays a role in our decision-making, it does not solve how intuition is working.[46] Klein's main contribution was the verification that expert decision-makers did not employ logical methods, like examining the various alternatives before selecting the optimal choice.[47] But, to give an explicit description about how intuitive responses to particular situations are produced is, even for Klein, a matter of construction founded in the research tradition to which he belongs. Dreyfus and Dreyfus object to the view that interviews are suited to capture the nature of intuitive behavior. Dreyfus and Dreyfus believe that we have no deliberate access to such thoughts because the very nature of intuitive behavior implies that no accessible or conscious thoughts are produced during this kind of skill execution. Explicit thoughts and reflection are not necessary because the response to the situation relies on bodily dispositions that react immediately to the specific situation. One may try to recapitulate what one did through retrospection but in doing so one constructs a pleasing description about how one believes one came to an action, not how one really did it. One may also try to monitor what one is thinking about during skill execution, but in doing so, one makes ones thoughts explicitly accessible by forcing oneself to non-intuitive behavior through reflection (Dreyfus, 2004c).

A third possible way to detect intuition is found in neuroscience. There have been significant advances through the last decade in the ability to non-invasively track human brain activity. Since behavioral skill development is associated with changes in brain activity, there has been major progress in this area of research. Studies performed on

[46] And we do not have to be highly experienced decision-makers in highly complex situations to recognize this intuitive feeling. Most of our daily coping is ongoing in a fluent style without making explicit why we respond as we do.
[47] Klein's finding is similar to the view Dreyfus and Dreyfus had proposed ten years before.

changes in brain activity from a novice to a skilled performance have consistently shown that performing a highly practiced skill often requires less brain activation than before the skill was practiced (Luu et al., 2007). Several studies based on the use of brain-imaging devices such as functional magnetic resonance imaging technology (fMRI), reveal that the development and execution of skills have profound effects on the nature of neural processing. Of particular interest are findings that the brain is able to shift from controlled to automatic processing as a result of training; this is shown by decreased brain activity in the regions responsible for learning and control (Hill & Schneider, 2006).[48] But brain-imaging devices, such as fMRI, do have weaknesses. One question stated is whether it is possible to create context sensitive conditions, similar to the real world, when exposed to tasks and topics inside a scanner drum. Perhaps we will have to wait until it is possible to measure brain activity inside a ski-jumpers helmet before we know more about what is really happening inside the brain during a ski jump. The already mentioned experiment, showing that the brain is able to shift from controlled to automatic processing, was conducted over a period of sixty minutes practicing a simple tracking task; a very short period of time compared to skill acquisition in general.

Dreyfus and Dreyfus also find support for their approach in neuroscience. In Freeman's (1991) neurodynamic model of the brain, developed through research on rabbits, Dreyfus and Dreyfus found an account of how the brain could provide the causal basis for Merleau-Ponty's intentional arc (Dreyfus, 2007a). Dreyfus argues that: "Freeman maintains that information about the world is not gained by detecting meaningless features and processing these features step-by-step upwards toward a unified representation" (Ibid, p. 1151). An important notion in Freeman's model is that the animal's perceptual system is primed by the reward of past experiences.[49] Freeman's neurodynamic model should indicate that Dreyfus and Dreyfus' non-representational account finds support in brain dynamics. But, the model only supports Dreyfus and Dreyfus' approach and is problematic to use as a resource for research on human behavior.

[48] The control network is a group of areas in the brain that work together and are involved in controlling goal processing, attention and decision-making; in particular when the tasks are novel or varied. The time needed to shift from controlled to automatic processing is task-specific and will vary depending on the complexity of the skill domain (Luu et al., 2007).
[49] Freemans approach is further discussed in paper I

This brief presentation about research approaches on intuitive behavior has shown some of the difficulties involved in this area. Perhaps the closest we can get to intuition is through phenomenological descriptions such as Dreyfus and Dreyfus' attempt. Through an inter-subjective justification of the descriptions, challenged by other approaches, it is possible to create an understanding about the phenomenon that will gradually be perceived as a fruitful way to a better understanding. As such, Dreyfus and Dreyfus' approach may be seen as an attempt to refine the works of Heidegger and Merleau-Ponty, and to get even closer to an understanding of intuitive expertise.

> According to Dreyfus, the primary desideratum of phenomenology has always been to adequately describe expertise … because at bottom, phenomenology aims at getting behind the prejudices that impede how human experience is understood (Selinger &Crease, 2010, p. 273).

So founded in this tradition, my aim is to elaborate on Dreyfus and Dreyfus' approach to examine the extent to which it is fruitful as a framework to better understand the researched phenomenon in this thesis - soldiers' reach for optimized performance. The following chapters will give a thorough presentation about how I have approached the life-world of the soldiers, in order to get a better understanding about the phenomenon.

3) Methodology

The aim of this chapter is to explicate the approach I have used to get closer to the investigated phenomenon: soldiers' reach for optimized performance. Through this approach I will try to meet the "*demands for methodological transparency*", described by Kvale and Brinkman (2009, p.271) as an important ingredient in qualitative research. Methodological transparency implies that the researcher should try, as precisely as possible, to describe the relevant steps, procedures and decisions taken regarding a specific study (Ibid). By making the methodological approach transparent, the reader's possibility to value the validity and quality of the study will, hopefully, increase. It will also contribute to establishing a foundation for discussion about the degree to which the generation of new knowledge is influenced by and dependent upon the researcher in such a qualitative study.

The presentation will emphasize the chosen perspectives underlying my approach (methodology) and, more specifically, the tools and techniques applied through the process to generate knowledge and understanding about the phenomena (method). Through this presentation I will try to describe the interdependent relationship between the methodological approach and the phenomenon of interest in this study, and how this relationship contributes to increase the knowledge and understanding about the phenomenon. The presentation will be divided into three parts which can arguably be understood as methodological steps taken to gradually get closer to grasping the soldiers lived experiences with the phenomenon (ref fig. 2). My aim is to move from a meta-perspective considering the study's methodological orientation (1) through the study's research design (2), towards a more detailed description of the steps taken to collect information about the topic of interest (3). The chapter will lead towards a presentation which aims to discuss the reflections considering the empirical work (Chapter 4).

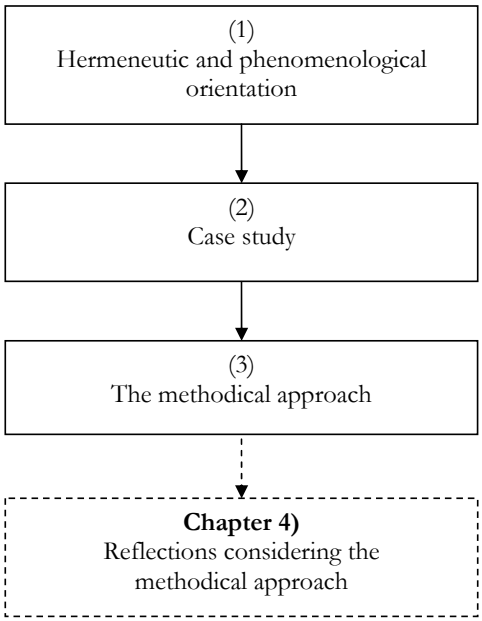

Fig. 2 Methodological approach

(1) Hermeneutic and phenomenological orientation

The aim of this study has been to explore the phenomenon, of how soldiers reach for optimized performance. Finding a researchable path towards the soldiers' lived experiences of the phenomenon was an important aspect, and this implied that the approach I would use had to be able to grasp the distinct characteristics relating to the development of individual skills required for military operations. The methodological approach employed in this study was also chosen based upon criteria that it should, as far as possible, mirror the nature of the investigated phenomenon. In van Manen's *hermeneutic phenomenological approach* to social science research, I found a methodological framework that met this demand.[50] Van Manen's (1997) approach to phenomenology: "…does not offer a procedural system; rather, its method requires an ability to be reflective, insightful, sensitive to language, and constantly open to

[50] Van Manens: "Researching Lived Experience" (1990 & 1997) captures the core of his approach, even if it is extended and refined through other papers and also web-based sources.

experience" (p. *xi*). As I understand van Manen, the hermeneutic phenomenological researcher is involved in a dynamic interplay where there exists a dialectic relation between the researcher, the research questions and the researched life-world.[51] In other words, this methodological approach may be seen as a search for getting close to the phenomena as the phenomena expresses itself to those involved, presented through the researcher.

My orientation is *hermeneutic* since I seek to make an interpretive sense of soldiers' lived experiences in their reach for optimized performance.[52] Phenomenology becomes hermeneutical when its method is taken to be interpretive (van Manen, 2002b).[53] As such, van Manen presents an interpretive model that emphasizes human situatedness and is based on the belief that we can best understand human beings from the experiential reality of their life-worlds (van Manen, 1997). An important aspect in van Manen's interpretive approach is related to the researcher's genuine openness to the phenomenon. This implies that to avoid biased descriptions the researcher needs to approach their own pre-understandings and theoretical frameworks with critical reflection. The researcher needs to practice a critical self-awareness to avoid their own openness being hampered by prejudiced assumptions:

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[51] Van Manen is often referred to as a phenomenological researcher holding that our knowledge must be founded in our consciousness (see for instance Creswell, 2007, p. 58). This conscious 'label' is probably caused by a paragraph in: "Researching Lived Experience" (1990). On page 9 van Manen writes: "Phenomenological research is the explication of phenomena as they present themselves to consciousness". He further states on the same page: "Consciousness is the only access human beings have to the world. … Thus all we can ever know must present itself to consciousness. Whatever falls outside of consciousness therefore falls outside the bounds of our possible lived experience". Van Manen's emphasis on the requirement for lived experience and knowledge to be presented to consciousness transpired to be quite problematic for me in my study. How could I really use his methodological approach as inspiration and guidance if it disqualifies all experiences that are not presented to consciousness, such as intuition, embodied knowledge and all kind of tacit dimensions in knowing-dimensions belonging to *how* perspectives? Due to my pre-understanding of his position, this emphasis on consciousness did not really fit into the picture. To overcome this challenge I wrote to Max van Manen and asked: "*Do I understand you right if you use the term consciousness to describe some kind of awareness*"? Awareness should as such be understood more as a general understanding of how we perceive and experience the world we encounter. He responded: "*Yes, I used the notion of consciousness in the general sense of awareness. Thus, much of our noncognitive "knowing" has more to do with body, situation, relation, etc"*. This position is also recognizable in other works of van Manen where he focuses on knowledge that is pre-reflective, tacit, embodied and, in some way non-cognitive (van Manen 2008, 1999a and 1999b, van Manen & Li, 2002).

[52] Even if van Manens (1990) fundamental orientation is pedagogic, he attempts to be relevant to other human science researchers. My approach, which involves skill development and learning among soldiers, must as such fit well with van Manen's description of how to approach and to research lived experience.

[53] The interpretive turn in hermeneutic philosophy separates it from the transcendental phenomenological tradition, as presented by Husserl (1970)

> One needs to overcome one's subjective or private feelings, preferences, inclinations, or expectations that may seduce or tempt one to come to premature, wishful, or one-sided understandings of an experience and that would prevent one from coming to terms with a phenomenon as it is lived through (van Manen, 2002b).

This does not imply that the researcher should try to enter the field of research without expectations and opinions based on some established pre-understandings; such a position is really not possible, and not even desirable.[54] But phenomenological inquiry implies that we should explicate our own pre-understandings, and that our pre-understandings and assumptions should continually be open to questioning (van Manen, 2002b).

The chosen orientation is furthermore *phenomenological* as getting close to the soldiers' lived experiences requires some kind of phenomenological sensitivity. Even though phenomenology is an influential and complex philosophic tradition that has given rise to various philosophical movements, van Manen (2002b) emphasizes that phenomenology may also be considered and employed (as a human science method) as a profoundly reflective inquiry into human meaning. In this study phenomenology is used as such but, as van Manen (1990) suggests, it implies that one should know enough about phenomenology and hermeneutics to be able to place one's own work inside this philosophical framework, whilst at the same time not losing sight of the fact that one is interested in the praxis of this research. The part of the phenomenological tradition that treats phenomenology as a reflective inquiry into human meaning is concerned with the way the subject encounters and experiences phenomena, and the aim of such phenomenology is to unveil the phenomena beyond their immediate appearance (Ciborra, 2002). In this way, phenomenology aims at gaining a deeper understanding of the nature or meaning of our everyday experiences as it attempts to gain insightful descriptions of the way we experience the world (van Manen, 1990). Rather than treating

[54] This notion touches the discussion of objectivity in social science research. This epistemological dilemma, to what extent a researcher should or can mirror a kind of 'objective reality' inside the social sphere of life, is at the core of this discussion. The objective stand is countered by arguments saying that pure objectivity is an illusion; the researcher will always, in some way, influence the research process (Guba & Lincoln, 2005). Luhmann discusses the same topic regarding observations. He argues that there exists no such thing as an objective or neutral observation. That something is designated as an objective fact simply refers to the circumstance that various observers agree on what is observed and that differences among observers can thus be ignored (Luhmann, 2002)

phenomenology as consisting of predetermined procedures to be applied to the phenomenon being researched, it refers more to a certain thoughtful attentiveness (van Manen, 2002b). Central to this phenomenological attitude or mood is the notion of *wonder*, which is emphasized as a basic level of reduction in phenomenology. Through wonder we are able to step back and let the phenomena present themselves in their own terms (Ibid).[55] Through wonder we may see the unique in what we normally perceive as taken for granted.

My intuitive understandings about how to fruitfully approach soldiers' reach for optimized performance implied that I wanted to meet the soldiers where they are naturally engaged in their tasks and duties: their life-world. I wanted to know: "how is this topic actually experienced by you (the soldiers)?" I wanted to see how they approached specific situations and how they gradually gained higher levels of competency by reflecting upon their own experiences. I wanted to further interpret and analyze these experiences in order to describe the phenomenon, and these descriptions should be my contribution to the establishment of an intersubjective understanding amongst those who have an interest in understanding this phenomenon better. As such, my initial understanding of how to study the chosen phenomena harmonizes with van Manen's hermeneutic phenomenological approach. Whether I really succeeded in following up these hermeneutic phenomenological ambitions is discussed at the end of Chapter 4.

(2) Case study

It may be possible to approach "soldiers' reach for optimized performance" through different methods. What defines the direction of approach is a consequence of the research questions (Yin, 2008). A basic categorization for the types of research question is typically: "who?" "what?" "where?" "how?" and "why?" (Ibid). I could have asked: "*Who* are the soldiers reaching for optimized performance?", "*What* soldier-performances

[55] In Merleau-Ponty's preface to the Phenomenology of Perception he suggests that: "the best formulation of the reduction is probably that given by Eugen Fink, Husserl's assistant, when he spoke of 'wonder' in the face of the world." (Merleau-Ponty, 2002)

can be optimized?" and "*Where* do soldiers optimize their performance?" All these questions are both researchable and potentially interesting, but they are outside the scope of my study. In order to get closer to the soldiers' lived experiences with the phenomenon, my main aim has been to ask "how" questions. The "how" question gives the opportunity to investigate the contemporary phenomenon in depth and within its real-life context. The "how" question also invites us to examine situational uniqueness and, in particular, the complexity and interaction with background conditions (Stake, 2006). The "why" question is also interesting as it seeks to get us closer to the content of meaning. According to Yin, the case study is the preferred method when "how" and "why" questions are being posed (Yin, 2009).

The case study tradition also emphasizes how *context* influences the phenomenon, and this notion is highly relevant in relation to the skill-developing soldier. Since the process of optimizing performance (the phenomenon) is concerned with development of military skills suitable for different conditions and specific situations (the soldiers real-life context), it becomes crucial to understand the role of context in this picture. In other words, to separate the phenomenon from the context would produce a meaningless exercise. Yin (2009) even emphasizes that case studies are especially well suited: "when the boundaries between phenomenon and context are not clearly evident", and this may be exactly the case in this instance (p. 18). This notion also harmonizes with Dreyfus and Dreyfus' approach to skillful behavior. Context-dependent knowledge and experience are at the very heart of skill development and also the characteristics of skillful behavior (Flyvbjerg, 2006a).

As regards Yin's terminology, my case study should be considered as a *multiple-case, holistic design* (Yin, 2009). It is the phenomenon - soldiers' reach for optimized performance - which I seek to better understand, and so I have used four military exercises (single cases), involving four different teams, to build a broader foundation for my understanding. The exercises must be understood as being individual cases since the contexts are specifically bound to these exercises; they represent unique conditions, populations and settings. As such, I have tried to investigate what is similar and different about the cases - how the phenomenon shows itself and its manifestations – in order to better understand the totality of the researched phenomenon. In this respect, the cases

serve to contribute to a broader understanding about the phenomenon - not a comparison of different military units. The multiple-case design turns the focus from how to understand each specific case, towards how to understand the phenomenon as a whole, enlightened by the different cases (Stake, 2006). The study is holistic in the sense that at the core of the phenomenon there is only one unit in focus: the *soldiers'* reach for optimized performance. I could have focused on other units, and by that made the study *embedded*, for example examining how logistics or military strategists also influence the way in which performance is optimized; however, the topic of interest in this project is such that the focus is placed on the soldiers' own experiences.

Although the case study approach contains several issues that fit my own methodic considerations, there are at the same time challenging aspects that arise from the empirical orientation of this tradition. The case study is presented in what may be understood as a fairly rigorous methodological path and contains explicit procedures with emphasis on formal structures and strategies resulting from all phases of the case study (Yin, 2009 & Stakes, 2006).[56] It would be an exaggeration to claim that I have strictly followed these procedures; in fact it would be easy to arrest me for straying from the procedures considered as a path leading towards exemplary case study research. This has been an elaborated choice based on the argument that to investigate a highly context-dependent phenomenon must be founded on an approach that is highly sensitive to the ever changing conditions. The procedures and rules have as such been used as guidance to approach the field, but are further employed in a flexible way suited to fit the specific research project. I have tried to let the context, the specific situations and my own experiences guide my actions as a researcher, and I believe that this choice does not reduce the quality of the study, but rather - I hope - that it will contribute the opposite. I will argue that the case study orientation to social inquiry has worked more as an inspiration than a recipe for my methodic approach to investigating the chosen phenomenon.

[56] Yin (2009) describes strict procedures due to the different phases in case study research: a) Identifying the case and establishing the logic of the case 2) Preparing to collect Case study evidence 3) Collecting case study evidence 4) Analyzing case study evidence and 5) Reporting case studies.

(3) The methodical approach

In this thesis the elaborations of methodical issues will be quite extensive. This is motivated by what I consider a common comprehension amongst the journals in which my papers have peen published, that thorough descriptions of methodological aspects are not high priority. Without exception, I have been encouraged in the review process to: "Keep the methodical descriptions to a minimum". This has implied that my methodical approach, which I consider an important foundation for my writings and also a necessary source for the construction of knowledge, has only been a subject of shallow attention in the final versions of the papers. So, to give the readers the possibility to better grasp how I have reached my opinions, perspectives and understandings of the researched phenomenon, the following chapters are intended as an explanatory aid in this process. Before turning to a description about the steps taken to find a basis on which the four papers have bearing, a short outline of the project may be necessary. The thesis consists of four separate papers. Papers II, III and IV are based on extensive empirical material collected through different qualitative approaches, where participating observation of soldiers during winter exercises in northern Norway represents the most important sources of information.

Paper I differs from the other three in that it is thoroughly philosophical and is not based on, nor contains any empirical sources at all, at least not in a strict epistemological sense. The aim with this paper was to challenge Dreyfus and Dreyfus' phenomenological approach to skill acquisition by questioning whether their approach is able to capture the experiential reality upon which it ultimately must be based. In a way, this paper must be said to meet the challenge invited by Dreyfus and Dreyfus (1986) when they state: "You need not merely accept our word but should check to see if the process by which you yourself acquired various skills reveal a similar pattern" (p. 20). As such the paper contributes to question to what extent their approach may be considered a useful framework to better understand optimal performance within a particular skill domain.

How I approached Paper I, may perhaps best be described literarily as philosophical fieldwork, or perhaps the term 'dialogic Socratic method' is more appropriate. During a year long stay as a visiting scholar at the University of California,

Berkeley (2005-2006) I was lucky enough to meet Hubert and Stuart Dreyfus during a lunch at the Women's Faculty Club. I presented my thoughts, and since I had a practical approach towards the researched phenomena, they suggested that I keep in touch with Stuart. Stuart is considered as the skill model's architect and is most interested in the practical, but also pedagogical concerns of their approach.[57] He invited me for a walk in the hills of Berkeley, in the Tilden National Park. After, what was for me, this groundbreaking walk, Stuart invited me to walk with him as often as I wanted to discuss relevant topics concerning skill acquisition. Every Friday for the following year, I joined Stuart for a walk, normally lasting one and a half hours. Sometimes we discussed challenging academic questions, other times we just walked and talked. Through these dialogs with Stuart, I gradually explored the world of Dreyfus and Dreyfus' phenomenological approach to skill acquisition and I got to know it through experience with experience. I had the possibility of engaging in considerations and background conditions that are only partly available through written texts. Stuart became so interested in my project that he began to update himself on topics relevant to my project. Paper I must be considered as having developed as a result of these conversations with Stuart.

My approach regarding papers II, III and IV must be considered to bear on both phenomenological philosophy and on an empirical study situated within social science research. The empirical material is used to juxtapose and to enlighten the chosen theoretical framework, represented by the works of Dreyfus and Dreyfus. The following description of the approach leading towards the gathering of empirical material must therefore be considered a relevant foundation for the knowledge construction for Papers II, III, and IV.

My descriptions of the soldiers' lived experiences will of course never be more than a shadow of how the scenery appears from the soldiers' own perspectives. By the time the situations have reached my notebook, they have already, inevitably, been the object of some kind of interpretative transformation. But by creating a sort of intimacy with the soldiers' life-world, by 'borrowing' the soldiers' experiences and reflections of own their experiences, my aim through this project has been to add some color to this

[57] Hubert Dreyfus did emphasize during this lunch that the skill model was a life-long successful collaboration between the two brothers, but Stuart was the one that initially suggested to present the human skill acquisition process in a five-leveled stage model.

picture.[58] Van Manen (1990) states: “We gather other people’s experiences because they allow us to become more experienced ourselves.” (p. 62). And hopefully, the process of transforming life-world experiences to written descriptions has been done carefully enough to maintain a meaningful contribution to better understanding the phenomena.

The study bears on empirical material gathered through three different methodical approaches: participating observation, interviews and informal conversations:

Participating observation

To create a solid foundation for descriptions and interpretations I wanted to observe the soldiers on their home field. I hoped this would allow me to generate a more refined understanding of how these soldiers cope with different challenges in, what are for them, natural environmental conditions. Their practice arena, where soldiers’ capabilities are most explicitly exposed, stood out as a preferred place to start the investigation. I decided to invite myself as a participating observer during winter exercises.[59] Van Manen prefers the term “close observation” to describe his version of participating observation. He emphasizes that the best way to enter a person’s life-world is to participate in it, but at the same time: “Close observation involves an attitude of assuming a relation that is as close as possible while retaining a hermeneutic alertness to situations that allows us to constantly step back and reflect on the meaning of those situations” (van Manen, 1990, p.69). By engaging in close observations during *winter exercises* in the north of Norway, I expected to be able to grasp interesting situations when and where they actually occurred.[60] I would then use the soldiers’ experiences of these situations as a starting

[58] Van Manen writes about the importance of borrowing experiences from those observed; they allow us to become "in-formed," shaped or enriched by this experience so as to be able to render the full significance of its meaning (http://www.phenomenologyonline.com/inquiry/25.html).

[59] “Participating observation” is a common strategy among qualitative researchers. The term connects the two nouns’ “to participate” and “to observe”. Even if it is considered as a strategy, there are huge variations due to execution of the research, where some are emphasizing the participating part while others are more focused on the observational parts. See for instance Hammersley (2006).

[60] Why I have chosen winter as the preferred arena to investigate deserves a further explanation. Norway was in 2004, by the NATO Alliance, given the responsibility to develop and maintain the field of ‘Cold Weather Operations’. Norway was accredited as ‘Centre of Excellence - Cold Weather Operations’ the following year. By focusing explicitly on skill development inside the domain of winter, I consider this as a contribution to one of Norway’s obligations towards the Alliance. By focusing particularly on winter capabilities, I do at the same time narrow the researched field to a more manageable project. The fact that winter and skills sufficient to cope with winter conditions harmonize my own competencies should neither be neglected.

point for further conversations and discussions. The opportunity to live with the soldiers for a period of time would contribute to achieving closeness to the soldiers, and so give me the possibility to better get to know their world of skillfulness. It would also allow the soldiers to get to know me, my purpose and my role as a researcher in their teams; an approach which brought me out into the soldiers' landscape of training and practice. The study's empirical foundation must, therefore, be said to bear literally on field work.

Interviews

Two different types of interviews have been employed in this study. The most common type may be best termed as 'conversational interviews' (van Manen, 1991). These talks were conducted with soldiers during the exercises, both in one-to-one and group situations. The advantage of such conversations is that I was allowed to be responsive to the upcoming situations that occurred during the exercises. I also used these conversations to discuss and challenge the soldiers about relevant topics and to gather the meaning of their experiences. Since conversations of this type normally occurred quite spontaneously, they were not structured or planned in specific ways, and can be best understood as responses to what stood out as important at the particular moment they happened. Information from these unstructured interviews and personal conversations was written down in my field notes.[61]

I also carried out interviews with leading officers from the respective units' that I followed. Kvale's (1996) description of semi-structured research interviews were used as inspiration for these interviews.[62] These interviews were conducted to gain more knowledge about the ways in which the officers considered the specific exercises to support the soldiers' reach for optimized performance. I was also interested in their reflections about the outcome of the particular exercises. These interviews were carried out just after the exercises, normally in the units' garrison. According to Kvale and

[61] For further description about how I wrote the field notes, see the section called "Collecting information".
[62] Kvale describes seven stages of an interview inquiry; thematizing, designing, interviewing, transcribing, analyzing, verifying and reporting. But as Kvale and Brinkmann (1990) also state: "No standard procedures or rules exist for conducting research interview (p.99). I will argue that all seven stages have been taken into consideration and have influenced the way the informants were approached, and also how the empirical material has been prepared afterwards.

Brinkmann's (2009) writings, these interviews may also be regarded as "interviews with elites" (p. 147)[63], as they were all leaders in powerful positions.

Interviews have also been carried out with soldiers' and officers after end of mission; both conversational interviews and research interviews. These interviews were mostly concerned with reflections about the interviewees' own experiences from the previous military operations. During such interviews, I tried to approach each soldier individually and selectively in order to capture the uniqueness each represented. Additionally, the interviews should each be considered as following the same kind of approach (see the appendix for an example). The research interviews were taped and have further been transcribed by an external transcriber into written texts.[64]

Informal conversations

To supplement my observations and interviews, I also collected information through several personal conversations with soldiers and officers other than those regarded as my informants. These conversations were conducted both in relation to the four military exercises and to other military settings. The information gathered through these conversations has enriched my understanding of the investigated topics, but has only been used exceptionally for quotations or analyses in the thesis. This is due to ethical concerns. Such conversations normally developed quite spontaneously as interesting discussion and personal statements in settings where those involved did not know about my purposes as a researcher, which therefore implied that I had not gained any informed consent. Such situations became a challenge for me as a researcher. On one side I acquired information that was important as a foundation for a better understanding the investigated phenomenon, yet at the same time, would the soldiers have given me the same information if they knew about my purposes as a researcher? When information from these conversations is, occasionally, used as foundation for argument in my papers,

[63] 'Interviews with elites' do, according to Kvale and Brinkmann (2009), require thorough knowledge about the topic of concern. This notion is further discussed in Chapter 4, in the section called 'Skills needed as an investigator'.

[64] Reliability as a result of transcriptions is a recurring theme in methodical literature (see for instance Kvale, 1997). To use a professional external transcriber was chosen to save time. The lack of intimacy with the texts is stated as a methodical weakness by not transcribing it myself. The transcriptions have been checked towards my own attempts on random places, and I do not consider the transcriptions as a source for reduced methodical quality.

this has been done with the informants consent obtained after the situations occurred. I also invited the contributors to read through the passages, some of whom did before they permitted its use.[65]

Analysis

Since the empirical material has been gathered through different methodical approaches, the analyzing process has taken different directions due to the characteristics of the different material. The field notes derived from the participating observations are anecdotic and reflective in style (see Chapter 4, section called: "Collecting information"), and the analyzing process must be considered as a continually ongoing process that started already whilst writing down the anecdotes and reflections, or maybe even before. As van Manen (1991) emphasizes, to gather experiential information and to analyze it may be seen as part of the same process. Through observations and conversational interviews the ongoing engagement with reflections shaped the direction. Those that turned out to be fruitful paths to follow were often a consequence of incidental happenings; they became salient because of the situations in which they occurred. New themes stood out while others decreased in importance. In this way, the analysis of the field study may be seen as a snowball process; the themes which gave order and direction to my research and writing were influenced by the particular situations I experienced. But to understand this snowball process as a totally unstructured approach may give a lopsided description of the actual process. What I tried to accomplish was to structure the reflections, statements and anecdotes in *phenomenological themes* during the gathering of empirical material (Ibid). And these phenomenological themes were sought to consist of experiential structures of meaning. What I tried to avoid was to think of themes as conceptual formulations or categorical statements. Van Manen states: "After all, it is

[65] As an example of such information gathering, I spent four days together with a unit existing of 24 soldiers and officers in the mountains in the middle of Norway. They had just returned from a half year deployment in Afghanistan only five weeks before of this exercise. The unit needed time to talk through their experiences and just be together. They spent the days skiing around in the mountains in small groups and they also practiced basic winter skills. During such activity, the soldiers needed to "empty their hard disc", but due to the setting I considered this kind of information as unsuitable for use. They were not even always aware of my research project and I had not gained informed consent from these soldiers prior to the exercise. Although I do not use this information explicitly, it inevitably contributes to enrich my understanding of the challenges they were facing in Afghanistan. And as such, it is also inevitable that it colors my writings.

lived experience that we are attempting to describe, and lived experience cannot be captured in conceptual abstractions" (Ibid, p.91). Rendered possible by hermeneutic reflection, the themes were challenged and shaped by the reflection about new experiences. Because of the diversity between the four military exercises (the cases), it became necessary to create new phenomenological themes in order to capture the uniqueness of each particular exercise. To take an example: Exercise nr 4 differed from the others in that it was particularly designed to prepare the soldiers for deployment to Afghanistan. It turned out that the impetus to reach for optimized performance, represented by these soldiers, did not fit into the phenomenological themes developed during the first three exercises. I therefore had to create new ones.

Already during the exercises I had a clear sense about how the material I gathered would fit into and enlighten certain themes. As such, the process of analyzing the material was very much in progress at the time that each military exercise ended. Of course, the field notes have afterwards been read through, again and again, and the meaningful content of the anecdotes and reflections has been used to enlighten the chosen themes, but often this process felt more like a necessity in order to create firmer arguments about the already analyzed material. The gathered information from the exercises has further been juxtaposed to the information collected through the interviews.

The process of analyzing the interviews took a slightly different turn. Since the gathered material consisted of both transcribed interviews (the research interviews) and notes (conversational interviews), these two sources of information had to be merged together. The initial analysis process started with what is termed 'meaning condensation', whereby natural units of meaning that attracted my interest were detected (Kvale, 1996).[66] Through a process characterized by thorough readings of both the transcribed materiel and also the notes, natural units of meaning were searched out. These units of meaning, presented by statements and extracted information from the conversations, were categorized into three skeletal mind-maps, each representing the papers which bear on the empirical material. Since the papers aim mainly at challenging philosophical arguments with descriptions of the soldiers' lived experiences, these mind-

[66] The process of analyzing the empirical has not been aided by the use of any computer software. The volume of transcribed interviews was not more than I felt was manageable without such a tool.

maps gave me the possibility to see the relationship between the soldiers' statements, the corresponding theory and also the observations gathered through the exercises.[67] The mind-maps, containing these three sources of knowledge about the researched phenomenon have been further employed to develop the outlines of the papers. The process of analyzing the material has also caused further gathering of information. New insight, rendered possible by a reflective treatment of the analyzed material, has discovered a demand for emphasizing new perspectives. Rendered possible by a flexible design, these perspectives have been investigated through further conversational interviews with chosen soldiers.

The chosen teams

The teams I was permitted to observe were considered as some of the best teams inside their unit.[68] The teams were selected by so-called '*social acclimation*' by the unit's officers. Social acclimation is considered as an acknowledged procedure among expert-researchers (Shanteau et. Al, 2002). My eagerness to follow the unit's best team was derived from my focus on high level skill execution, and I wanted to address this focus by observing those considered as the best. Of the four teams I had the opportunity to observe, three of them belonged to two units under the Norwegian ISTAR structure (Intelligence, Surveillance, Target Acquisition and Reconnaissance). These units are force producing units for the Norwegian contribution to the International Security Assistance Force, Regional Command North (ISAF RC N) in Meymaneh, Afghanistan. The fourth team belonged to one of the Norwegian Home Guard units in the north of Norway: I chose this unit to contrast my observations of the three other teams.
In total, 24 soldiers were observed at close range during these exercises. Out of these, only one female soldier was a part of the teams (exercise nr 3). This imbalance in

[67] This way to organize the gathered material may be exemplified by Paper III. My aim was to enlighten Heidegger and Dreyfus and Dreyfus' descriptions of 'breakdowns' - how expert behavior may be interrupted by different circumstances. Through an extracted outline of their philosophical arguments supplemented by both information gathered through participating observation and interviews, it gradually developed into a thematic whole, aided by the mind map.
[68] The latter criteria were established due to one of my initial intentions with the study. The question: "what characterizes expert soldiers?" has later been toned down and the reach for optimized performance has been emphasized. But I still find the criteria expedient to my research question since I have got access to motivated and skillful soldiers.

representation of the sexes should be considered as representative for the units in which I engaged. Because of limited experiences with female soldiers in the chosen teams, topics concerning gender have not been included as a part of this thesis. This does not imply that gender should not be considered as an interesting topic when looking at soldiers' reach for optimized performance, rather that it is outside the scope of interest of this project.

The Cases

Exercise nr 1

January 2005

I joined a reconnaissance team for nine days in the mountains in the north of Norway. Seven soldiers, including me, were supposed to escape into the mountains from 'an enemy'. The team, unsupported and equipped with skies and tents, had to try to remain undiscovered by the following scooter patrols. The weather was considered by the soldiers as quite good, with temperatures between minus 5 and minus 20 degrees Celsius (24 to minus 5 degrees Fahrenheit). The daily average distance of tactical movement was about 15 kilometers (8 miles). The team was composed of one experienced patrol leader (thirty-two years old) and five soldiers under qualification for employment in the unit (between twenty-one and twenty-four years old). Employment is a requirement for deployment to Afghanistan, which for these soldiers was a potential reality in the upcoming autumn/winter. Access to this team was enabled through personal contact with the commander of this unit. Prior to the study, I had assisted in this unit as an instructor in military winter disciplines and my contact was indeed helpful and supportive.

I was invited to join as 'an ordinary' team member, something that implied I was considered as one of seven soldiers on this particular exercise; wearing the same uniform, using the same equipment and performing the same tasks as the other soldiers. I was given the role of MG2 (second machinegun man), which has the position of the last man in line responsible for carrying ammunition to the machine gun. The MG2 is perhaps the least honorable position in the team, with no other tasks than carrying a heavy load. The team was not even equipped with a machinegun on this exercise, so I actually had no

responsibilities or duties other than to carry my own food and equipment. This free role gave me the opportunity to ask questions and discuss some of the situations that occurred with the soldiers whilst skiing.

Since this was my first exercise, I felt I had to be patient, curious and deferential to the soldiers. It was a kind of trail of what would work, while the soldiers got used to my presence. My approach was to just let things happen, and I had few explicit topics that I had decided to focus on prior to this exercise. This does not mean that I approached the team as a blank slate. Given my extended experience with winter skills, I felt I could discuss most of their challenges on much the same level as they did.[69] Gradually, I experienced the group involving me as a peer, rather than an observer. The exercise was followed up by two research interviews with the unit's commander and second commander. Paper III ("From Expert Skills towards Optimized Performance") is founded on the experiences from this exercise.

Exercise nr 2

March 2005

I joined a team from the Norwegian Home Guard for a four day long winter exercise in the north of Norway. Six soldiers, including me, set out to practice basic winter skills in primarily night-based activities, such as navigation through the snow-covered landscape equipped with skis and snow mobiles. The weather was considered by the soldiers as very good. The temperature was between 0 and minus 15 degrees Celsius (32 to 5 degrees Fahrenheit). There were mostly clear skies and not much wind. The soldiers, who were between twenty-six and thirty-five years of age, were involved in this service on a part-time service, alongside ordinary employment in different branches. To participate in this military unit is voluntary and with low salaries from the military they in fact have to reduce their personal incomes during these days. This resulted in highly motivated

[69] My extended experience with winter skills should be emphasized, since it must be considered as tightly connected to the chosen methodical approach. Beside my Masters degree in outdoor education from the Norwegian School of Sport Sciences, I have also worked three years as an adviser for the Norwegian Red Cross Search and Rescue Corps - with winter and mountain rescue as my specialty. I also have experience as a mountain guide, glacier instructor, ski instructor and have been responsible for avalanche courses. My engagement with military units has mostly concerned basic winter skills, tactical use of the terrain and how to avoid avalanche danger.

soldiers and their experienced-based skills emerged to be outstanding. This military part-time service is a kind of lifestyle for these soldiers. Since the Home Guard recruits locals, the practice areas were well known to the soldiers; most of them use the same area for fishing and hunting. They managed to navigate steadily in total darkness, without even having to refer to the map. Access to this unit was arranged by their commander who had participated in an avalanche rescue course I had led a couple of years earlier. The exercise was followed up by a research interview with two of the unit's responsible officers (together).

Although I was invited to join the team as an ordinarily team member, the exercise did not turn out quite as I had hoped and expected. The team was well organized and they slept together in two tents with their closest team mates. Since there was not enough space inside their tents for me, I had to bring my own, and so I was accompanied only by my field stow and my own thoughts. I tried to assimilate into the team during the different activities, but I felt it was hard to take part in their interpersonal communication. The different activities did not invite for discussions either. The team focused on remaining undetected by other patrols, and this involved a strict regime of silence and keeping out of sight. After the night-based activities, the soldiers were more interested in getting into their tents than discussing skill acquisition with me. I really felt like an outsider.

Exercise nr 3

January 2007

I joined a ranger team for a six day long exercise in the north of Norway. The team, consisting of seven soldiers (aged between twenty and twenty-four years old), were practicing infiltration and ex-filtration techniques using snow mobiles, skis and snow-shoes. They were also practicing basic winter survival skills. The soldiers, except for the patrol leader, had served for only seven months prior to this exercise. Some of these soldiers obtained long-term contracts with this unit after 12 months, and some of them even went to Afghanistan the following winter. At the time of this exercise, I considered the soldiers as quite inexperienced for the challenges they were exposed for. It was an extremely cold week with temperatures between minus 20 and minus 37 degrees Celsius

(minus 5 to minus 34 degrees Fahrenheit). After a 30km (20 mile) long snow mobile ride, the soldiers established a tent camp which they used as a base for the whole week. The base was also used by five other teams belonging to the same unit. Access was arranged by a proposal to the head of the unit. It transpired that he knew about my research and was eager to involve his unit in my project.

Again I started out as an ordinary team member during this exercise, but the patrol leader became ill and was evacuated after two days. The next leader in line was somewhat inexperienced with severe cold conditions, so he requested that I function as patrol leader together with him. I would be in charge of procedures inside the base, while he would run the different tasks during daytime. This situation was quite unexpected, but at the same time necessary, and my new role was both challenging and interesting. Challenging because focus on the research project was hard to maintain and interesting because it gave me a new and different angle for my observations. Even though I felt well included in the team, I was not considered as a peer, but as their commander. Since the soldiers were not used to expressing their reflections and experiences with their commanders, it took some time before I felt the communication became fluent.

Exercise nr 4

November 2007

I joined a ranger team for a five day long exercise during their last preparations prior to deployment to Afghanistan. The team, consisting of four ordinary soldiers (twenty to twenty-six years old), one patrol leader (twenty-seven years old) and one liaison officer (thirty-two years old) were exposed to several situations they would probably face in Afghanistan. One of the soldiers had previously served in Afghanistan, whilst for the others it would be their first time. This exercise was different from the previous ones in that all activity was centered on the use of wheel-based vehicles, rather than skis or snowmobiles. This was due to the fact that the operational concept would be based on such vehicles in Afghanistan. The team's prioritized tasks were to practice and drill procedures in regards approaching challenging situations, to maintain own security, to build up well functioning logistics and to optimize the teamwork. The team slept beside their cars under a large tarpaulin. The weather was challenging, starting with wet falling

snow and ending up with minus 15 degrees Celsius and strong winds. The last night was probably the coldest I have ever experienced. Access to the unit was not an issue as this was the same unit as exercise nr 3 (but different soldiers, except one), and the unit was happy to see me back.

This was the first exercise in which I had no ambitions of becoming an included part of the team. Since the team was drilling procedures for the upcoming deployment to Afghanistan, and since I had no part in these drills, I decided to observe the soldiers from the sidelines. I traveled together with them in their vehicles for the whole week, but when they approached new situations I took a step back. The fact that their procedures were also quite new to me, compared to more basic winter skills, meant that it was harder to discuss their experiences of this kind of operational concept. The exercise was followed up by an interview with the officer in charge. He had served in Afghanistan six months previously and used his experiences to create cases that were as close as possible to his experiences. I also got the opportunity to interview the soldiers and officers about their experiences in Afghanistan, after redeployment. A central topic was concerned with how they considered the training and practice prior to the deployment to be suitable and relevant for their missions in Afghanistan. Paper II ("Should Soldiers Think before They Shoot?") and IV ("Winter as the Number One Enemy") build mainly on the findings from this exercise.

4) Reflections considering the methodical approach

In order to show how the chosen methodical approach has influenced the construction of knowledge about how soldiers reach for optimized performance, an outline of my experiences from the gathering of empirical material will be presented. This presentation will also show how my hermeneutic and phenomenological approach has influenced my construction of knowledge during the process.

About explicating one's pre-understandings

Van Manen (2002b) emphasizes that one should explicate one's own pre-understandings and that our pre-understandings and assumptions should continually be open to questioning: a notion that has turned out to be easier said than done. Through my research project, I have experienced that this exemplarily path toward solid research is difficult to attain in real life. This is due to the nature of our pre-understandings, which often turn out to contain tacit dimensions. And such tacit dimensions are not often, if at all, made explicit before they are challenged through specific situations during the process of gathering information. How theory about the topic contributes to establish one's own pre-understanding is perhaps the kind of pre-understandings that is easiest to make explicit. To examine available theories and to discuss how they inform the body of knowledge about the topic will shape one's own opinions and expectations; our pre-understandings. This also implies that one needs to question the extent to which theory is able to capture the exhaustible richness of the praxis; one needs to get beyond the filters which prevent us from seeing the phenomenon as it expresses itself to those involved (Ibid). To take my own research project as an example: Dreyfus and Dreyfus' approach to skill acquisition should, as such, be seen as one of the important features in this scenery. Or in other words, my explicit theoretical pre-understandings are unavoidably colored by Dreyfus and Dreyfus' phenomenological approach to skill acquisition. In such a way, it is important that my pre-understandings about Dreyfus and Dreyfus' approach do not

prevent me from challenging how this approach captures the experiential reality upon which they ultimately must be based.

Pre-understandings that are harder to make explicit are those inevitably connected to one's own experience, background, age, culture, gender and so forth. We are who we are, for better or worse, and are undoubtedly influenced by the world which encompasses us. To make explicit all our standings in this ambiguous world is challenging. Our pre-understandings are so inevitably connected to our person and to our society that it becomes invisible to us. I have asked myself: "Why did I choose winter exercises as the preferred arena to research the soldiers' reach for optimized performance? Why did I not use their daily life in the garrison instead?" I will argue that the choice was obvious (or at least it was for me), but this belongs to my tacit pre-understandings. It was so obvious that I did not even question it ahead of the process leading towards the collection of information. And this is only one example. We orient ourselves in the world, making decisions and choosing between options, without explicitly knowing why; it is just a part of our nature. So even if I have tried to make my pre-understandings about the researched topic explicit, these pre-understandings will never be fully explicated. But those, of which I have been aware, have been continually open for questioning. And maybe more importantly, there are several pre-understandings that have become explicit during the process because they have been challenged by the researched phenomenon.

About access

Gaining easy access to highly skillful communities of practice may not always be the case in qualitative research (Hertz &Imber, 1995), and an external researcher in military communities is no exception. As I have pointed out in the description of the different military exercises, access was arranged in different ways through officers functioning as so-called "gate keeper's" (Hammersley & Atkinson, 1996). Without the gate keepers, access would have been more difficult. On two occasions my requests were even rejected. The first time this happened was when I proposed to follow the same unit as I had observed during exercise nr 1. This was about two years after my first field study with this unit, and the previously helpful officers had been replaced by new leaders who,

due to hectic circumstances, did not have time to organize my visit. The second rejection came after a proposal to follow a team in a unit where I did not have a gate-keeper or any contacts at all.[70] My request was politely declined.

About acceptance

Perhaps even more important than gaining access to the teams was getting acceptance from the team members. This acceptance was not in relation to my presence as part of the team during the exercise, but as someone with whom the soldiers wanted to share their experiences and perspectives. I considered the importance of being accepted as a contributing team member as crucial to my role as a researcher. The fact that I stress the notion of being accepted as a peer may perhaps be seen as over-emphasized in this presentation, but given the information I was able to collect during my research I consider this an important aspect. As a participating observer, I wanted to establish both a subject and an object relation to those I was observing. The subject relation was necessary to create a climate that invited the soldiers to express their own feelings, preferences, opinions and experiences. I wanted to research *amongst* them in order to be able to grasp their own perspectives.[71] This required some kind of trust, acceptance and closeness. Of course, it is naïve to believe that it is possible to become fully integrated or included during a one week exercise; rather the aim might be to interrupt or hamper their normal behavior as little as possible by my presence.

To attain an object relation to soldiers could also be seen as fruitful in order to observe typical attitude, skillfulness and other characteristics *about* them (Huang, PDF, 2010). These observations may be used to detect patterns of behavior, gestures and bodily actions. Merleau-Ponty (2002) argues that bodily actions and gestures are an important human source for expression and communication and, as such, will contribute to complement the information gathered through speech and verbal communication. Since I wanted to collect both spoken and visual information about the soldiers, the observations

[70] It may be argued that I could have placed more pressure on these units by attaining a recommendation from higher military hold, but I did not feel that such an approach was right. To participate in a unit that was negatively prepared to have me as an observer could have turned out to be difficult.
[71] The philosophical discussion about different perspectives taken in social research is by others addressed by Dennet (2003). His main argument is that even if the aim is to communicate the first-person perspectives of others, it turns inevitably out to be a third-person methodology, even if conducted properly.

could contribute to capturing experiences expressed through bodily actions. But if I again needed their expressions about their own behavior, I had to attain a subject relation to those I observed.

Since the soldiers knew I was observing them for the purpose of research, I felt some kind of skepticism at the beginning of each exercise. Just by engaging in interaction I became aware that I was also an object for observation, by the soldiers. And I did not even have to express myself verbally to influence the situational atmosphere. Merely being present made me a participant. Luhmann (1995) states: "In practice, one *cannot not communicate* in an interaction system; one must withdraw if one wants to avoid communication" (p. 413).

My pre-understandings told me that to establish a subject relation to the soldiers, I should try to overcome this threshold of distance as quickly as possible. Exercise nr 1 developed quite successfully for me. After a very steep climb of about 1000 vertical meters at the end of the first day, my contribution of pulling one of the two heavily-loaded sleighs showed the soldiers that I was willing to and capable of taking my share of the burden. One of the soldiers named me: "*the ox*" and I took this as a compliment. I was of course, due to methodical concerns, afraid of influencing the group too much, but at that moment I felt it was natural to contribute as much as I could. I had chosen to be an ordinary member of the team, and by that I felt it wrong to place limits on my involvement. It is important to emphasize that this involvement was only to help out the team out on a tactical level – I did not interfere on an operational or strategic level. This climb also gave me a joint experience with the soldiers, and as they had the advantage of having me in their team, I felt a kind of acceptance.

This experience was just what I hoped I could learn from this first exercise. To experience how my contribution to the team could open up further possibilities for my research interests was important. Hard physical work together with the other soldiers contributed to achieving acceptance, open-mindedness and the beginnings of some kind of friendship; at least in this team under the prevailing conditions. Positions, grades and formalities disappeared as we struggled together towards the same goals. I perceived my approach to achieving acceptance during exercise nr1 as fairly successful, so I wanted to follow this pattern on the upcoming exercises. I was quite surprised, and a little

disappointed, that this strategy did not work at all during the next military exercises. During subsequent exercises I was afforded no opportunities to contribute in the same way. Exercise nr 2 involved mainly night-based, low-intensity activity, and exercise nr 3 and 4 were primarily snow mobile and vehicle based, which also resulted in low intensity activity. I therefore needed to find other strategies to win favor, yet to what degree I really achieved this ambition is questionable.

Another aspect of my acceptance became explicit during exercise nr 4, when I met the team for the first time. They were told I was joining them for the purpose of research, but they really did not believe this. They thought I was evaluating them, assessing whether they were capable of their upcoming mission in Afghanistan, and they believed that I could disqualify them from being deployed. This suspicion resulted in extreme skepticism from the team, and although I tried to convince them of my true purpose, they were hard to get close to. It took some days before they accepted me as a participating observer in their team. Or, so at least, I thought. After the exercise I saw some pictures taken during the week and I had, subsequently, been removed from the cards by careful use of the software Photoshop.

It is an interesting notion that my understanding of being accepted as a peer by the team harmonized with their use of humor and jokes. At the beginning of an exercise, if I tried to take part in a social interaction within the team, I felt the cordial atmosphere amongst the soldiers disappear. They became more formal and stopped using the humor that was such an important ingredient in their interpersonal communication. I will argue that it is possible to uncover a kind of switch in my field notes attributable to the closeness I achieved to the soldiers' life-world, and respectively the richness of their expressions about different topics. This switch happens to occur about the same time that I started to experience being joked with in the same way as they joked with each other. I became aware of this after exercise nr 1, and I subsequently used this as a kind of thermometer to measure how included or accepted I was during the military exercises that followed.

The same pattern emerged during exercise nr 3, but this switch never really occurred during exercises nr2 and 4, which perhaps goes to indicate that I did not become included in these respective teams? During the second exercise I was not invited into the

inner life-world of the soldiers, and so did not have the possibility of achieving such acceptance. The nature of the practiced activities, that I slept in my own tent and that the exercise only lasted for four days, may be, in part, an explanation. During exercise nr 4 it was never the case that I should join the team as an ordinary member since they were drilling routines for the upcoming mission in Afghanistan.
The role I was permitted to play during each exercise was also partly out of my control, and I just had to accept that my research would be influenced by this. It is also an interesting reflection that even with gradually increasing experiences from field studies; an increased experience was not any guarantee for increased outcome for my research. I will argue that exercises nr 1 and 3, the two exercises where I felt best assimilated in the teams, became the most valuable exercises with which to construct a phenomenological understanding of how the soldiers reach for optimized performance. I had expected that increasing experiences with concrete context-dependent situations would have contributed to placing me in an increasingly better position for gathering interesting information. But with each different exercise the context changed sufficiently to render my experience-based research routines less valuable. With each exercise I had to find new approaches to optimize the outcome. But perhaps this is just what development of research skills is about; being able to adapt ones own strategies to fit changing situations and contexts, whilst maintaining a reflexive attention towards how this influences the outcome. So even if the perceived outcome of the exercises did not increase, it may at the same time have contributed to increasing my research competency.

About how to utilize the conditions to gather information

Exercise nr 1 was very useful for testing different procedures for collecting information, and the procedures I considered as successful have been used in the subsequent work. One, in particular, involved the use of a tape recorder. In the beginning of the exercise I was very eager to record all the statements, interviews and conversation on tape in order to have authentic statements with which to work later in the process. This, however, turned out to be difficult. One challenge resulted from the battery’s capacity when the

temperature got close to minus 20 degrees Celsius. Another, maybe more important experience in my collection of information, was that in regular conversation the soldiers were engaged and expressed themselves fluently, but when I informed them that I was turning the recorder on, it was like turning a switch on them too. They started to articulate themselves in more formal ways, they stopped swearing, their jokes disappeared and their meanings were more inclined towards, what I believe are considered as, correct military answers. I tried to record some conversations while skiing, but the result was the same; the soldiers' descriptions were hampered by the recorder. I contemplated turning on the recorder without letting the soldiers know, but I never yielded to the temptation of what is an ethical grey zone. My reflection on the use of recorder caused me to abandon this form of information collection during the exercises, and instead I wrote field notes to preserve the soldiers' opinions.

When taking notes I used two different strategies. One was to write as accurately as possible what my interviewees were saying. I tried to collect specific statements and write notes as quickly as possible after the particular events, often during small breaks. I consider these collected statements to be quite authentic, but at the same time my field notes are of course a selective sample of all situations and statements that were produced during the exercises. The possibility to go back to a text, like utilizing a transcribed interview for further analysis, disappears. This may be problematic if I, through a later extended understanding of the phenomenon, should be interested in investigating aspects other than those that stood out as most important to me at the time of the field study.

The second strategy was to collect anecdotes and reflections containing an essence of what appeared important in observed situations and in conversations. Such anecdotes and reflections could be descriptions of particular observed behavior, they could be some kind of pinpointed opinions that became explicit through discussions, or they could also be my own reflections of what I had experienced. Such anecdotes and reflections were written down, often during the evenings in the tent, when I had time to reflect over the different happenings that had been played out during the day. I also used the time during my night watches to write down my experiences. Some anecdotes were written down after the exercises, when I perceived that some events I had experienced were more interesting than first realized. I have even written anecdotes about a particular

exercise after observing other teams. For example, after exercise nr 3, I realized that several aspects concerning the soldiers' background, observed during exercise nr 1 were more important than first expected. Van Manen emphasizes this aspect when he states:

> Sometimes the best anecdotes are re-collected as one tries to make sense of things that somehow seem interesting now, in hindsight. Such recollections occasionally makes it difficult to remember what precisely was being said or what exactly happened that made a situation stand out. And yet it is important to try to recover those living phrases and incidents that give the anecdote a cogent power or point (van Manen, 1990, p. 69).

This kind of information gathering is of course a methodic challenge with strengths and weaknesses. On the upside, the anecdotes concerning the soldiers' experiences enable me to express what I consider as meaningful content in specific situations. On the other side, the anecdotes have of course also been interpreted by me in the writing process, and are therefore my understanding of what I observed and of the information told to me by the soldiers. As van Manen (2002) emphasizes, such field notes must be seen as "interpretations of the interpretations" compared to the lived experiences of the soldiers:

> We need to realize, of course, that experiential accounts or lived-experience descriptions are never identical to lived experience itself. All recollections of experiences, reflections on experiences, descriptions of experiences, taped interviews about experiences, or transcribed conversations about experiences are already transformations of those experiences. Even life captured directly on magnetic or light-sensitive tape is already transformed at the moment it is captured. Without this dramatic elusive element of lived meaning to our reflective attention phenomenology might not be necessary. So, the upshot is that we need to find access to life's living dimensions while hoping that the meanings we bring to the surface from the depths of life's oceans have not entirely lost some the natural quiver of their undisturbed existence (van Manen, 2002b).

This notion lays emphasis on *me* as a tool in my own project. The generated knowledge concerning the soldiers' life-world must be regarded as a synthesis of both the soldiers' ability to describe their own understanding of the phenomenon and my interpretation of their understanding of the phenomenon. There are passages in the field notes, which I have used later in the project, that are quotes from conversations where I have tried to

recreate specific statements as literally as possible. These statements will only occasionally be an exact reproduction. They are often transformed by my interpretation, and they are also translated from Norwegian to English. In other places the writings are influenced by several voices, a kind of consensus of meaning inside the team. This way of reproducing and even constructing the soldiers' meaning requires a great deal of trust and reliance amongst my readers. My intention throughout, has been to give as precise and trustworthy a description of the soldiers' account of their life-world as possible. But despite good intentions the perspectives are undeniably seen, interpreted and presented through my eyes.

Another interesting observation gained from collecting information is the central role the tent plays in my research. During two of the exercises (nr 1 and 3) I slept in tents together with the soldiers. During the second exercise I slept in a tent by myself, and during the fourth exercise I slept together with the soldiers under a large tarpaulin. The evenings in the tent turned out to be crucial in terms of the information I was able to collect. In the beginning of the first exercise I more or less interviewed the soldiers by presenting specific topics, but I soon realized that this was not the right approach. After some days I socialized during the evenings with them on their terms. This change opened up a landscape of stories, opinions and reflections that I had not imagined I could be part of. They talked about their childhood, their friends, their families, their preferences in life, their ambitions, their view about military service, their girlfriends and so on. Much of this was of course irrelevant for my research, but now and then they touched upon topics that were crucial for my understanding of their reach for optimized performance.

In the exercises that I did not sleep in a tent together with the soldiers, the link to this kind of information was totally unattainable. During exercise nr2 I tried to visit the soldiers in their tents after the day had ended, but I felt like a stranger. I had crossed their threshold of privacy and I had to return out into the dark night with unanswered questions. Not even the tarpaulin gave the right atmosphere for such conversations. Maybe it was the lack of intimacy – something that the narrow space inside the tent provided during exercises 1 and 3 - but I never managed to get close to the soldiers under such conditions.

About how to detect skillfulness

One of my aims for exercise nr 1 was to develop my own sensitivity towards the detection of skillfulness. I was especially eager to see whether patterns emerged as to the kinds of situations that challenged and forced the soldiers to explicitly show high levels of skillfulness. My presupposition of this topic told me that dramatic or critical situations would contribute to showing me differential levels of skillfulness for to different levels of experience. I thought it was reasonable to believe that such situations would separate the best responses from the average; that the most experienced soldiers would be able to cope better with such situations.

Based on this pre-understanding I was quite disappointed that not much happened during the first days. Although the team was continually engaged in different tasks and procedures, everything went along smoothly. They skied through the terrain in a steady style. They took precautions to avalanche danger, they avoided getting frostbite and they maneuvered tactically to avoid capture by the chasing patrols. In my field notes from day three I wrote: *"Nothing particular happened today either"*. On day four I wrote:

> Finally, an exciting situation! After a quite exhausting day with drifting snow and several heavy climbs, we finally found a nice place to camp. Then, suddenly, while we established our camp, one of our tents was taken by the wind and blew away. It went close to 1000 meters before one of the soldiers managed to get his hands on it. Wow!

But afterwards I asked myself, was this situation in any way suitable for detecting what I was looking for? Even in my eagerness to experience highly skillful behavior through dramatic situations, I realized that this situation had not given me much insight into the phenomenon. It was rather an example of how not to treat a tent while setting up in windy conditions. It was a kind of contra-indication; the event was better understood as incompetence or inexperienced behavior that caused the situation, rather than the skillfulness used to resolve it. The challenging situations arose as challenging because the soldiers had no experience of how to cope with them. Dreyfus and Dreyfus state that even experts have to deal with novel situations in a beginner style, by deliberate and analytic behavior (ref Paper II). I asked the soldiers, after the situation with the blowing tent, if

any of them had been involved in such a situation before. Only one of them could confirm that he had and consequently they were all beginners to the situation of tents blowing away. In that particular situation, experience would perhaps not have helped them to catch the tent faster, but it may have helped them to avoid the situation in the first place. Skiers on polar expeditions never set up a tent without first anchoring the tent to the snow. Several more challenging situations occurred over the following days but again these were all caused by inexperience, poor decisions and lack of skills. One pattern that did emerge from these dramatic or challenging situations was that they could all have been avoided if the soldiers' skills had been sufficient to cope with the situations. Another pattern I observed was that the most experienced soldiers never caused these challenging and dramatic situations.

The episode with the tent was, in a sense, a breaking point in my observational approach. Instead of focusing on challenging situations I started to focus on all small steps and procedures taken to avoid the challenging situations from happening. In fact, the ability to cope steadily and smoothly with upcoming situations stood out as an explicit representation of high levels of skillfulness. The three first days of the exercise, when not much happened, was in fact an example of highly skillful soldier behavior. But as an observer, these small steps and procedures may be hard to detect. It is merely the soldiers' daily coping with the whole situation, with their equipment and with each other. Like when the scout now and then check his compass to ascertain that the direction is correct. Like when a soldier takes a look at the next soldier's cheeks to make sure that no white spots indicate a developing frostbite. Like when the soldier takes a last look at his equipment before jumping into his sleeping bag, knowing that, if the situation requires, he will be able to find his equipment and get dressed in total darkness. Like when the team leader selects the place for the upcoming night's bivouac, heeding all requirements for protection, concealment and escape routes. These small steps, maintained by highly sensitive awareness to changing conditions, have shown to be the essential foundation for high skillfulness. And so, it became much easier to detect a lack of skillfulness than skillfulness itself. Or at least a lack of skillfulness is often exposed through the unexpected and problematic situations that occur moments after poor decisions are made.

Another interesting observation during this first exercise was that as the days went by, so the challenging or critical situations increased. As I wrote in my notes, not much happened the first days. But during the second half of the exercise, an increasing number of challenging situations occurred, and they were without exception caused by what appeared to be behavior stemming from lack of engagement or focus. One night we came close to detection by a scooter patrol because the night guard fell asleep. One soldier got serious blisters on his heel because he was ignorant about maintaining his personal hygiene. A stove broke down because it was not properly looked after. We came close to missing the pick-up point because one soldier did not bother to double-check the appointed hour. These situations were more or less caused by the same few soldiers. When I asked one of the soldiers, not responsible for these situations, his opinion about the pattern I had, arguably, found he confirmed: *"You are right. They are not 'on' anymore. They are looking forward to end this exercise."* I replied: *"What about you?"* He answered: *"I can't do anything better than being out here."* When I joined this soldier during his night shift as guard, I understood more about his statement. He was really 'on'. He continually improved the checkpoint, he updated the team procedures and he held a strict regime to keep himself dry and warm. Later on, when I joined one of the soldiers who appeared to have problems sustaining his motivation, I saw a totally different approach to this task. This soldier was only interested in sitting down in a comfortable position inside his poncho and being well dressed up in a sleeping-bag. These observations gave me the understanding that skillfulness corresponds highly with the soldiers' motivation, and that the soldiers' motivation is, for some of them, hard to maintain for a longer period of time in harsh climatic conditions. When I asked this 'sleeping-bag soldier' about his motivation he answered: *"I am counting the hours."* I followed up with questions about whether he considered his lack of motivation to influence the quality of his contribution to the team. He answered: *"I'm of course professional in my tasks and responsibilities. I don't regress to a lower level, even if I hate these night shifts.*"

About the need for changing research question

The first exercise was not only a highly interesting and fruitful start to my research; it also turned out to be a great personal experience. A week long ski trip in a beautiful winter landscape together with dedicated and highly skilled soldiers was really more than I had expected. It was also exciting. The constant focus on avoiding detection by the chasing patrols created a tension that was present during the whole week. The exercise gave me a kind of understanding of how the soldiers train and practice, how they think about training, and to what extent they are capable of handling different situations using their level of experiences gained prior to the exercise. The exercise also gave me several answers concerning my project in general, but in particular, concerning my research questions. But the exercise did in fact contribute to change my research questions. Whilst, prior to the first exercise, I wanted to investigate what characterizes expert soldiers in terms of how they use their cognitive capacities during skill execution, I realized that this was a fairly unresearchable question, based on both observation and conversation/interview. It became clear to me that it is quite impossible to observe whether highly skillful actions are a product of intuitive or reflective behavior. It is manageable to evaluate an action, or soldiers' actions, as skillful or not. But to give a trustworthy description of the underlying cognitive structures which render possible this kind of highly skillfulness is akin to groping in the dark. There are no external signs shown by skillful soldiers to indicate that one kind of cognitive behavior has shown its presence. All the soldiers responded solidly and fluently to most of the situations that arose, yet to conclude that this is forced by intuitive behavior is only a matter of speculation. Maybe indicators like speed, reaction, fluency, ease, perfection etc. could give some indicators, but surely all of these behavioral features could also be shown by proficient soldiers relying more on deliberation and reflection. To utilize the closeness I had attained with the soldiers, by letting them describe how they considered their use of own cognitive capacities, did not get me much closer to an answer. It may be possible to ask a soldier to describe how they use their different cognitive capacities during an action, but if such actions are produced intuitively or deliberately it brings us back to

question the extent to which we have access to our thoughts in pre-reflective actions - if there are any (as discussed in Paper I).

A question that stood out as more relevant to me after this exercise was how these teams and units train and develop capabilities that are required in real military operations. The question about the soldiers' use of intuition and reflection/deliberation was still an important point of interest, but instead of trying to identify the best soldiers' use of these cognitive processes, the focus turned towards exploring the extent to which it is possible for soldiers to develop and employ intuitive expertise in real military operations. Another question that stood out as relevant was looking at the possible consequences and implications that intuitive behavior could cause. The research question switched from how to identify the use of intuition amongst skillful soldiers towards how the *soldiers reach for optimized performance*.

About how different approaches give different information

Even though my intention was to be included as one of the team and to establish a subject relation to the soldiers on every exercise, I am aware that I was only successful in two of the four exercises. I will argue that exercises nr 2 and 4 still gave me important information about my research questions, though from a different angle. Rather than getting the soldiers' own perspectives about their reach for optimized performance, several situations occurred that enriched my understanding of the studied phenomenon. During exercise nr 2, while following the Home Guard on a winter exercise, it was overwhelming to experience how much passion and emotional involvement these soldiers expressed through their behavior. For these part-time soldiers, the exercise became an arena in which to practice and demonstrate a kind of excellence they undoubtedly possessed. What stood out as salient was how they employed their expertise from other settings to elevate the level of performance in this military unit. One soldier was able to diagnose the engines of all the snow mobiles, just by listening to their sound; he then fixed those that needed repair. Another soldier caught grouse for dinner, using nothing but tiny wires. One soldier fixed a radio that was broken, helped only by his multi-tool.

And so I could continue. So although these soldiers did not engage in military activity on a daily basis, they were able to show the excellence requested by their military unit.

However, in comparison to the full-time soldiers in the other units I have observed, these soldiers' skills were characterized by being more specialized to narrow tasks. The part-time soldiers were outstanding on specific issues, often because they practiced these skills as their primary jobs or as their hobbies, yet in other tasks/situations they could be considered as quite inexperienced. This challenge was taken care of by creating teams of complimentary skills. For me, as a researcher, it was possible to notice their skills and behavior without getting very close to the soldiers. But my outcome of this exercise may have been even more valuable if they had invited me into discussions about their inner thoughts about their contribution to the team.

During exercise nr 4, while participating with the soldiers preparing for deployment to Afghanistan, I observed a new impetus for reaching for optimized performance. It became clear to me, in contrast to the other exercises, that for these soldiers being well prepared was literally a matter of life and death. The seriousness they showed during drilling procedures, again and again, told me that something more essential was playing an important role. While the soldiers in the other exercises were driven by an aim for comfort, for satisfaction of mastering specific skills, for being recognized as a fine soldier, for coping with specific challenges etc. these soldiers reached for optimized performance in order to cope with real threats. And this caused the soldiers concern not only about their level of performance for their own sakes; their skills could also play a crucial role for their team mates. In a situation characterized by risk and danger the soldiers need to rely on both their own capabilities and those of their team mates to maintain the demands for safety and security. This team even started to duplicate the ability to solve specific challenges; if one soldier goes down, that soldier's tasks still have to be done. It seemed to me that the reality they were going to face in Afghanistan turned the soldiers' focus from *me* towards *us*. I have never seen a team more focused and aware than during those six days.

If, as a researcher, I had gained a closer relation to the soldiers, I perhaps could have achieved even more knowledge about how an upcoming mission influenced their reach for optimized performance. I tried to ask some fairly personal questions on topics

such as anxiety, enthusiasm and motivation, but I did not feel I reached the core of their opinions. The setting was not right, and they gave mostly shallow descriptions and answers.

Another observation that contributes to emphasizing how reality-based training is utilized as an impetus for skill development became prominent during this exercise, again rendered possible by an object-relation to the soldiers. At the end of each practice session the team stopped and questioned whether their response would have been successful in real settings in Afghanistan. The uncertainty about their procedures and approaches was caused by the fact that only one soldier in the team had previous experience of Afghanistan. He had served in a similar reconnaissance team with similar tasks and duties about two years prior to this deployment. This soldier became very important during the week because he functioned as a kind of a real proof test. If he agreed on the team's procedures, then it was worth going for. Another officer, also with fresh experience from Afghanistan, was used extensively to qualify their procedures and skills.

The notion that the team, even if they were regarded as highly experienced and skillful, expressed a kind of low esteem because of the upcoming deployment to Afghanistan, came as a surprise. But, as they expressed: *"We are quite experienced, but not with operating in Afghanistan. We have to adapt to the Afghan context as soon as possible."* Because the missions in Afghanistan require use of operational concepts that differ from this unit's preferred way of operation in Norway, they had to practice new procedures at the expense of those they had already mastered. An obvious example is the use of skis and snow mobiles, which in Norway is considered an important factor to solving winter tasks. In Afghanistan, where skis and snow mobiles are replaced with wheel-based vehicles, this expertise is rendered worthless. Other skills such as fixing engines are highly demanded in Afghanistan. This aspect is further discussed in Paper III ("From Expert Skills towards Optimized Performance").

About how my participation influenced the researched field

My participation in the teams implicates that I, more or less, influence the context I am researching and also the situations to which the soldiers respond. To what extent my presence contributes to further development inside the team and the unit is an interesting topic. The tradition of action research places importance on the researcher contributing to further development among those studied (Huang, 2010).[72] While action research sees the researcher's influence as a goal in itself, other scientific traditions see this as bias or even contamination. But even if I have influenced my surroundings in various ways, my research differs from the action research tradition in the way that a developmental intervention inside the teams has never been an initiate aim or goal.[73] It may be fruitful to turn this question around: is it possible to not influence the soldiers by participating in their practice arena? Keiding pinpoints this aspect: "The observer is, for better or worse, thrown into interaction and a co-producer of the research object" (Keiding, 2010, [12]). But what counts as important from the researcher's perspective is to be aware of the impetus the researcher represents to development and improvement.

My research approach has probably influenced the researched field in various ways. The fact that I asked some questions and not others forced the soldiers to think and talk about specific topics, or at least hear their team mates' reflections about them. I may have been, more or less consciously, interested in some soldiers more than others. I may have focused on some topics more than others and I may also, through my responses towards some specific situations, have signaled particular behavior and preferences. My actions and thoughts have also given the soldiers new input represented by different perspectives on their praxis. This does not imply that the soldiers will necessarily change the way they operate. To not change actions, after being challenged by new perspectives, is also an action, developed through reflection over own experience (Wadsworth, 1998).

And so, I even hope my research approach has contributed to developments within the teams with which I have been involved. I have tried, through discussions with the soldiers, to imagine better solutions and to learn from probable and possible

[72] Huang (2010) describes action research as an umbrella term that represents a 'family' of practices
[73] A brief outline regarding central topics in action research can be found in Reason and Bradbury (2008)

solutions.[74] I also believe that the soldiers wanted me to contribute to development. Part of getting access to these units was based on an expectation of benefit also for them. To exploit an external resource and to critically examine their best practice, based on thorough knowledge about the teams, brought about vulnerability within the units I observed.

To influence and to contribute to development inside the military units through participation may also be considered as a channel for communicating new impulses to the soldiers. The format of academic communication, like papers and presentations, sometimes feels insufficient to contain and grasp all the aspects in play within the practice arena. The fact that such academic communication often loses a kind of practical and contextual intimacy implies that the constructed knowledge is more difficult for soldiers to engage with; they are more comfortable with direct guidance and collaboration out on the military practice arena. I, therefore, consider my contribution to a better understanding of the soldiers' reach for optimized performance as belonging to two different arenas; the practice arena and the academic arena. It is only the academic writing about the phenomenon that is captured in this thesis. And whilst quality in the academic arena is maintained through the academic evaluation system, what is difficult to measure and document is the impact my involvement has had on the practice arena. Statements from soldiers such as: *"It's very useful for us to discuss our challenges with you"* and *"I feel that we have improved because of your involvement in our team"*, are of course pleasant on a personal level, but in regard to academic standards, such statements have limited explosive power.

About skills needed as a researcher and the question of reliability

In most literature concerning qualitative method it is highlighted as a desirable quality to ensure that the study fulfills the requirements for reliability. A normal procedure to test such reliability inside the case study tradition is to be sure that: 'If a later investigator

[74] Action research includes practitioners as partners in the work of knowledge creation (Huang, 2010).

followed the same procedures as described by an earlier investigator, and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions' (Yin, 2009, p. 45). Even though this should be considered as exemplarily, and even if I have tried to fulfill the requirements for reliability by making my research approach explicit, it is questionable if someone else could have followed the same procedures and arrived at the same findings. This reflection is concerning how the methodical approach has been designed to utilize my own special qualities. If I was able to employ my experiences and knowledge about both military winter operations and skill acquisition, I considered it manageable to give a trustworthy description of how soldiers' reach for optimized performances. This implied that my research design required several skills which are not normally associated with the role of researcher. Good soldiering skills were considered a must, not only to be accepted and to behave in accordance with the teams' standards of tactical performance, but also to grasp the issues being studied and to discuss their challenges, opinions and views as a peer. Flyvbjerg (2001) emphasizes that: "…the proximity to reality which the case study entails and the learning process which it generates for the researcher will often constitute a prerequisite for advanced understanding" (p.84). Since some of the soldiers should be considered as highly experienced and commonly recognized as experts inside their units, Kvale and Brinkmann's notion of approaching elites should also be relevant: "An interviewer demonstrating that he or she has a sound knowledge of the interview topic will gain respect and be able to achieve an extent of symmetry in the interview relationship" (Kvale & Brinkmann, 2009, p. 147). I also needed endurance and strength to be able to keep up with the soldiers; all the soldiers I observed during the first exercise were able to run 8 km (5 miles) carrying 20 kg of equipment in less than 42 minutes - the best soldiers in less than 38 minutes. Since the exercises were executed during winter, I also needed skills good enough to cope with cold and harsh weather conditions. It also became clear to me that basic skills, like skiing and being able to follow the team through challenging terrain whilst carrying a heavy load, were crucial to my participation. The request for sufficient energy was also important, not only to keep up with the patrol, but also to

maintain my own awareness when specific situations occurred; situations that had a tendency to occur when we were exhausted.[75]

Skills involving the role as a qualitative researcher were of course also required. This involves the ability to ask relevant questions, to be a good listener, to be adaptive and flexible and to avoid being biased by preconceived notions. I also needed to be able to continually focus on the interaction between the theoretical issues being studied and the information gathered through the role as participating observer (Yin, 2009). In sum, the skills and capabilities required to accomplish my chosen research design turned out to be quite exclusive. By questioning whether someone else could have taken my place as the investigator during these exercises, using the same methodical approach, I do not mean that others could not have done highly fruitful and interesting research on these teams, or other similar teams, but inevitably my construction of knowledge is associated with my person, my background, my skills, my knowledge, my interests, my pre-understandings, my gate-keepers and so forth. So even if someone else could have used the same approach, they would probably not have arrived at the same questions, findings and answers; they would have been influenced by their particular background. Although I argue that it is questionable whether other researchers could have come to the same findings and conclusions, I do not consider this as a weakness of the study's reliability. My design, enabled through my particular background, provided me the possibility to dig new ground, and as long as I have made an effort to be explicit about my procedures I cannot do much more about this challenge.

Did I succeed?

In hindsight, it could be interesting to evaluate whether I really succeeded in contributing to a better understanding about the soldiers' reach for optimized performance through a hermeneutic phenomenological approach. Arguably, I met the soldiers where they are

[75] The skills needed as an investigator in this project may also pinpoint the discussion between Collins and Dreyfus and their understanding of expertise. Collins' 'interactional expert' would only be sufficient to cope with parts of the challenges involved in this project. Since the interactional expert is not a practitioner himself, the parts of the project which involve acceptance through showing execution of soldiering skills, will turn out inaccessible to the interactional expert.

naturally engaged in their tasks and duties; their life-world, though only in their practice arena. I also got a better understanding about the question: “How is this phenomenon actually experienced by you (the soldiers)?” I managed to observe how the soldiers approached specific situations and how they gradually attained higher levels of competency, both through gaining more experience but also through reflecting over own experiences. Furthermore, I interpreted and analyzed their experiences in order to be able to establish a foundation for an intersubjective understanding of the phenomenon. This study should as such be understood as *my interpretation* of how I perceived these particular soldiers reached for optimized performance during these particular exercises. This implies that the study should be considered as contributing to enlightening the phenomenon more than proving it. It contributes to describe the current situation more than predicting the future. And it will hopefully contribute to refine and supplement the already established theoretical frameworks regarding the researched topics. I will also argue that the study may be useful for some kind of generalization. The soldiers’ comprehension of and relation to the phenomenon, which should by considered as highly influenced by the present context, is in fact the notion which should be considered as possible to generalize; in order to better understand the soldiers’ reach for optimized performance, context-sensitivity is inevitably a demanded requirement.

What should be considered as a huge challenge for me, has been to capture the richness of the soldiers’ life-world and the sensitivity of the context-dependent experiences in my written expressions of the topic. To be honest, it has been a struggle for me to show the close link between me as a researcher, the soldiers and the researched phenomenon through the four papers. In fact, one of the papers is not empirical-based at all. It does not even deal with soldiers. The other three do contain elements of the empirical material, but they may however be considered more as analytical and reflective approaches to specific sub-topics. And furthermore, still in a self-critical mood, I have experienced that statements gathered through interviews (informal and semi-structured) are easier to use as a foundation for my expressed opinions than the information gathered through context-sensitive close observation. In some way, I have felt that the statements contain some kind of demanded rational power to enter this academic stage. So even though my papers may be considered as on the fringe of phenomenological writing, I will

argue that the chosen hermeneutic phenomenological approach has been essential to develop a better understanding about the phenomenon on which the papers center. With this approach I have also tried to fulfill the requirements of being true and faithful to the object, in order to give an account recognizable by those who struggle with these challenges on daily basis; the soldiers (van Manen, 1990).

5) Introduction of papers

To claim that this study presents a full picture of the phenomenon “Soldiers’ reach for optimized performance” would be an exaggeration. However, to argue that some important features about the phenomenon are outlined and discussed, and that these features may contribute to a better understanding of the phenomenon is in the bounds of, what I consider as, a sober comprehension of the study. The important features elaborated upon throughout the papers are, in particular, the relationship between skills, experience, intuitive/deliberate behavior and context.

Despite being founded upon the same methodological and philosophical assumptions, it might at first sight be difficult to see a clear and cohesive relationship between the four papers. The diversity amongst the papers may be caused by the nature of the researched topic, which is both wide and complex, yet it may also reflect the fact that:

- Each journal has its own particular focus and desired direction within the thematic portfolio.
- In order to be published the papers must present a specific topic, often through a systematic and stringent approach.
- Each paper must be able to be read on its own, isolated from the wider entity of the whole project.

In spite of the seeming lack of coherence between the papers, they are each meant to contribute to form a whole. In their totality, the papers elaborate upon different aspects essential to illuminating the core of the project; a better understanding about the researched phenomenon. What connects these papers to a wider entity concerns how humans optimize their performance within specific skill domains and how *relevant experiences* play an important role in this. Another consistent path followed throughout the papers leads to examining possible implications and consequences of employed intuitive behavior.

The impetus behind writing Paper I was to find a skill domain where the very nature of the activity - the rationale for participating - is concerned with the demand for

optimizing the participants' performance. High level competitive sport fulfills these requirements and so to employ Dreyfus and Dreyfus' approach to this skill domain, where the competitors are commonly perceived as experts, turned out to be valuable. In particular, Dreyfus and Dreyfus' description of intuitive expertise was elaborated upon to question whether their approach is able to capture the experiential reality upon which it ultimately must be based. The paper should therefore contribute to the wider entity by expanding on the *reach for optimized performance*, as represented by athletes. To focus on expertise in competitive sport emerged as being a useful exercise to contrast with the nature of the soldiers' expertise, and although these skill domains contain seemingly similar characteristics, such as engaging in embodied and practical tasks, the two worlds are hardly comparable. Whilst competitive sport normally has well defined criteria to detect the best performer or performing team in absolute terms, the military domain is characterized by a lack of such criteria. It may be possible to detect the best shooter or navigator through test, but this does not directly imply that the same soldier will solve real life operations in an optimal way.[76] Furthermore, whilst the athletes normally focus on one specific activity, soldiers need to cope with a wide range of different tasks and skills. As a result of these differing applications, athletes optimize their performance within a narrow repertoire of capabilities. Soldiers, on the other hand, do not have this opportunity as the situations they face are multiple and complex. Therefore, the best way for soldiers to optimize their performance is to be good enough to handle a wide variety of different skills as they do not have time to become specialized in all the required skills. Another difference between athletes and soldiers is concerned with context. While athletes prepare for pre-defined conditions (because of the demand for fair competitions), soldiers have to be prepared for the unexpected. This seemingly self contradictory statement - how is it possible to prepare for something you cannot foresee? - implies that soldiers need to be highly flexible to changing conditions. Even if a soldier is, in general,

[76] Rones' (2008) investigation on what characterizes the finest soldiers in the Norwegian Home Guard detected some highly interesting aspects about soldiers' expertise. In an attempt to get closer to an understanding of the phenomenon, she asked the units commanders to make explicit what skills and capabilities they held as being most valuable to be considered as one of the best soldiers. What she found was that such criteria are highly subjective. Most of the commanders gave a description that corresponded highly to their own strengths; they wanted the other soldiers to be like themselves.

considered as highly experienced, his experiences may not be used as guidance for responding to new situations; such situations must be considered as novel to the soldier.

In Paper II, the aim was to apply Dreyfus and Dreyfus' approach to a typical challenge inside the military skill domain. Development of moral behavior, seen as a skill, was chosen to exemplify how soldiers' gradually increase their skills due to experience from relevant situations. Paper II supplements the topic presented in Paper I in the way that it questions the extent to which Dreyfus and Dreyfus' approach is useful as a framework to better understand *soldiers' reach for optimized performance*; exemplified by a specific operational task. In particular, the challenge of context sensitivity of operations in an unknown territory is emphasized because of the ways in which this aspect influences the demand for relevant experiences. In common with Paper I, the implications and consequences of intuition being employed by the practitioners are challenged, even though these consequences and implications may be of a different nature within the different skill domains.

Paper III deals with the 'transfer problem' and how expertise is a matter of radical transformation when the unit's tasks and duties are re-ordered, such as when a unit is deployed to other operational theatres. When the focus changes from homeland operations, executed without allied support, towards a multi-national campaign based on network-centric operations, the demands for specific capabilities, and by that, *what performance to reach for*, is challenged. What are considered as highly relevant competencies for homeland operations become irrelevant, while other skills come into high demand. This transformation does have consequences, in some cases soldiers recognized as experts within their unit lose some of their task-specific expertise because new capabilities are required and prioritized. This can also cause changed practices, changed training and also a changed focus in selection. The paper also discusses whether it is possible to develop relevant expertise through practice prior to deployment to operations in other territories.

Paper IV is concerned with the *reach for optimized performance* but, in contrast to the other three papers, the discussion leaves the level of the individual soldier and elevates to examining how soldiers' capabilities can be better employed to reach strategic goals, exemplified by winter operations in Afghanistan. The initial motivation for this

paper was concerned with the observation that soldiers' expertise was not utilized during deployment to Afghanistan, even when the conditions for such transfer seemed possible and appropriate. As such, the paper suggests different ways to better employ the units' existing expertise in new operational settings.

Paper I: "Mindless Coping in Competitive Sport"

To what extent is Dreyfus and Dreyfus's phenomenological approach to skill acquisition capable of grasping the distinctive characteristics of high-level performance in competitive sport? In order to answer the paper's essential question, a brief outline of Dreyfus and Dreyfus' non-representational view of experience-based expertise is given. In short, their approach implies that given enough relevant experience, the skill learner, when expert, will respond intuitively to immediate situations with no recourse to deliberate actions or mental representations. As such, this approach contains an important contribution to discussing the kind of cognitive capacities high level performers employ during skilful actions. Since the approach is claimed to be general in nature, it should also be possible to apply this to the skill domain of sport. Dreyfus and Dreyfus believe that actions performed by practitioners that fulfill the requirements for experience-based intuitive expertise, are done in a "mindless" style: no deliberate decisions, no memory-based recognition and no consciously controlled movements are needed. The practitioners' situational responses to known upcoming situations are possible without engaging in thoughtful processes.

The paper follows two paths towards answering the main question. The first is concerned with the extent to which Dreyfus and Dreyfus' approach aims to describe what is commonly perceived as expertise, such as that in the domain of competitive sport. Their phenomenological underpinning and scientific buttressing of the approach, which is highly influenced by the existential philosophers like Heidegger and Merleau-Ponty, indicates that Dreyfus and Dreyfus' understanding of expertise is more concerned with coping in everyday lives than with optimized performance. The approach is not even concerned with detecting the nature of the very best, rather Dreyfus and Dreyfus' goal is to give a phenomenological account of the way we use our cognitive capacities when we

are absorbed in our daily coping. Yet, by using different examples from competitive sport to emphasize expertise, Dreyfus and Dreyfus believe that even the best athletes may use the same intuitive expert behavior during skill execution.

The second path considers the task characteristics involved in different sports. This section of the paper presents a phenomenology of diversities among some particular sports and questions whether Dreyfus and Dreyfus are able to capture the variations of characteristics in their general model.[77] Instead of elaborating on different task characteristics, not only from sports but task characteristics in general, Dreyfus and Dreyfus overcome this challenge by stating some exceptions from intuitive expert behavior. They state that experts do use deliberate and reflective behavior in some situations.[78] These exceptions enable Dreyfus and Dreyfus to bypass most of the issues concerning different task characteristics in sports. But what emerges as an interesting notion is that many sports contain characteristics that fulfill the requirements for exception from intuitive behavior, as stated by Dreyfus and Dreyfus. This implies that athletes who are expert in several sports, even when they perform at the highest possible level of human performance, may engage in deliberate and thoughtful processes.

The paper also discusses some possible implications and consequences of intuitive behavior resulting from practice and skill development; *how athletes may reach for optimized performance in sport*. The most obvious implication is a consequence of the very nature of the skill model, since it represents a rejection of the information-processing tradition. Yet most expertise research on competitive sport lies within this tradition. According to Dreyfus and Dreyfus, the very nature of intuitive behavior implies that no accessible or conscious thoughts are produced during this kind of skill execution. Explicit thoughts and reflection are not necessary because the response to the situation relies on bodily dispositions that react immediately to specific situations. If Dreyfus and Dreyfus' assumption is correct, this will have implications for skill development in sport.

[77] The task characteristics presented in the paper are: how much time available, number of opponents, number of teammates, the level of the stakes, if style and risk are involved in the activity. These task characteristics must be seen as examples and even more may be found. The picture becomes further complicated when these characteristics are combined or when personal preferences are included. Some athletes may like to engage in deliberate activity during performance whilst others do not.

[78] Dreyfus and Dreyfus state that experts think when: 1) time permits, 2) when intuitive behavior is interrupted like when faced with a nonworking tool, 3) if more than one compelling perspective or action intuitively presents itself, and 4) if a situation is recognized as being sufficiently novel.

On the athlete's level, it will imply that what one thinks one is doing should not necessarily be used as guidance for one's training procedures. If training and practicing is based on what one's retrospective and introspective explanations indicate as important parts of the skill execution, this may result in focusing on aspects of the performance that are unimportant or even irrelevant. This implication may have even wider consequences. Much of the research on expert performance is carried out by analyzing verbal protocols recorded either during performance or as close to the activity as possible. Research into expert performance, based on verbal protocols, should as such be understood as conflicting with Dreyfus and Dreyfus' view about the nature of intuitive behavior

Another implication of Dreyfus and Dreyfus' approach is concerned with the role a coach may play in the process of skill development. Dreyfus and Dreyfus claim that given enough relevant experience, the body is capable of improving its own responses. The coach is only necessary if an expert is stuck on a local plateau of performance. In such cases a coach may be needed to suggest alternative actions to help the expert to improve.

Paper II: "Should Soldiers Think before They Shoot?"

Through Paper II, Dreyfus and Dreyfus' description of intuitive expertise is discussed in terms of the extent to which it may be regarded as a suitable framework for a better understanding of skill development inside the military domain. As Paper I outlined, intuitive behavior implies that no accessible or conscious thoughts are produced during intuitive skill execution. As such, the paper discusses whether experience-based intuition should be considered as a legitimate foundation for soldiers' actions, in situations they face in real operations. Taken to the extreme, the question 'should soldiers think before they shoot?' is presented. If this question is provoking, it is presumably because it challenges the hegemonic military understanding of how soldiers are considered to live up to the requirement for moral conduct during military actions. But since soldiers' use of intuition seems to be a subject of increasing interest among military academic writers, it is timely to question the extent to which such behavior is based on legitimate ethical foundations. Intuition has even started to find its way into military doctrines, but a critical

and level-handed discussion of the ethical implications of such behavior has been absent. The paper, therefore, aims to contribute to this discussion with a phenomenological based description of how soldiers on a mission in Afghanistan experience such a challenge.

Since Dreyfus and Dreyfus consider moral behavior as a skill, they claim that it is possible to develop and refine this capability through practice. Moral behavior should, as such, be a suitable task to exemplify different specific challenges when transferring their approach to the military skill domain. The paper questions whether it is possible to fulfill the prerequisites for development of experience-based intuition with regards moral behavior inside the frames of military operations. The paper also outlines some possible implications and consequences of such intuitive behavior. The question of a soldier's ability to *discriminate* between combatants and non-combatants is used to showcase a common challenge faced by soldiers in real operations. Such a crucial task - often perceived as highly difficult as combatants try to hide their identities and to assimilate into civilian communities - pinpoints some of the difficulties raised; quick, wise, context-sensitive and ethically legitimate responses must be executed even when situations are characterized by being complex, threatening, ambiguous and unpredictable. The consequence of not detecting combatants in a crowd of civilian people may be fatal.

The paper initially introduces Dreyfus and Dreyfus' approach to skill acquisition by exemplifying how a soldier's development of moral behavior may fit the different levels in Dreyfus and Dreyfus' skill model. The prerequisite for development of intuitive expertise is then presented and discussed, emphasizing the request for relevant experience and questioning whether it is possible to develop such experience from practice situations prior to military operations. The notion of sensitivity to the prevailing context, which is highly influenced by cultural dimension, contributes to questioning whether such skill development is possible outside the context in which they ultimately exist. While military doctrines believe that it is possible to develop such moral behavior outside the operational context, the material within this paper indicates that there are several aspects of context sensitivity which render this development impossible to achieve prior to being faced with real situations. The phenomenon of soldiers' reach for optimized performance is highly influenced by this notion. If it is correct that soldiers must accept that some crucial skills and capabilities are unattainable before deployment to real operations - that

they must consider themselves as novices in these tasks and skills at the beginning of a mission - then this notion should be the object of further elaborations.

If Dreyfus and Dreyfus' prerequisites for development of intuitive expertise can be fulfilled, their model should be considered as transferable to the domain of military operations. As a result, the paper also discusses some implications and consequences of the employment of intuition inside the military domain. Firstly, it should be considered ethically legitimate for experts to respond to immediate situations without thinking, or in Dreyfus and Dreyfus' view: the expert should not engage in deliberate or reflective actions if the situation is perceived as known. Rather it should be discussed if it is ethically accepted to force expert soldiers to not to utilize their intuitive expertise. Secondly, to utilize intuitive expertise presupposes knowledge about the nature of intuition. A situation where a soldier has problems giving logical reasons for why he responded as he did (as may be the consequence of intuitive behavior) challenges the traditional way of maintaining ethical standards in military systems. Thirdly, to utilize intuitive expertise presupposes not only knowledge about the development of intuition; it is also a great challenge for commanders. To identify those who are in possession of intuitive expertise (and in which tasks) and to let them employ this intuition may be regarded as different from the strategies that are currently employed by commanders.

Paper III: "From Expert Skills towards Optimized Performance"

In spite of increasing technological inventions and improved weapon systems, modern military warfare is more than ever dependant upon dedicated soldiers with a level of performance and skill-set sufficient to operate in complex, stressful and ambiguous environments. How to develop soldiers with optimized skills and capabilities for demanding operations is a recurring challenge for the force-producing units. To recruit the right soldiers, to gain relevant experience from practice, to identify crucial capabilities needed to be best possibly prepared for military operations, to establish a competent learning environment and to bring back the experiences from military

operations to further enhance skill development are only some of the aspects involved in this demanding process. The fact that military conflicts during the last decades have often been fought on other continents, under cultural and environmental conditions unfamiliar to the participating allied soldiers has also increased this challenge. An interesting question to ask in this regard is to what extent the refined skills and capabilities, developed isolated from the operational theatre prior to deployment, are influenced by transfer to another operational context.

The paper begins with a phenomenological description of how highly skilfull soldiers cope with a particular situation during a winter exercise in northern Norway. This situation is further discussed in relation to the kinds of expertise possessed by the soldiers: how expertise shows it self, how expertise is utilized and how different missions transform what is considered as relevant expertise. Special emphasize is placed on the 'transfer problem': what happens to pre-developed expertise when employed on an unfamiliar arena. This question is enlightened by arguments founded in phenomenological philosophy, in particular by Heidegger's circumstances for interruption of fluently dealing with our surroundings. A general conclusion to these questions is that expertise must be considered as situational and context sensitive; each particular mission and each particular situation demands a specific kind of expertise. The paper suggests that expert skills underscore optimized performance only if the soldiers' experiences are relevant to the particular situation.

Paper IV: "Winter as the Number One Enemy? Lessons Learned from North Afghanistan"

While Paper III was concerned with how soldiers' reach for optimized performance is radically transformed when facing new tasks and duties, Paper IV turns the question upside down and asks: why are the already developed high level skills not better utilized in operations where the circumstances are seemingly well suited? While the other three papers consider the reach for optimized performance on a personal level, this paper seeks to see the phenomenon as a component in a larger picture; the reach for optimized

performance to achieve strategic goals in a real operational context. In Paper IV the point of departure is situated in the armed conflict in Afghanistan, where winter and cold weather conditions have significant impact. In particular, the contribution by Norwegian soldiers to winter operations in north Afghanistan is chosen to exemplify a skill domain where task-specific expertise could have been utilized to exploit the harsh winter conditions to an advantage.[79] The International Security Assistance Force's (ISAF) ability to obtain and hold the initiative and momentum in the current Afghan conflict is undercut by its inability to cope with the Afghan winter. The present operational concept is not geared towards exploiting the advantages of seasonal variations. Despite overwhelming superiority with regard to winter skills, technology and winter-related mobility assets, ISAF finds itself again and again in a reactive posture as its forces find themselves incapable of sustaining a summer-type offensive throughout the year. Rather than portraying winter and cold weather as an operative impediment, this paper suggests that ISAF should utilize the unrealized operative, tactical and strategic potential brought forth by these conditions.

Using both statistical information and material gathered from soldiers that served in area, the paper presents the view that winter conditions effectively cushion hostile activity and thereby decimate combat agility and violent incidents for extensive periods of time. However, it is not only the insurgents who are hampered by the winter conditions, as the international coalition troops also appear to engage in a legitimate downscaling during this time. This should not necessarily be seen as a negative effect on the conflict, but the low activity does allow the insurgents to regain strength and amass resources in preparation for a renewed offensive once the warmer climate descends. This turns the whole paradigm of cold weather operations into a prolonged attritional conflict, and it must also be seen as one of the reasons in explaining why the counter-insurgency operation in Afghanistan has met surprisingly hard resistance.

A paradox in this picture is that the Norwegian troops, amongst others, possess capacities that could have contributed to sustaining the initiative and operational momentum during the winter period. They have the equipment and they have the skills; it

[79] In this paper, *expertise* is referring to the common understanding of a general capacity concerning the ability to execute skills and procedures at a high level. As such, in this paper, expertise is not explicitly referring to the intuitive expert, as understood by Dreyfus and Dreyfus.

is part of their context-dependent expertise developed during winter-based homeland missions. As such, the paper questions how strategic concepts may hamper the reach for optimized performance among the allied forces.

Based on analysis of the relationship between cold weather challenges faced by the insurgents and ISAF's potential operational capabilities, the following three conclusions are drawn. Firstly, that force impediments have not been adequately addressed, and expertise in cold weather operations has not been identified or utilized. Force contingents should be tailored for seasonal variations in order to ensure better force protection, a more agile and offensive concept of operations and an increased presence over the vast terrain throughout the year to better control isolated areas. Secondly, ISAF should dispose of the Cold War legacy; conventional forces designed for decisive battles on the European plains are not relevant in the mountainous and often inaccessible landscape where insurgents operate in a decentralized mode and without a clear centre of gravity. Finally, the inauguration of a more decentralized concept of operations for ISAF troops is likely to accentuate transformation efforts inside NATO, particularly since valuable experience will be derived regarding network-centric warfare and specialized combat skills. This may serve to bridge the conceptual divide between major conventional wars and small unconventional wars that currently characterize the military profession. Given the possibilities, winter should be perceived as a valuable ally rather than an operational impediment.

Where to go?

My contribution to a better understanding about the researched phenomenon must be taken for what it is, a contribution. There may be a multitude of possible directions for further research with regards to methodology and research questions. What I want to suggest in the following are three interesting challenges that I have not included in this thesis, but that stand out as highly relevant for follow-up by further research. The first challenge deals with mastery. The fact that some experts are better than others raises the question: Is it possible to give a trustworthy phenomenological description of those who reach a higher level of performance than other experts? To enter the world of mastery

through “thick phenomenological descriptions” of those performing at the peak inside their skill domains stands out as a huge temptation. Dreyfus and Dreyfus have been engaged in elaborations on this topic, but their approach to mastery may be insufficient to grasp the totality of this picture (Dreyfus & Dreyfus, 2007). Here I refer to the lack of attention concerning task characteristics and personal preferences displayed in Dreyfus and Dreyfus’ approach. Their descriptions of the mastery level still state that all kinds of tasks are best performed with the same kind of intuitive behavior, and that all masters use intuition on this elevated level of human performance as long as their experience is sufficient to respond to the solicitations of the situation. To reach for a description of mastery, I believe that task sensitive phenomenological descriptions of particular selected skill domains should be the way to proceed. Shirvanian’s essay about the expert carpenters, Mr. Castor and Mr. Pullox, may serve as inspiration for how such a topic may be presented (Shirvanian, 2005). Even if both carpenters must be said to be experts, they show qualitatively different ways of dealing with their craft.

Another challenge that appears significant for further elaboration is examining how soldiers develop their skills *during* deployment in missions on other continents, such as in Afghanistan. What I have in mind are close observations from the real life arena of military operations. My approach, which only touches upon this topic through interviews and conversations with the soldiers after redeployment, lacks the context sensitivity that I strongly assert leads to better understanding the phenomenon. The fact that I have not succeeded in following soldiers in Afghanistan, implies that I do not have the same closeness to the challenges that soldiers face in real operations.

Finally, what I see as the main diverging understanding between Dreyfus and Heidegger (see Chapter 2), is concerned with the question of whether knowing-that knowledge (deliberate behavior) is a prerequisite for development of know-how (or absorbed coping/intuition) as Dreyfus sees it, or whether the absorbed dealing with things (Heidegger’s zuhandenheit) must be considered a prerequisite for development of knowing-that knowledge (Heidegger’s vorhandenheit). Is it possible to propose a skill acquisition model, based more on Heidegger’s views, that turns Dreyfus’ approach upside down?

Is it so that the tasks in which we become renowned experts are tasks that we encounter as adults through rules and procedures, or are these skills only exceptions from the general picture? Is it possible to view the expert as a level of performance in which we are in possession of utilizing deliberate thoughts to refine our actions during skill execution? These questions deserve to be investigated further.

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PART II

PAPERS

Paper I

Eriksen, J.W. (2010) Mindless Coping in Competitive Sport: Some Implications and Consequences. *Sport, Ethics and Philosophy*, 4(1), 66 - 86

Paper II

Eriksen, J.W. (2010) Should Soldiers Think before They Shoot? *Journal of Military Ethics*, 9(3), 195 - 218

Paper III

Eriksen, J.W. From Expert Skills towards Optimized Performance. Submitted, *Armed Forces and Society.*

Paper IV

Eriksen, J.W., & Heier, T. (2009). Winter as the Number One Enemy? Lessons Learned from North Afghanistan. *RUSI Journal* 154(5), 64 –71

Paper I

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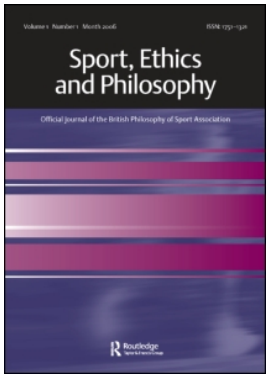

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Mindless Coping in Competitive Sport: Some Implications and Consequences

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MINDLESS COPING IN COMPETITIVE SPORT: SOME IMPLICATIONS AND CONSEQUENCES

Jørgen W. Eriksen

The aim of this paper is to elaborate on the phenomenological approach to expertise as proposed by Dreyfus and Dreyfus and to give an account of the extent to which their approach may contribute to a better understanding of how athletes may use their cognitive capacities during high-level skill execution. Dreyfus and Dreyfus's non-representational view of experience-based expertise implies that, given enough relevant experience, the skill learner, when expert, will respond intuitively to immediate situations with no recourse to deliberate actions or mental representations. The paper will subsequently outline some implications and consequences of such an approach and will also examine to what extent Dreyfus and Dreyfus's skill model is capable to resist different attacks that have been made against their view, and in particular regarding the practical application of their approach to the skill domain of competitive sport.

Zusammenfassung

Das Ziel dieses Artikels ist es, den phänomenologischen Ansatz zum Expertentum von Dreyfus und Dreyfus näher auszuarbeiten und zu erläutern, was ihr Konzept zu einem besseren Verständnis von Sportlern und ihren kognitiven Fähigkeiten bei Höchstleistungen beitragen kann. Dreyfus und Dreyfus abstrahierender Blick auf das erfahrungsabhängige Expertentum impliziert, dass Anfänger, insofern sie genügend Erfahrung haben, als Reaktion auf eine unmittelbare Situation möglicherweise eine Art intuitiver Expertise entwickeln können. Des Weiteren will dieser Artikel einige Implikationen und Konsequenzen eines solchen Ansatzes herausarbeiten und untersuchen, inwieweit Dreyfus und Dreyfus' Fähigkeitenmodell in der Lage ist, die verschiedenen Angriffe, die gegen ihre Sichtweise vortragen wurden, auszuhalten. Dies gilt insbesondere in Bezug auf die praktische Anwendung ihres Ansatzes auf den Fertigkeitenbereich des sportlichen Wettkampfs.

Resumen

El objectivo de este artículo es elaborar sobre el enfoque fenomenológico de la maestría tal y como proponen Dreyfus y Dreyfus, y dar una explicación sobre el grado que su enfoque puede contribuir a la hora de entender mejor cómo los atletas pueden usar sus capacidades cognitivas durante la ejecución de habilidades de alto nivel. La posición no figurativa [non-representacional] de Dreyfus y Dreyfus sobre la maestría basada en la experienca implica que los principiantes, dada suficiente experiencia, pueden desarrollar una maestría intuitiva como una respuesta situacional immediata. El artículo bosquejará subsecuentemente algunas implicaciones de tal

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enfoque y examinará cuánto el modelo de la habilidad de Dreyfus y Dreyfus es capaz de resistir los diferentes ataques que se han lanzado contra su posición, y en particular lo concerniente a la aplicación de su enfoque sobre el campo de las habilidades en el deporte competitivo.

Résumé

Le but de cet article est de réfléchir à l'approche phénoménologique de l'expertise, telle que proposée par Dreyfus et Dreyfus et de dresser un bilan de la manière dont leur approche pourrait contribuer à une meilleure compréhension des moyens mis en œuvre par les athlètes pour mobiliser leur capacités cognitives pendant l'exécution de gestes de haut niveau. La vision non représentative de l'expertise par l'empirique de Dreyfus et Dreyfus implique que les débutants avec assez d'expérience puissent développer une expertise intuitive comme réponse immédiate en situation. L'article mettra en conséquence en évidence certaines implications et conséquence d'une telle approche et examinera dans quelle mesure le modèle gestuel de Dreyfus et Dreyfus est capable de résister aux différentes attaques qui ont eu lieu contre eux, en particulier en prenant en considération l'application pratique de leur approche dans le domaine technique de la compétition sportive.

摘要

本文的目的在於闡釋運用現象學的徑路，來鑑定德瑞福 (電腦科學家及哲學家)的理論，並且解釋此徑路對於運動員在執行高技術水平時如何應用認知的能力，可能做出更佳解釋的貢獻。德瑞福建立在經驗基礎的非再現觀點，暗示著具有足夠經驗的起始者，對於立即情境的反應，可以發展出直覺的能力。本文接著列出一些此研究徑路的暗示與結果，且檢驗應用德瑞福技術模式，是否能抵抗反對觀點的衝擊，特別是實際應用此徑路到競技運動的技術領域。

KEYWORDS expertise; Dreyfus and Dreyfus; non-representational; phenomenology

Recent discussion in sport science has focused on to what extent one uses different kinds of cognitive capacities *during* skilled behaviour and to what role they play in the execution of skills in competitive sport (Summers 2004). Do high-level athletes rely on mindful activities such as deliberate decision making, the use of memory-based recognition and conscious controlled movements during skill execution. Or is it actually the case that the action is done 'without thinking' in an automatic or intuitive style? One of the more scientific approaches to this topic is concerned with to what extent one makes use of mental representations during experienced skill execution in sport (Ericsson 2006; Summers 2004; Sutton 2007). An obvious reason for this discussion is the limited access we still have to observe, monitor and measure the internal processes involved in our skilled behaviour, in particular to those processes that are inaccessible to our conscious mind. Scientific discussions around the use of cognitive capacities during skilled behaviour have been highly influenced and dominated by the tradition of sport psychology, and this question has also proved a matter of interest in both phenomenology and in philosophy of the mind (Dreyfus 2002; Gallagher 2005; Merleau-Ponty 1962; Noe 2004; Searle 2004).

Psychological approaches have explicitly transferred the core of the discussion to the field of competitive sport, whereas in contrast philosophers have been predominately concerned with questioning how human beings cope with their everyday life challenges. In these discussions the topic of competitive sport and the level of performance found in this particular skill domain have been largely overlooked. So the timely question to ask is whether the general philosophical approaches to skilful behaviour in *everyday life* manage to encompass the specific challenges and task characteristics of competitive sport.

Philosophers of sport have made some contributions to the question of how people use cognitive capacities during highly skilled performances. These contributions are largely represented by Breivik's study of skilful coping in sport (Breivik 2007) and Moe's (2004) works on skill acquisition in sport. Also relevant is Moe's work on the background conditions that enable the performance of skilled movement (Moe 2007), and his critique of the dominating research paradigm in sport represented by the classical cognitivist tradition (Moe 2005). Sutton's work on the embodied mind and the role of memory in competitive sport does also make significant contributions to this discussion (Sutton 2007).

The aim of this paper is to elaborate on the phenomenological approach to skilful behaviour as proposed by Dreyfus and Dreyfus. Their description of human skill acquisition, from novice to expert, is intended to capture all kinds of practical skills and should therefore also be suitable to describe high-level performance in sport. In fact, in describing different levels of skilful behaviour Dreyfus and Dreyfus use several examples from competitive sport (Dreyfus 1999; Dreyfus and Dreyfus 2005; 2007). Their approach is also interesting as it places significant importance on intuitive behaviour among experts and also champions a dynamical and non-representational view of the underlying cognitive structures for skilful behaviour.

To explore whether Dreyfus and Dreyfus's phenomenological approach to skill acquisition is a suitable and relevant framework for attaining a better understanding of competitive sport, the following questions will be addressed:

1. To what extent is Dreyfus and Dreyfus's phenomenological approach to skill acquisition capable of grasping the distinctive characteristics of high-level performance in competitive sport?
2. What are the consequences and implications of a non-representational approach to expert behaviour in regard to achievement and execution of expertise in competitive sport?

Given these aims, this article is structured as follows. First a brief outline is provided about some of the most common and dominating approaches to this topic. Subsequently, Dreyfus and Dreyfus's description of the development of expertise will be presented. This is followed by a section devoted to this paper's main discussions; is Dreyfus and Dreyfus's approach capable of resisting the different attacks that have been made against their view, and in particular regarding the practical application of their approach to the skill domain of competitive sport?

The Endeavour to Achieve Excellence

Sport is a skill domain that challenges and motivates many people to strive for the(ir) highest levels of human achievement. The explicit cultivation of peak performances in

competitive sport makes it an attractive field for research concerning highly skilful human behaviour. As a result a large amount of empirical work has been produced, with sport science making significant contributions to research on topics such as talent, high abilities and the development of expertise (Williams and Hodges 2004). The focus on the development of expertise and expert characteristics has given rise to investigations into the role of the cognitive resources underlying expert performance.[1]

According to the information-processing tradition, which makes use of the brain-computer analogy, skill acquisition is a continuous process that starts with *controlled* processing of information and gradually leads to development of *automaticity*;[2] this understanding has been incorporated into most models of skill learning.[3] This perspective was first introduced by Paul Fitts and his colleagues (Fitts and Posner 1967; Fitts 1964), although it has been claimed that the general nature of the description of skill learning has caused little effort to test the model (Summers 2004). Fitts's influential framework describes the skill acquisition process as a three-stage model, though he considers it misleading to assume distinct stages in skill learning, and he argues that skill learning is a continuous process that gradually shifts in nature as learning is in progress (Summers 2004). Fitts's findings also indicate that the laws of learning in both *cognitive* and *motor* skills are very similar and as such both are included in his account (Fitts 1964).

The idea that full automaticity is the expert way of performing skills has received support from recent progressions in the fields of neuro-anatomy and neurophysiology. Both disciplines investigate the functional organisation of the brain and its relation to behaviour (Gallese 2000). There have been significant advances through the last decade in the ability to non-invasively track human brain activity and as most behavioural skill development is associated with changes in brain activity there has been major progress in this area of research. Studies performed on changes in brain activity from a novice to a skilled performance have consistently shown that performing a highly practised skill often requires less brain activation than before the skill was practiced. (Luu *et al*. 2007). Several studies based on the use of brain-imaging devices such as functional magnetic resonance imaging technology (fMRI), reveal that the development and execution of skills have profound effects on the nature of neural processing. This area of research has also found there to be dramatic changes in brain activation as humans acquire skills.[4] As a result of training effort, the brain's elastic structure is able to change the size of the area involved in these processes as well as the areas in which brain activity occurs. Of particular interest are findings that the brain is able to shift from controlled to automatic processing as a result of training; this is shown by decreased brain activity in the regions responsible for learning and control. The control network is a group of areas in the brain that work together and are involved in controlling goal processing, attention and decision-making; in particular when the tasks are novel or varied. The time needed to shift from controlled to automatic processing is task-specific and will vary depending on the complexity of the skill domain (Hill and Schneider 2006; Luu *et al*. 2007).

Dreyfus and Dreyfus's skill model[5]

Hubert and Stuart Dreyfus propose a phenomenological approach to describe human skill acquisition.[6] Their description of the human skill acquisition process shares similarities with Fitts's aforementioned information-processing-based approach. In agreement with Fitts, Dreyfus and Dreyfus believe that adults acquire both *cognitive*

and *motor skills* through the same underlying structures for learning, though their understanding of the underlying mechanisms of the skill acquisition process differs distinctively.[7] Another similarity among approaches is the notion that skills develop in explicit stages; with both skill acquisition models offering similar content in the various stages. While Fitts identifies three stages in the process of human skill acquisition (the *cognitive*, the *associative* and the *autonomous* stage), the model proposed by Dreyfus and Dreyfus is described in five different stages, where learners pass from *novice* to *expert*. In accordance with Fitts, Dreyfus and Dreyfus claim that the learner's introduction to skill development is characterised by cognitive and deliberate activity.

In the two lower stages of Dreyfus and Dreyfus's model emphasis is placed of the idea of rule-following behaviour. Initially, through lack of experiences in the particular skill domain, the *novice* will follow context-free rules. As the novice gains experience by coping with real situations, the learner moves into the second, or *advanced beginner*, stage which is characterised by the ability to develop an understanding of the relevant context (Dreyfus and Dreyfus 2005). Rules for behaviour may now refer to both the self-experienced situational components and to the already learned context-free rules. The learner's own experiences gradually become more important than the initial rule-following behaviour which was based on verbal description (Dreyfus and Dreyfus 1986). Together these first two stages may be understood as being similar to Fitts's *cognitive* stage. Here, behaviour is characterised by being conscious, serial, deliberate and effortful, or to use the cognitive term from Shiffrin and Schneider, *controlled* (Sutton 2007).

The third stage in Dreyfus and Dreyfus's skill model is referred to as the *competence* stage. Parallels can be drawn with Fitts's second *associative* stage, which is characterised by the learner's capability to deliberately define goals, to develop plans to reach the goals and to execute the plans. At this stage of skill acquisition the learner does not mandate the same degree of attention and control that is necessary at lower levels of practice (Beilock and Carr 2004). Dreyfus and Dreyfus's fourth, or *proficient*, stage and fifth, or *expertise*, stage correspond with Fitts's third and final *autonomous* stage. In the higher levels, the ability to make more subtle and refined discriminations distinguishes the expert from the proficient performer. The *proficient performer* sees intuitively what needs to be done, but has to *decide* how to do it.[8] The *expert* not only sees intuitively what needs to be achieved but, thanks to a vast repertoire of situational discriminations, he also sees intuitively how to achieve his goal.

While Fitts's third stage is totally based on *automatic* task representation,[9] Dreyfus and Dreyfus favour the term *intuition* to describe how skills are performed without any need for controlling the movements by conscious effort. They claim not only that skills are performed without cognitive control but that that no mental representation in the brain is required. Intuition is, in their understanding, an immediate, unreflective, situational response shown to be successful by experience (Dreyfus and Dreyfus 2005). In the example below, Dreyfus and Dreyfus use a tennis stroke to describe the expert performance as opposed to the beginner:

> If one is a beginner or is off one's form, one might find oneself making an effort to keep one's eye on the ball, keep the racket perpendicular to the court, hit the ball squarely, and so forth. But, if one is expert at the game, not bothered by the pressure to win, and things are going so well that one is absorbed in the flow, one then feels that one's current comportment is caused by the perceived conditions. (Dreyfus 2001, 183)

For the purpose of this paper the focus of discussion and examination is explicit concerning Dreyfus and Dreyfus's *expert* level. This is because it is reasonable to assume that an expert's level of performance corresponds with the characteristics of highly skilled athletes in competitive sport. The expert level is also the only level in Dreyfus and Dreyfus's skill model that is regarded as purely non-representational. All four other levels require, in some way, the deployment of deliberative behaviour which is considered as representational. So the expert level represents the unique non-representational view that opposes Dreyfus and Dreyfus's own view in other aspects in the topic. To further understand Dreyfus and Dreyfus's perspectives, it is useful to give an account of the framework that inspires and underpins their view.

The Phenomenological Underpinning and Scientific Buttressing of the Skill Model

Dreyfus and Dreyfus's skill model is significantly influenced by the works of the existential phenomenologists Martin Heidegger and Maurice Merleau-Ponty. With regard to this discussion, it is necessary to introduce two terms of particular importance which are presented in Merleau-Ponty's *Phenomenology of Perception* (Merleau-Ponty 1962): these are '*intentional arc*' and '*maximal grip*' (Dreyfus 2002; Dreyfus 2007). Through these expressions, Merleau-Ponty challenges the representationalist philosophy of mind by emphasising how the active body is able to inhabit the world with no recourse to mental representation in the brain. With the *intentional arc*, Merleau-Ponty describes the close connection between the human body and the world. As the active body acquires skills, these skills are not 'stored' as memories or representations of previous experiences, but they are kept in the brain as dispositions to respond to the solicitations of situations in the world. Merleau-Ponty describes this as the way that our successful coping is able to continually enrich the way things in the world show up for us (Dreyfus 2005). Rather than being *represented* in the mind, the skills are *presented* as the ability to make finer and finer discriminations of a situation which in turn solicits a more and more refined and appropriate response (Dreyfus 2007). The process, by which the active body establishes this close connection to the perceived world, or Merleau-Ponty's intentional arc, finds its corresponding description in Dreyfus and Dreyfus's two highest stages of skill acquisition. It is exactly this process that allows Dreyfus and Dreyfus to emphasise that, based on past experiences, the body becomes gradually able to respond to the solicitations of situations.

Merleau-Ponty's objections to representationalist philosophy of mind can be defended on phenomenological and neurological levels. Dreyfus and Dreyfus have found corresponding support for the non-representational view in the works of one of the founding fathers of neurodynamics, Walter Freeman. Freeman proposes a model that includes many of the same features as Merleau-Ponty's phenomenological descriptions of the intentional arc. In Freeman's model, which is based on the Hebbian rule of learning,[10] he argues that the animal's perceptual system is primed by the reward of past experiences.[11] Through strengthened synaptic connections and a process whereby similarly responding neurons wire together, the brain produces what Hebb calls *cell assemblies* (Hebb 1949). Based on past experiences, cell assemblies are able to respond to significant and meaningful sensory input. They also have the ability to select the

significant input from the noisy background. This selection of meaningful stimuli from the background is driven by what Freeman understands as the brain going into an attractor state, a process that is inaccessible to conscious thought (Dreyfus 2007; Freeman 1991).

Merleau-Ponty's intentional arc is further closely connected to his idea of *maximal grip*, which describes the body's inherent ability to refine its responses with the aim of bringing the situation being experienced closer to an optimal gestalt. When the body manages to respond to the solicitations of the situations in an optimal way, the behaviour corresponds to Dreyfus and Dreyfus's description of the *intuitive expert*.[12] Dreyfus and Dreyfus claim, with reference to temporal difference reinforcement learning (TDRL), that human beings may be able to refine and optimise these responses without any need for mental representations. TDRL is an algorithm that initially was developed to implement learning from experience in computers. About ten years ago neuroscientists proposed that this algorithm was also accomplished by the brain, and that dopamine was the reward-related substance needed by the algorithm to reinforce its own appropriate responses (Schultz *et al*. 1997).[13] In reference to 'maximum grip', the TDRL approach implies that if things are going as expected the temporal difference is near zero and the response continues as initiated. If things are developing unexpectedly poorly the temporal difference becomes negative (i.e. reward is less than expected) and the behaviour should be adjusted to a better one (Dreyfus 2004).

Dreyfus and Dreyfus's Critique of How Information-processing Traditions Understand Expertise

Even if Dreyfus and Dreyfus's phenomenological approach to skill acquisition is understood as superficially coincidental to the information-processing tradition, Dreyfus and Dreyfus have at least four major objections to this tradition's understanding of the underlying structures of high-level performance.

First, Dreyfus and Dreyfus object to the view that experts use the automatic processing of information in the same way as a digital computer (Dreyfus 2004).[14] Secondly, Dreyfus and Dreyfus raise objections to the idea that high-level performance is based on mental representations of previous experiences where the skills are stored as mental representations in the mind (Sutton 2007). Thirdly, Dreyfus and Dreyfus disagree with how the information-processing tradition understands the concept of intuition as *pattern recognition*. In this respect a 'pattern' is understood as information that normally chunks together, so if you see some pattern-related cues you may probably also find the others. These patterns are accumulated through experience and stored in our memory, so the more patterns one learns, the easier it is to match new situations to a pattern that has been encountered in the past (Klein 2003). While initially this solution was obtained through slow problem-solving mechanisms, it is now accessed automatically by memory look-up. From Dreyfus and Dreyfus's point of view, this is a process requiring mental representations and cannot therefore be considered as intuitive.[15] Dreyfus and Dreyfus's final objections are in the belief that experts need to follow rules, even if these rules are 'proceduralised' or are used in an unconscious way. Rather, they maintain that rule-following behaviour belongs to lower levels of human performance and that experts do not rely on rule-based behaviour at all (Dreyfus 2002).

Even if Dreyfus and Dreyfus are not in accordance with how the information-processing tradition understands the underlying cognitive structures for high-level performance, it is misleading to argue that all perspectives within the information-processing approach are alike. In fact, the expert's use of automaticity has been a question of considerable disagreement. The scientific tradition founded on Fitts's framework has been criticised for not dealing with expert performance like competitive sport and only with everyday habitual skills. Ericsson claims that there are significant qualitative differences between those who reach for optimising their skills and those who only need to be good enough to cope with everyday challenges (Ericsson 2006). He uses sport to exemplify one of the skill domains within which it is common to reach for optimal performance. While the goal for everyday activities is to attain a satisfactory 'autonomous' level, as rapidly as possible and with minimal effort, Ericsson states that 'In contrast, expert performers counteract automaticity by developing increasingly complex mental representations to attain higher levels of control of their performance' (Ericsson 2006, 685). This will keep the athletes in a kind of advanced version of Fitts' 'cognitive' and 'associative' stages, even if the performance is on a level far above what is normal at these stages. Returning to the tennis example mentioned earlier, an expert tennis player will, according to Ericsson, not be willing to rely on automated processes and will instead execute strokes with cognitive attention allocated to counteract the automated behaviour.

Ericsson is not alone in stressing the importance of conscious control as a criterion for optimising performance. Studies trying to distinguish novice from expert performance in sport pinpoint cognitive control structures as one of the single most significant reasons for diversity in level of performance. The control structures are believed to rely on particular forms of memory and the demands placed on attention are variable. Both the memorial substrate and attentional demands of these control structures change as practice accumulates and skill proficiency increases (Beilock and Carr 2004). In other words, the investigations by psychologists involved in research on expert athletes reveal that many scholars have an undoubted belief in the use of cognitive control among top athletes during their skill execution. With these different views in mind, it is now time to focus on the first of our two main questions.

Is the Skill Model Applicable to Competitive Sport?

Since the highest level in Dreyfus and Dreyfus's skill model is concerned with expertise, it should be expected that this description includes performance at the highest possible levels, but is this really the situation? Research on expertise has traditionally been divided into two groups depending on the focus of the scientific work (Ackerman and Beier 2003). The first group focuses on expertise as *a level of performance* where experts are identified as those who have special skills or knowledge representing mastery of a particular subject or skill domain. This research is normally focused on detecting who the experts are and what capacities bring about this high-level performance. The second group considers expertise as a particular *mode of behaviour* and as such focuses on detecting patterns of behaviour which characterise expert performance.

Dreyfus and Dreyfus arguably belong to the second group. This is illustrated in the claim that 'To say that someone is an expert does not mean that they always make the best response to the situation. They are doing things in the non-reflective way that we call intuitive' (Dreyfus 1998, 1).[16] Again, close parallels can be drawn between

Dreyfus and Dreyfus's approach and the work of Merleau-Ponty. Their emphasis on describing expert behaviour, rather than the level of performance shown by the expert, finds its corresponding description in Merleau-Ponty's considerations of the performer's search for movements that feel *appropriate* rather than those that count as a *success* (Merleau-Ponty 1962). Appropriateness and success can be observed as two types of satisfaction which can be separated from each other. Returning once more to the example of tennis, there is a distinct difference between appropriate executions of a stroke and a successful stroke. According to Merleau-Ponty, the body of the performer is solicited by the situation to perform appropriately. If I return the ball and it feels just right, it is an *appropriate* performance even if the ball fails to land in the court, caused by circumstances out of my control. On the other hand, I may *succeed* in returning the ball in the court even if the stroke is a catastrophe. I may even win the point (Dreyfus 1999). Through this example Dreyfus and Dreyfus emphasise that absorbed coping must feel satisfaction independent from the success achieved. To try to place the expressions about *appropriateness* and *success* in accordance with the question about how we peak our performances in competitive sport, the criteria of *success* may seemingly be favoured. In many sports the rationality of the game is partly concerned with the objective criterion of *succeeding*, and as in competitive tennis the points are counted and the winner is the one who has successfully outperformed his opponent the most times. This success is independent of who may have played most appropriately. Dreyfus and Dreyfus view considers that to win or to have success in competitive sport is of course a desirable part of participation, but the success follows as a consequence of the expert's appropriate performance.

Moreover, the expert's *appropriate* performance does not exclude her or him from performing at an optimal level. If the appropriate behaviour correlates with the requirements underlying high performance, this may even be achieved through *absorbed coping*. Outstanding performances of world-renowned tennis players such as Rafael Nadal and Roger Federer are probably considered by Dreyfus and Dreyfus as being executed by actions that are *appropriate* and as by expert behaviour.[17] The main objective of Dreyfus and Dreyfus's approach is to give a description of our everyday way of dealing with things and people, or what is termed by Merleau-Ponty (1962) as *habitual* behaviour. Yet it is possible to interpret Dreyfus and Dreyfus's expert with the notion that high-level performance may be attainable by reaching for appropriate behaviour.

Does Dreyfus and Dreyfus's Skill Model Grasp the Distinct Task Characteristics of Different Competitive Sports?

Even if the skill model arguably manages to describe high-level performance in sport, exemplified in this essay by tennis, this does not automatically imply that the model will be suitable to take into account the distinct characteristics of all sports. Is it possible to consider all kinds of task characteristics in different sports as belonging to one huge homogenous category of skill domain? In fact, Dreyfus and Dreyfus's approach does present a lack of distinction to the nuances of this question and shows little concern with regard to the uniqueness of different sports. For Dreyfus and Dreyfus, sport seems to be considered as one huge skill domain and different sports are therefore equally and appropriately described by the use of intuitive behaviour at higher level of performance.[18]

They do divide different skills into two groups, *crude-skills* and *subtle-skills*, but all skills related to sport are placed in the subtle-skill category (Dreyfus and Dreyfus 2005).[19]

The view that all kinds of task characteristics in sport are considered as belonging to one skill domain does not place recognition or value on the enormous diversity of elements represented in different sports. It is argued here that the particular task characteristics of a sport both impact and influence one's behaviour, even in regard to one's cognitive capacities. Indeed a more nuanced approach would be to identify whether different sports demand specific behaviour in relation to the utilisation of contextual knowledge of very experienced athletes.[20]

The following examples highlight some task characteristics that should be considered:

(i) *Time available*: The Iditarod, a dog-sledge race in Alaska, sees the winner reaching the finish line after ten days alone in the wilderness. On the other hand, a batsman in cricket must respond to a ball reaching the bat in less than 0.3 seconds. Are these competitors supposed to optimise their performance by using the same intuitive behaviour? Or is it possible that at least one of them also takes advantage of some kind of deliberate thought during their performance?
(ii) *Opponents*: In terms of cognitive behaviour, is it true to say that performing a sport alone is different from having two or ten opponents to take into consideration?
(iii) *Team sport*: Looking at cognitive behaviour, is performing an individual sport different from acting in accordance with two or ten team mates?
(iv) *The level of the stakes*: Does competing in a prestigious competition, where errors will cause fatal consequences, affect your behaviour?
(v) *Style*: When performing a sport where judges evaluate and grade performances, does this affect your behaviour? Is there a difference in cognitive control between a figure skater and a weight lifter? and
(vi) *Risk*: If the sport involves any dangerous or risky aspects, does this affect the way you behave during performance? Does one think more when jumping out of a plane with a parachute or when white-water kayaking than when running a marathon?

These examples represent just a sample of different task characteristics involved in sport. The picture gets even more complicated when characteristics are combined or when personal preferences are included. For example, is it possible that the amount of deliberate engagement, even if the level of performance is equal among competitors, differs depending on how different athletes prefer to execute their skills? In marathon running, is it possible that some athletes desire to constantly monitor and correct their technique during the race, while others just run?

Some Exceptions from Intuitive Expert Behaviour

Although different task characteristics are not taken into consideration in Dreyfus and Dreyfus's description, it can be assumed that they agree with the idea of different task characteristics existing in different sports. For example the expert dog-sledge racers will probably meet challenges that are best solved by reliance on both intuitive and thoughtful activity to maximise their performance. So rather than engaging in the exercise to identify different task characteristics, Dreyfus and Dreyfus propose a different solution to

overcome this challenge to their approach with skills regarded as stereotypic. Instead of separating and nuancing the particular task characteristics in sport, they hold that there are different circumstances where detached deliberation can prove useful to human experts.[21]

The first and arguably most important condition that allows the expert to engage in deliberate behaviour is concerned with the amount of time available in particular situations. Though they reason that expert performance is ongoing and unreflective as an immediate situational response, Dreyfus and Dreyfus do state that the best of experts, *when time permits*, think before they act. The expert's way of thinking differs from the deliberate thinking done by less experienced performers. Dreyfus and Dreyfus's expert reflects upon the goal or perspective that seems evident to him *and* upon the action appropriate to achieve the goal. This kind of rationality is a detached, reasoned observation of one's intuitive, practice-based behaviour with an eye to challenging and perhaps improving our own intuition (Dreyfus and Dreyfus 2005). The notion of 'time permitting' deliberate behaviour deserves to be elaborated upon as Dreyfus and Dreyfus do not suggest how much time the best experts need for the process of thoughtful activity; this is therefore an area for speculation. One second may or may not be sufficient time for the experts to think before they act. Dreyfus and Dreyfus's expert is someone engaged in a process characterised by distinctive changes in the use of cognitive capacities; between thinking and not thinking. This notion may even be understood as a contrast to their own description of the expert in flow.

Dreyfus and Dreyfus also emphasise that deliberate action may occur when ongoing intuitive behaviour is *interrupted*, like a non-working tool or equipment (Dreyfus 2001). Another circumstance when deliberate behaviour may be engaged in is if *more than one compelling perspective or action intuitively presents itself*. In such a situation the expert has to decide deliberately what action(s) to choose. This may also occur *if the expert deliberately wants to challenge his own perspectives* regarding a specific situation, such as to decide if another approach to the situation can prove suitable (Dreyfus and Dreyfus 2007).

Deliberate behaviour may also be appropriate if the expert is confronted with a situation that is recognised as *sufficiently novel*; this may be due to no or very limited experience of the particular situation. The expert will not be able to act intuitively and is in fact no longer an expert regarding that particular skill. Similarly this may also occur when the expert is learning a new skill (Dreyfus 2001). In such situations the expert has to regress to behaviour displayed by less experienced performers which involves planning, goal-directedness, analysis, deliberation and rule-following (Dreyfus and Dreyfus 2005). So in examining the idea of novel situation, how is a situation perceived as being sufficiently novel to force a behavioural change? All situations are by nature 'novel' as they are not identical to what we have experienced before even if they may be similar to a situation we have coped with in the past. At some point, however, there must be a mechanism that indicates when a particular situation is sufficiently novel to be solved by cognitive capacities other than the intuitive one. An interesting question in this regard is whether the ability to identify when the situation is sufficiently novel is achieved by deliberate or by intuitive processes.[22]

All these exceptions enable Dreyfus and Dreyfus to bypass the issue of the diversity of task characteristics in sports. It is fair to suggest that competitors in the dog-sledge race do have *enough time* to reflect upon how to achieve their goals and to reflect upon their

own actions. During the race they will use deliberate processes parallel to the intuitive processes that respond to known situations by habitual action. In other words, the expert dog-sledge racer may use explicit thinking during the race and still be considered to be performing as an expert. In most sports competitors may at times find themselves in situations perceived as *novel* and will use deliberate strategies to choose how to resolve these situations in the best possible way. The expert in white-water kayaking may end up *with two compelling actions* that present themselves intuitively and, time permitting, may then deliberately decide which intuitive alternative to choose. The expert batsman in cricket may rely on intuition only, providing that there are no surprising elements during the bowler's delivery.

It appears that the only circumstances when these exemptions do not offer a sufficient explanation are situations containing risk and danger, or if much is at stake. Psychological research has found that in activities where the consequences of failures are serious, performers do not rely on automated behaviour, even if they have practiced the actions thousands of times. Instead they perform their skills with extensive use of conscious control. Circus trapeze acrobats, an activity related to some risk-holding sports, have been used as examples of this kind of behaviour (Eysenck 2004). Ericsson's (2006) earlier mentioned findings state that expert performers counteract automaticity by developing increasingly complex mental representation to attain a higher level of control of their performance. This could also be seen as a strategy to avoid failure in competitions when much is at stake.

The expert's 'legal' use of deliberation caused by these exceptional circumstances renders Dreyfus and Dreyfus's skill model a lot more flexible, but at the same time less unique. It is now possible to consider the expert as someone who will use intuition as an immediate and non-reflective response to a situation, provided that everything is in accordance with what experience has shown to be appropriate behaviour in normal, known and unambiguous situations. Yet it could be argued that many sports contain task characteristics that are exactly the opposite; they are characterised by being novel, unpredictable and ambiguous. Taking these assumptions into account, the task characteristics of competitive sport will force Dreyfus and Dreyfus's expert athlete to use non-intuitive behaviour when these circumstances occur; even if they still perform at the highest possible level of performance. The exceptions also bring Dreyfus and Dreyfus's approach closer to more traditional cognitive views of how we flexibly switch between different kinds of cognitive behaviour. Frameworks like 'the cognitive continuum theory' (Hammond 1980) describe our moment-by-moment variation in the use of intuitive and analytical cognition. According to this theory, the mode of cognition used on any type of judgement, decision-making, or problem-solving task can vary on a continuum ranging from intuition to analysis. In between these poles we find a kind of cognition referred to as quasi-rationality and here it is the task in hand that determines what kind of cognition the performer will utilise (Hamm 1988). This view suggests that human beings have the ability to move between rational and intuitive behaviour and that the switch may occur quickly if the behaviour does not fit the situation. These quick changes will occur frequently if the challenge requires a high level of precision (Hammond 1996).[23]

The question 'Does the skill model manage to grasp the distinct task characteristics of different competitive sports?' is probably best answered with both a 'no' and a 'yes'. As highlighted in this paper, the influence that task characteristics of different sport may have on the expert's behaviour are not something taken into account by Dreyfus and Dreyfus.

The different circumstances, which force the expert to use detached deliberation, enable Dreyfus and Dreyfus to bypass the challenges raised by several task characteristics that arguably are common in different sports. At the same time, this detached deliberative behaviour shown by the expert is no longer non-representational; it is even conscious, deliberate and effortful. In accordance with Dreyfus and Dreyfus's approach, this notion implies that during skill execution expert athletes rely on cognitive capacities that are regarded as both representational and non-representational. These capacities vary with and are dependent upon the level of time available, situational novelty, situational ambiguity and personal experience of the particular task the athlete is executing.

What Are the Consequences and Implications of a Non-representational Approach to Expert Behaviour in Competitive Sport?

It is an interesting exercise to transfer Dreyfus and Dreyfus's views about non-representational behaviour to the field of training and development of skills in competitive sport. Their understanding of how the underlying cognitive structures are organised and operate during highly skilled performance will have consequences on looking to develop and maintain a high level of performance. It is useful to contrast the effects that implications and consequences of this approach may have on those who rely on a more representational view of skill execution. The contrasts and differences are perhaps most visible when Dreyfus and Dreyfus's approach is confronted with those holding that expert performance is executed with use of control and deliberation. An important prerequisite for this discussion is to distinguish between intuitive and deliberate skill execution and to emphasise these distinctions with the consequences of intuitive expert behaviour. The intuitive behaviour must not be confused with practical deliberate behaviour executed without (what psychology considers as) conscious rehearsal of such deliberation.

In accordance with Dreyfus and Dreyfus's approach, the performer's behaviour is shaped as a bodily response to the perceived situation through one's interaction with the environment. This is an expression that seems to fit well within the skill domain of competitive sport. As mentioned earlier, through extensive experience with different situations of a specific task, the expert stores bodily dispositions with which to respond to similar situations in an appropriate way. The bodily dispositions for a proper response are in fact the strengthened synaptic connections in the brain that change on the basis of experience (Dreyfus 2002; Freeman 1991). The modifications, based on the outcome of previous responses, can reinforce the synaptic connections that produce successful responses to similar situations (Dreyfus 2004). The strengthened synaptic connections that influence further responses to similar situations are believed to be beyond influence by deliberate behaviour or conscious control of the expert. In short, this is the neurological basis for the non-representational approach stated by Dreyfus and Dreyfus. Similarly, the information-processing approach determined by Fitts also considers experience to be the primary source for skill development. In contrast to Dreyfus and Dreyfus's non-representational approach, psychologists espousing the information-processing claim believe that experience creates finer and finer mental representations of past experiences. These mental representations are then utilised through deliberate thought or memory recall, even if this is done without conscious control. These significant differences regarding the use of our cognitive capacities during skill execution will arguably affect

how to most efficiently develop the skills necessary for an optimal performance. Consider the following examples.

The intuitive and non-representational view of an experience-based response to specific situations implies that we have no deliberate access to thoughts; they are considered as a product of intuitive skill execution. According to Dreyfus and Dreyfus, the very nature of intuitive behaviour implies that no accessible or conscious thoughts are produced during this kind of skill execution. Explicit thoughts and reflection are not necessary because the response to the situation relies on bodily dispositions that react immediately to the specific situation. One may try to recapitulate what one did through retrospection but in doing so one constructs a pleasing description about what one thinks one was doing, not what one really did. One may also try to monitor what one is thinking about during skill execution, but in doing so, one makes one's thoughts explicitly accessible by forcing oneself to non-intuitive behaviour through reflection (Dreyfus 2004). If Dreyfus and Dreyfus's assumption is correct, it will have huge implications for skill development. On the athlete's level, it will imply that what one thinks one is doing should not necessarily be used as guidance for one's training procedures. If training and practising is based on what one's retrospective and introspective explanations indicate as important parts of the skill execution, this may result in focusing on aspects of the performance that are not important or even irrelevant. This implication may have even wider consequences. Much of the research on expert performance is carried out by analysing verbal protocols recorded either during performance or as close to the activity as possible. Dreyfus and Dreyfus object to this research practice as, in their view, this method is not capable of capturing the unique intuitive expert behaviour. Intuitive behaviour occurs below the level of conscious or unconscious thought and is per se not accessible through deliberate retrospection. This is apparent when they state that 'the experts cannot give a trustworthy explanation for behaviour in terms of rules, principles, or a theory of the domain'. (Dreyfus 2004, 186) And further, 'Thus, when an expert is forced to give the *reasons* that led to his action, his account will necessarily be a retroactive *rationalization* that shows at best that the expert can retrieve from memory the general principles and tactical rules he once followed as a competent performer' (Dreyfus 2005, 9). This implies that traditional research into expert performance cannot be regarded as a source of knowledge in learning how experts really respond to specific situations. At best it describes reflective behaviour common to less experienced performers.

Dreyfus and Dreyfus's non-representational approach to expertise asserts that experts facing situations that require immediate action do not think. That is to say there is no deliberate effort to diagnose the situation, to analyse different options for action or to choose the action that appears to be the most appropriate response to the situation. From Dreyfus and Dreyfus's viewpoint, the appropriate action will intuitively present itself based on past experiences. This notion emphasises that during quick skill action it is not possible for the intuitive expert to make any deliberate decision. It also implies that the expert does not make hypotheses, form plans or deliberately solve problems. That is not to say that the expert should not analyse and reflect upon the outcome of intuitive decisions after the action, but that this analysis or reflection only should be used to refine and perfect the non-reflective response to the situations. This notion also implies that many kinds of analytical decision-making devices would in effect be useless for the intuitive expert in action.

Since Dreyfus and Dreyfus's approach maintains that brain synapses are modified as experience develops, it is not necessary to explicitly store a memory of each experience. This does not imply that the expert does not have the ability to monitor the different phases of the performance; it is just not necessary for the expert to recall this memory to be able to respond to similar situation. The experiences are stored as strengthened synaptic connections in the brain and are accessed without any need for mental representations. This behaviour is thought to characterise expert performance even in strict cognitive activities such as playing speed chess. The expert does not need to recall any specific situations from previous games to be able to use the result of a particular experience to produce a response in a similar situation. The implication is, therefore, that expert chess performers do not need to develop their explicit memory to perform at higher levels.

Dreyfus and Dreyfus's approach implies that skill development, or improved situational response, is a continuous process that occurs during skill execution. It is important to emphasise that they even consider experience-based skill acquisition to be an internal process that does not require any kind of conscious thought. They believe that humans and animals have a neural mechanism that through experience automatically learns an expectation about the reward associated with the outcomes of various perceived situations. If an action is evaluated (non-representationally) as improving the expected reward, the action attains a greater possibility in the future (Dreyfus 2004). This draws a picture of skill learning as a process that, in broad terms, takes care of itself. It even implies that given enough relevant experience, the body is capable of improving its own responses. Dreyfus and Dreyfus state that this internal-based skill development may lead the expert to be stuck on a local plateau of performance. In this case a coach may be needed to suggest alternative action to help the expert to improve, while at the same time imitating the skilful performance of masters can also perform this function (Dreyfus 1998). It is important to emphasise that these external impulses do not suddenly cause improved performance, but rather that it is through further extensive practice of these aspects of the performance that the expert may slowly modify intuitive situational responses towards further incremental improvement. This notion stresses that skill learning is still considered as 'trial and error' in its nature, even though imitation and coaching may be beneficial to the expert's reach for excellence. To use Dreyfus and Dreyfus's approach as guidance to developing expertise in sport, it would be important to create environmental conditions regarding training and preparation that will result in a broad spectrum of possible variations. This will contribute to providing a good foundation for the athlete to develop skills that are flexible, experience-based and reliable in challenging situations.

Conclusion

The focus of this essay has been on Dreyfus and Dreyfus's phenomenological approach to skill acquisition and to what extent it gives a better understanding of how experts in the skill domain of competitive sport use different cognitive capacities during skill execution. Two questions were posed and have been elaborated on using an initial review of different approaches to the topic. The first question was whether Dreyfus and Dreyfus's approach is capable of grasping the distinctive characteristics of high-level performance in competitive sport. A central issue emerged as to whether Dreyfus and

Dreyfus's description of the non-representational intuitive expert includes behaviour characterised at the optimal level of performance, or whether it is merely a description of our everyday way of dealing with things and people. In this respect a reliance on the existential philosophical work of Merleau-Ponty was found to pinpoint the discussion. Through examples from competitive sport, Dreyfus and Dreyfus claim that their description of expertise includes performance at the highest level when the skill model is supplemented by a new highest level, termed mastery. This led to questioning whether, in their approach, Dreyfus and Dreyfus consider the implications of the differing characteristics of various sports. Using examples from a broad spectrum of sports and their respective characteristics, the discussion examined whether intuition is the only cognitive capacity used to achieve optimal performances. Dreyfus and Dreyfus's approach was found to challenge this notion. They contend that there are certain circumstances where the expert turns to the use of deliberative behaviour before responding. Given the characteristics of certain competitive sports, this implies that experts sometimes rely extensively on both deliberative and intuitive behaviour during skill execution.

The second question considered the consequences and implications of a non-representational approach to expert behaviour in competitive sport. Examination of this question has shown that Dreyfus and Dreyfus's approach has several implications when applied to the area of competitive sport. The most obvious implication is a consequence of the very nature of the skill model, since it represents rejection of the information-processing tradition. As such, this implies a rejection of the scientific approaches that belong to the information-processing tradition, yet most expertise research on competitive sport lies within this tradition. Lastly the discussion turned to contrasting the practical implications that arise from applying the two different approaches to practice and skill execution.

The intention of the paper was to emphasise that Dreyfus and Dreyfus's approach to skilful behaviour may not be as controversial and extraordinary as it appears to be at first glance. In fact, in their exceptions of the purely intuitive expert behaviour, Dreyfus and Dreyfus appear to share several important aspects in common with more representational views. What, however, remains unique to their approach is the explanation of intuitive behaviour as non-representational as opposed to the information-processing tradition's understanding of intuition as the unconscious use of mental representations.

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NOTES

1. The focus on inner mental aspects of human behaviour such as attention and memory was previously denied by the behaviourist tradition.
2. In the domain of sport psychology, regarded as a sub-category of experimental psychology, the information-processing approach has become highly influential since the

middle of the 1960s (Summers 2004). This approach also reflects the psychological scientific zeitgeist of the time, although recent developments in ecological psychology, and in particular the dynamical system theories have proposed challenging anti-mentalist approaches to this hegemony (Abernethy and Sparrow 1992; Beek *et al*. 1995; Huys *et al*. 2004; Kihlstrom 1987).

3. The view that human cognition may comprise two different types of processing, controlled and automatic, was stated as early as 1890 by William James (James 1890). The further development of a dual processing theory of controlled and automatic processing, is perhaps best exemplified by the work of Schneider and Shiffrin (Schneider and Shiffrin 1977; Shiffrin and Schneider 1977).
4. According to Hill and Schneider, by the year of 2006 there were more than a hundred ongoing experiments tracking learning or expert performance by using fMRI and other non-invasive methods (Hill and Schneider 2006).
5. Dreyfus and Dreyfus's approach to skill acquisition is often referred to as 'the skill model' and this term will also be used in this text.
6. When there is reference to Dreyfus and Dreyfus and their approach to skill acquisition as one entity, I do this even with the knowledge that some of the texts cited are written by only one of them. Their tight collaboration for about 30 years, both making significant contributions to the skill model, is the reason for this unified reference style that I have chosen.
7. Dreyfus and Dreyfus's skill-model aims to describe how *adults* are learning new skills through instruction. This is with the purpose of making the phenomenology of skill development as clear as possible, even if they admit that many of our skills are acquired at an early age by the use of different learning strategies (Dreyfus 2004). Regarding the domain of competitive sport, there is no doubt that the skills needed to perform at highest possible level as an adult are acquired mainly at an early age. This implies that the adult expert competitor presumably has learned and developed his/her skills through other strategies than the way Dreyfus and Dreyfus describe the lowest learning stages in their model. This may not be considered as a problem as long as the adult's expert skill execution is independent of how the skill was initially learned.
8. Dreyfus and Dreyfus claim that it is easier to understand the situation intuitively than it is to react intuitively to it. This is inevitable since there are far fewer ways of seeing situations than there are ways of reacting. The proficient performer has not yet had enough real experience with the outcomes of the wide variety of possible responses to each of the situations to react intuitively (Dreyfus and Dreyfus 2007).
9. A*utomatic* task representation, to use the term of Schneider and Shiffrin (Schneider and Shiffrin 1977; Sutton 2007), is characterised by decreased conscious control while the performance is fast, parallel, non-volitional and without any demands of attention. What makes automated behaviour so desirable from an information-processing perspective is that these processes consume little or no attentional resources, and will not produce a bottleneck in information processing. The cognitive capacity needed for attentional control can then be allocated to activities requiring more of this capacity (Hill and Schneider 2006; Kihlstrom 1987). Fortunately for athletes, posture and the majority of bodily movements operate in most cases without the need of awareness about the body and are therefore normally performed without any use of our conscious capacities (Gallagher 2005).

10. Donald Hebb (1949) proposed a way that learning may take place at the level of synapses. If the connections between two cells are strengthened as a result of a successful prior experience, a functional bond is created, and the synaptic connection will normally be activated if a similar situation appears again.
11. On the basis of years of work on olfaction, vision, touch and hearing in alert and moving rabbits, Freeman has developed a model of rabbit learning based on the coupling of the rabbit's brain and the environment (Freeman 1991). For a more detailed examination of Freeman's model, projected onto the phenomena Merleau-Ponty has described, see Dreyfus (2007).
12. Dreyfus and Dreyfus prefer the term *absorbed coping* to describe how the intuitive expert responds to everyday challenges in life and is how Dreyfus and Dreyfus express Heidegger's description of our everyday dealing with our environing world (Heidegger 1962). Breivik (2007) has given an extended analysis of Dreyfus and Dreyfus's expression of absorbed coping and of their reliance on Heidegger.
13. A veritable flood of papers in the past ten years have supported, most using animal subjects and human brain imaging, the TDRL speculation. These papers identified the brain areas receiving dopamine neuron projections that seem to play roles in this process (Dreyfus 2004).
14. Dreyfus and Dreyfus's use of the term 'intuitive behavior' instead of the term 'automatic behavior' is an important distinction even if these kinds of behaviour may seem quite similar. Dreyfus and Dreyfus consider *automatic processing of information* as a hallmark of the information-processing tradition's approach. By using the term 'intuition' they create an explicit distance from this approach by proposing a description of the expert behaviour without the use of any rule.
15. An interesting notion in this regard is that Dreyfus and Dreyfus used the term 'pattern recognition' as their explanation of intuition in the 1986 version of *Mind over machine* (Dreyfus and Dreyfus 1986). By the 1988 paperback edition of the book (Dreyfus and Dreyfus 1988), they had replaced all references to 'pattern recognition' by 'discrimination and association' based on their new insight into artificial neural networks. This point is also mentioned in the 1988 preface. This turn has caused some confusion about Dreyfus and Dreyfus's understanding of intuition. Those who only know their approach through the 1986 version may get an incorrect understanding of their current view on intuition (Dreyfus 2004).
16. Dreyfus and Dreyfus's description of the expert as someone who doesn't necessarily represent mastery in their skill domain has been opposed by the tradition that focuses on expertise as a level of outstanding performance. The opportune critical question has been raised: why elaborate expertise if this kind of expertise may represent mediocre performances? It has even been claimed that the Dreyfus and Dreyfus approach describes only lower and intermediate levels of expertise (Shanteau 1992).
17. Personal correspondence with Stuart Dreyfus.
18. While chess and car driving are the most common examples used to describe human behaviour in the skill model, tennis is not the only sport used by Dreyfus and Dreyfus to exemplify expert behaviour. The baseball outfielder (Dreyfus 2007) and the basketball player Larry Bird (Dreyfus *et al.* 2003) are both used with the purpose of giving examples from real life. Neither of these sport examples has been used to discuss whether task characteristics affect behaviour in some specific direction.

19. The characteristics that separate these two groups are, according to Dreyfus and Dreyfus, related to the question whether it is possible to perform the skills expertly while thinking about something else. Driving is an example of a crude skill; it is possible to think about other things while driving a car. By contrast, the subtle skills like competitive sport require intense concentration (Dreyfus and Dreyfus 2005).
20. Sutton (2007) elaborates how batsmen in cricket make use of embodied memory. Through his extensive knowledge of cricket, he gives a trustworthy and context-sensitive description of how batsmen respond to the specific situations they get exposed to during a game.
21. This lack of investigating whether different task characteristics influence the expert's behaviour probably finds its explanation in the fact that the skill model aims to describe human performance in philosophical terms in general and not in sport in particular. Sport is only used as examples of skilful human behaviour with the purpose of being examples only.
22. The different exceptions from the intuitive style of behaviour presented here should not be seen as a complete list of circumstances where it is appropriate for the expert to engage in deliberate actions. They should rather be understood as examples Dreyfus and Dreyfus give to show that there are situations that solicit the expert to respond with a wider repertoire of cognitive capacities than only depending on intuitive responses to particular situations.
23. According to this approach, the performer may even be in position to control his own cognition and may choose to change from intuitive to analytical cognition, even if the characteristics of the task are constant (Hamm 1988).

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Should Soldiers Think before They Shoot?

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ABSTRACT *Intuition has increasingly been considered as a legitimate foundation for decision-making, and the concept has started to find its way into military doctrines as a supplement to traditional decision-making procedures, primarily in time-constrained situations. Yet, absent inside the military realm is a critical and level-headed discussion of the ethical implications of intuitive behaviour, understood as an immediate and situational response with no recourse to thoughtful or deliberate activity. In this article the author turns to phenomenological philosophy, and in particular to the works of Hubert and Stuart Dreyfus, to elaborate on the ethical implications and consequences of intuitive behaviour. Dreyfus and Dreyfus understand moral behaviour as a skill, and as such they claim that it is possible to develop this capability through practice. They even claim that intuitive behaviour is the hallmark of the way experts respond to situations. The article seeks to investigate if the prerequisites for development of experience-based intuition are fulfilled inside the frames of military operations. The possible implications and consequences of utilizing such a capability are also emphasized. The article's empirical materials are qualitative and build mainly upon extracted information from interviews and informal conversations with Norwegian soldiers and officers serving in Afghanistan under ISAF's Regional Command North in 2007 and 2008.*

KEY WORDS: Intuition, moral behaviour, moral development, Dreyfus and Dreyfus, ethical implications, expertise

Introduction

One of the recurrent challenges that soldiers and commanders face within military operations concerns the *discrimination* between combatants and non-combatants. Even if this principle of just war theory is founded on reasonably clear criteria stated in the war-regulating conventions, history has shown that the fog of uncertainty and situational chaos makes this crucial task very difficult. Recent conflicts, often known as asymmetric wars, have also shown that these conventions have been deliberately exploited by combatants, who are infiltrating local communities and hiding amongst the civil population to gain shelter and protection. Their 'uniform' may often be the same traditional clothing as the civilian people of that particular area, and their weapons or

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other kinds of military devices are often undetectable. These conditions make it quite impossible for an untrained eye, and even make it difficult for experienced soldiers, to distinguish between these categories. The result is a situation where soldiers are constantly facing a possible threat, and even in civilian communities soldiers are forced to be extremely alert. Attacks may occur at close range from seemingly non-combatant citizens and the soldiers' responses to such situations must be *immediate* to be successful. A consequence of these immediate situational responses, if the soldier does not have time to judge deliberately the situation based on the state of his knowledge, is that the *right* action is a matter of hindsight: only after the response has been executed and the consequences of the action have been measured is it possible to evaluate the given action as right or wrong. And the fact that a single wrong response may have huge consequences for the armed conflict, both on a military operational and political level, contributes further to the importance of good decision-making.

This article does not explicitly deal with the case of shooting combatants. Rather, it seeks to treat the question of *discrimination*[1] as showcasing complex, ambiguous and unpredictable situations that requires a quick, yet wise, sensitive, and ethically legitimate response. The question that arises, which indeed also contains an ethical component, is concerned with questioning to what extent the soldier's response to the situation has a legitimate foundation in *experience-based intuition*, or whether rule-based behaviour, deliberate decision-making, and consequence analysis are a prerequisite for such actions. Or to pinpoint the problem: should soldiers engage in deliberate and thoughtful processes before they respond to upcoming complex and ambiguous situations? In this way the article aims to contribute to *jus in bello*, i.e. acceptable practices in the conduct of war, or in other words, ethics *in* military service.[2]

Deliberation and Intuition

The question of a required deliberate foundation for decision-making has traditionally led to a dichotomous discourse. On the one side we find a view that emphasizes the importance of rational and deliberate behaviour as regards the execution of actions. The following citation is an example of such a stand:

> Soldiers must be able to *recognize* the moral implications in a given situation, reason through the situation to form a moral *judgment*, develop the *intent* to act, and finally, summon the courage and conviction to carry through with the intended *behavior*. (TRADOC Pamphlet 2008: 69)

This view must be considered as being set within the realm of the traditional logical thought processes that have indeed had a paradigmatic position in the military decision-making process (MDMP).

The opposing view is based on a tradition that goes back to the nineteenth century military philosopher Carl von Clausewitz. His description of the 'military genius' in his famous book *On War* pinpoints the ability of the

genius to respond directly to the situation with no recourse to deliberate or thoughtful processes:

> During an operation decisions usually have to be made at once: there may be no time to review the situation or even to think it through ... [T]he concept [of the genius] merely refers to the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection. (Clausewitz 1976: 102)

Clausewitz employed the French term *Coup d'oeil*[3] to describe the military genius' ability to make rapid and accurate decisions. Even if Clausewitz, to the best of the author's knowledge, never made use of the term *intuition* (*Vorahnung* in German) to describe this crucial capacity, it undoubtedly harmonizes with present understandings of this concept. The process of intuition can be well described as follows: 'There is no deductive or inductive step-by-step reasoning and no conscious analysis of the situation ... The mind simply discerns the truth about a situation or a person quickly without a long deliberate effort' (Adair 1985: 92). Clausewitz's emphasis on the importance of the commander's *Coup d'oeil* has recently, particularly within the last ten years, inspired and brought about several contributions to military academic writings on the topic of *intuitive decision-making*. In this tradition, Duggan (2005), Caraccilo and Pothin (2000), Klein (1998) and Saini (2008) all, without exception, highlight the important role that intuition plays in military decision-making.[4] Klein (1998), for instance, gives through his work an impressive quantity and range of examples from the way people, including military commanders, use their experience to make decisions in field settings. His major claim is that highly experienced decision-makers use their intuitive sources of power instead of classical rational models for decision-making.[5]

Rather than treating intuition as an obscure or mystical source of knowledge, it appears that the time has been right, inside the military realm, to exploit the opportunities and potentials contained within this hard-to-explain[6] human capacity. Nowadays, intuition is increasingly considered as a legitimate foundation for decision-making, and the concept has started to find its way into the military doctrines as a supplement to the traditional MDMP procedures, primarily in time-constrained situations: 'there is often insufficient time to apply rules self-consciously, or calculate the consequences of wrong doing' (TRADOC Pamphlet: 68).[7] Yet, absent from these promising descriptions of the important role that intuition plays in military decision-making is a critical and level-headed discussion of the *ethical implications* of such an immediate and situational response.

To find an academic examination about ethical consequences of intuitive behaviour we have to turn to phenomenological philosophy, and in particular to the works of Hubert and Stuart Dreyfus.[8] Dreyfus and Dreyfus's phenomenological approach to skill-acquisition has influenced research on experts and skilful behaviour. Significantly inspired by philosophers like Heidegger and Merleau-Ponty, they have contributed to emphasizing the importance of experience-based knowledge and the role intuition plays in human decision-making. What is interesting in Dreyfus and Dreyfus'

approach is their understanding of moral behaviour as a skill, and as such they claim that it is possible to develop this capability through practice. Expert behaviour, the highest level in their skill-acquisition model, is characterized as an *intuitive situational response* based on what experience has shown to be successful,[9] and this description seemingly has several similarities with Clausewitz's description of *Coup d'oeil*. Even though Dreyfus and Dreyfus developed their model partly as an aid to US Air Force pilots (Dreyfus & Dreyfus 1979), they have not been explicitly engaged in questions concerning military ethics, but have rather been interested in describing how human beings cope with ethical challenges in their daily lives. It is a highly interesting exercise to examine the extent to which their approach is transferable to the domain of military operations.[10]

To explore whether Dreyfus and Dreyfus's phenomenological description of moral expert behaviour is a suitable and relevant framework for attaining a better understanding of ethical dimensions in military operations, the following question will be addressed:

> *Is Dreyfus and Dreyfus's description of moral expert behaviour transferable to the domain of military operations?*

To aid us in this exploration two further questions will be considered:

> *Are the prerequisites for development of moral expert behaviour fulfilled in the domain of military operations?*

And:

> *What are the possible consequences and implications of such an approach to the domain of military operations?*

Given these aims, this article is structured as follows. First a brief outline will be given about how philosophy has traditionally treated moral behaviour. Subsequently, Dreyfus and Dreyfus's description of how human beings develop expertise will be presented, and the topic of moral behaviour will be explicitly used as an example to illustrate their model. Thereafter the article's main discussion will be presented: is Dreyfus and Dreyfus's approach transferable to the domain of military operations, and will it contribute to an increased understanding of how moral behaviour may be developed?

Method

While this article is principally structured as an analytical analysis of the suitability of transferring a phenomenological approach to moral development to the domain of military operations, this analysis will be exemplified and contextualized by the use of empirical material from a qualitative study. The empirical findings build mainly upon information extracted from in-depth, semi-structured interviews,[11] and informal conversations[12] with Norwegian soldiers and officers serving in Afghanistan under ISAF's Regional Command North (ISAFRC N) in 2007 and 2008. The soldiers

and officers accomplished their tasks at the tactical level in the northwestern Faryab Province under the command of the Provincial Reconstruction Team (PRT) Meymaneh. One Mobile Observer Team (MOT) consisting of five soldiers, one liaison officer, and one interpreter has been the subject of special attention in this study. The MOTs are a crucial element in the PRT-organizational concept, as the teams are self-supported, highly autonomous, and far-reaching units. MOT missions can last from one day and up to two weeks, with the main goals being to collect provincial information, display military presence, and broadcast information about ISAF's mission to the people. The MOTs are meant to provide for their own safety whilst travelling around in the scantily populated and often vast terrain. The interviews this article draws upon were conducted some two to five months after redeployment to Norway.

An Ethical–Philosophical Dichotomy

Dreyfus and Dreyfus state that their approach to moral behaviour may be seen as belonging to a tradition that emphasizes ethical comportment rather than the more traditional approach, which emphasizes ideas of rational *judgement* and its *validity*.[13] While the traditional approach has been concerned with telling us what is *right* through engagement in a detached, critical morality based on rules and prescriptive principles, Dreyfus and Dreyfus' approach belongs to a tradition that pursues an active and engaged ethics that aims to determine what is *good* (Dreyfus & Dreyfus 1992, Varela 1999). The two traditions also have contrasting approaches to investigating moral behaviour, and where one finds oneself on these important issues is influenced by which of the relevant phenomena one chooses to investigate. While the traditional approach begins by analyzing the intentional content of an act and ends by evaluating the rationality of particular moral judgements, Dreyfus and Dreyfus's approach proposes to begin by describing our everyday, ongoing ethical coping and to focus on how we use our experiences from relevant situations to refine our moral behaviour (Dreyfus & Dreyfus 1992, Varela 1999). This emerging tradition presupposes that knowledge should be understood as embodied, concrete, incorporated, and lived (Varela 1999). These aspects of knowledge are based on situated experiences from the real world, and this knowledge is useful due to the context from which it is acquired. The achievement of this kind of experience-based knowledge should not be seen as a foundation for analytical behaviour, but as a goal in itself (Dreyfus & Dreyfus 1992).

Dreyfus and Dreyfus's Approach to Skilled Behaviour

Dreyfus and Dreyfus propose a phenomenological description of how human beings gradually, through experience from real situations, acquire skills on their journey from the rule-following novice to the intuitive expert. Their approach is normally referred to as 'The Skill Model' and operates with five different levels of understanding the human skill development process. Each

level is considered by Dreyfus and Dreyfus to be separate, as the levels consist of recognizable and qualitatively different ways to respond to the specific situations that are faced (Dreyfus & Dreyfus 1986). Each step is characterized by a better understanding of the given situation, due to an increased amount of experiences from similar or related situations. Dreyfus and Dreyfus (1992: 118) state that: 'If the skill model we have proposed is correct and if everyday ethical comportment is a form of expertise, we should expect it to exhibit a developmental structure similar to that which we have described [the five levelled skill model]'.

The following presentation of Dreyfus and Dreyfus's approach will utilize what they describe as the central characteristics of each level in the skill model. In an attempt to contextualize Dreyfus and Dreyfus's approach to the discussions within this article, I will try to exemplify each level with how a soldier may be thought to develop the ability to discriminate between combatants and non-combatants, using their increasing experience with real-world moral dilemmas. It must be emphasized that these are *examples* of how this process may work, and they are not explicitly based on empirical work.

Stage 1: At the first level the *novice*, due to a lack of 'own experiences', needs to learn what kind of objective facts and characteristics are relevant to be able to respond appropriately to a given situation. Often, through instruction, the novice learns rules for determining actions and also how to identify these facts and characteristics. Since the novice does not have any own experiences, the facts, characteristics, and actions are presented in a context-independent way so they can be used without reference to the particular situation in which they may occur (Dreyfus & Dreyfus 1992).

A ***novice soldier*** without any experience of military operations may learn as a rule that non-combatants, in accordance with the Geneva Conventions, have total immunity (ICRC 1949). This rule, which is valid independently of any context, is intended to guide the inexperienced soldier into the landscape of discrimination. This rule may be learned and practiced even in a protected learning situation, far from the context in which it should be applied. Training before deployment to a military operation may serve as an example of the level of experience found within this first stage.

Stage 2: By achieving own real-life experiences the learner progresses to the *advanced beginner* level. The learner will gradually experience that dealing with relevant situations gives more adequate guidance for behaviour than the context-independent formulated facts and rules. The advanced beginner will understand which elements in the situation are important and relevant, and new situations will be responded to on the basis of previous successful responses to similar situations. The basis of action for the advanced beginner may contain elements that are based both on own experiences, maxims, and also on context-independent rules (Dreyfus & Dreyfus 1992)

The ***advanced beginner soldier***, serving probably for the first time in a military operation, still has to act in accordance with the rule that non-combatants have total immunity; however, they may have experienced that it can sometimes be extremely difficult to discriminate between combatants and non-combatants. The advanced beginner soldier will experience the necessity

to handle the strict rule of immunity for non-combatants with caution, awareness, and context sensitivity. With increasing experience from relevant situations, the advanced beginner soldier will gradually gain competence to employ the rules and to make use of their own developed context-dependent maxims to respond to new situations.

Stage 3: With even more relevant experience, the learner will advance to the level of the *competent performer.* Since the number of features and aspects relevant to the task becomes overwhelming, the performer learns to adopt a hierarchical, prioritizing procedure for decision-making. The competent performer will approach the situation by choosing a goal and a plan with which to organize what is perceived as the relevant information regarding the concrete situation. By examining the small set of features and aspects that have proven to be relevant to the given goal and plan, the performer can simplify and improve own performance (Dreyfus & Dreyfus 1992). Dreyfus and Dreyfus emphasize that the selection of a plan is crucial to the further development of skills, since, in contrast with the novice and the advanced beginner, the competent performer has to take more responsibility for the consequences of their actions. This will result in a deeper involvement in the outcome of the actions and will further establish a foundation for emotional involvement, which is considered a prerequisite for the development of expertise.

The ***competent soldier*** will, in accordance with his or her own experiences, approach the dilemma of identifying combatants with a goal and plan that has proved successful in similar situations. Only the features and aspects that are viewed as relevant to the chosen perspective will be taken into account. Maybe the competent soldier has discovered a pattern; that combatants are infiltrating civilian communities during specific periods of the week, and it is therefore necessary to be especially careful during these periods. The competent soldier learns to deal with a smaller number of key features instead of the total knowledge of the whole situation. The outcome of the actions, based on the competent soldier's plan, will be that particular soldier's responsibility.

Stage 4: During the first three levels the performer's behaviour is characterized by being deliberate, and if the learner has not simply followed rules, both goals and decisions have been selected and made by conscious choice (Flyvbjerg 2001). The advancement to the fourth *proficient* level requires use of a different kind of cognitive capacity; the use of unreflective *intuition*. The detached rule-based behaviour must gradually be replaced by our experience-based ability to respond to a situation without use of our conscious capacities, like deliberate choice or reflection. Through our experiences, the resulting positive and negative outcomes of an action will respectively reinforce or inhibit such further responses (Dreyfus & Dreyfus 2005). From the view of Dreyfus and Dreyfus our reinforced actions will be stored as embodied predispositions for further appropriate responses, and not as mental representations that we make use of by conscious processes such as memory (Dreyfus 2007). Instead of analyzing the situation and deliberately choosing a way to respond, the proficient performers understand and respond

immediately to what is confronting them, 'We can only say we do such things because the situation brought forth the actions from us' (Varela 1999: 5).

The ***proficient soldier***, based on a considerable amount of real-life experiences, will stop to reflect on problematic situations. When the experienced and proficient soldier faces situations where the dilemma of identifying combatants and non-combatants occurs, the understanding of the situation will emerge as immediate and non-reflective. The proficient soldier will immediately sense whether there are aspects of the situation that indicate that the dilemma of discrimination is present. Dreyfus and Dreyfus (2005: 787–788) emphasize that even if the proficient performer is able to *understand* the situation intuitively, he or she still has to *decide deliberately* how to do it:

> This is inevitable since there are far fewer ways of seeing what is going on than there are ways of reacting. The proficient performer simply has not yet had enough experience with the outcomes of the wide variety of possible responses . . . to react automatically.

Stage 5: At the highest level, the *expert* not only understands the situation intuitively but also sees immediately and intuitively how to respond to the particular situation. This is made possible because the expert, through enough experiences from a variety of situations, has learned to 'distinguish those situations requiring one reaction from those demanding another' (Dreyfus & Dreyfus 2005: 788). The expert's ability to respond intuitively is based on a wide repertoire of refined situational discriminations, and this is also what distinguishes the expert from the proficient performer (Dreyfus & Dreyfus 2005).

The ***expert soldier***, who now has a considerable amount of experience regarding the task of discriminating combatants from non-combatants, will intuitively understand when this moral dilemma is occurring, and will also intuitively know how to respond to the situation. The expert soldier will immediately do 'the appropriate thing, at the appropriate time, in the appropriate way' (Dreyfus & Dreyfus 2005: 788).[14]

As shown, Dreyfus and Dreyfus's description of the *intuitive expert* has considerable similarities with Clausewitz's description of *Coup d'oeil*, even if Clausewitz does not explain in detail how he understands this crucial capacity. According to Dreyfus and Dreyfus, it is possible to apply this kind of expertise to the domain of moral behaviour and it is also possible to develop this capability through experience of ethically challenging situations, as the following quotation illustrates:

> the budding ethical expert would learn at least some of the ethics of his community by following strict rules, would then go on to apply contextualized maxims, and, in the highest stage, would leave rules and principles behind and develop more and more refined spontaneous ethical responses. (Dreyfus & Dreyfus 1992: 118)

But is there any guarantee for the development of *good* moral behaviour through the use of Dreyfus and Dreyfus's approach? Are there any normative standards in their approach that will ensure the development of good and right decisions, or is it rather the case that this approach contains the possibility that the intuitive expert soldier will develop unwanted behaviour

from a moral point of view? Dreyfus and Dreyfus's approach renders visible a fundamental, positive perspective on moral experts: the model builds on a preconception that the *good man* develops individual character to realize a good life.[15] But as such, if the developing moral agent has unwanted moral intentions, the skill model does not contain any properties to steer the agent towards good decisions. The model may rather be seen as neutral human machinery that refines the agent's moral responses with no recourse to its moral standards. But, at the same time, if the soldiers' intentions are based on immoral foundations a more rational or deliberate approach to moral decision-making will not guarantee any higher moral standards either. This notion emphasizes that moral standards of soldiers must be encouraged and maintained by other incentives inside of military communities, rather than by focusing on underlying cognitive structures for decision-making. To strive for development of 'goodness' among soldiers is probably best taken care of by focusing on different virtues, and by internalizing these virtues to build personal character and integrity.[16]

Yet, even if moral behaviour can be developed as a skill to an expert level, it is interesting to investigate further the extent to which expert ethical comportment is transferable to the domain of military operations. The following aspects, which have become explicitly apparent through Dreyfus and Dreyfus's approach (Dreyfus & Dreyfus 1992), have consequences for the further discussion.

- Intuitive expertise requires extended experiences from similar situations.
- Intuitive expertise is characterized by the performer's utilization of intuition. Intuition is understood as an immediate and unreflective situational response. This means that the expert 'does not *solve problems*, he does not normally *reason*, and he does not normally even act deliberately' (Dreyfus & Dreyfus 1992: 117).
- If a situation is recognized as unfamiliar, the expert has to regress to behaviour known from lower skill levels.
- Intuitive expert behaviour is fast, it is considered as good rather than right, and 'it normally works'. (Dreyfus & Dreyfus 1992: 117).

Prerequisites for Development of Military Moral Expert Behaviour

The examples used in the following examination are collected through interviews with Norwegian MOT soldiers after serving in North Afghanistan. Their statements should be regarded as indicative of how the soldiers in this particular team experienced their challenges during their mission in North Afghanistan.

About Experience

To be able to develop and utilize intuitive expertise as a legitimate foundation for decision-making, Dreyfus and Dreyfus emphasize the importance of experiences from a wide repertoire of relevant situations. This raises the

timely question: do soldiers serving in Afghanistan have sufficient experience from relevant situations to be able to develop moral expert behaviour? According to Dreyfus and Dreyfus, this should be considered as a requirement for the development and utilization of intuition. A follow-up question in this regard is to look at whether moral behaviour is considered as a general capacity developed through life, or if it is contextually and culturally sensitive and therefore has to be specifically adjusted to each domain in which it is used. If the latter is the current understanding, it implies that the ability to react morally to different situations in Afghanistan must be developed through relevant experiences in Afghanistan. The following quotation from a soldier on his first deployment to Afghanistan throws light on these questions:

> What we didn't succeed in practicing before deployment … or in other words, there are some aspects and skills needed in a military operation which I think are quite impossible to learn from a practice situation. What I have in mind is, like, how to develop an inner feeling about a situation, if it is perceived as OK or not. This feeling develops gradually after a while. I remember the first time I drove through the city. I felt quite tense. There were so many people out in the street, and I asked myself: 'What am I supposed to look for? What is a threat? What is not a threat? Is this situation dangerous? Is this situation safe?' Suddenly we found ourselves in a street with no people at all; totally empty. 'What was that supposed to tell us?' After the first initial period I could suddenly get an impression of: 'Something tells me that there is something wrong here', and this feeling or emotion forced a kind of alertness in me. I started to be aware of small quite unnoticeable things, and I started to reason: 'OK – if something happens now, we have to respond to it in such or such a way.' After a month, I felt I was getting a better handle on it; how to deal with different situations. It is impossible to practice such skills back home in Norway.

This soldier emphasizes that the ability to achieve cultural sensitivity, understood as context-dependent and situated knowledge, is very difficult, if not impossible to attain outside the real-world arena where such conditions occur. To discriminate between combatants and non-combatants should, in this respect, be considered as a task that requires context-dependent perceptual experiences. This citation does in fact confirm and coincide with Dreyfus and Dreyfus's claim that a soldier without relevant experience of the particular task must be considered a novice, and will only be able to develop into an expert with extended experience of similar relevant situations; in this case experience of military operations in Afghanistan. The fact that missions seldom last for more than six to 12 months throws into question whether soldiers are able to develop into Dreyfus and Dreyfus's intuitive moral experts at all during their first mission to the country. Perhaps even several missions to Afghanistan will not suffice. Studies from other complex skill domains have found that intuitive expert behaviour occurs after several years of engagement in a particular skill domain.[17]

Relevant experience as a prerequisite for development of intuitive expertise, in this case the skill domain of moral behaviour, is considered to be highly domain specific; the developing agent acquires skills through the particular situations he gets exposed to, and the transferability of these skills to other skill domains is quite limited. This is an aspect of expertise that is stressed in

most literature about this phenomenon.[18] This notion will call into question whether the MOT soldiers, through patrolling their area of responsibility, really get lots of real experience as concerns the challenge of discrimination between combatants and non-combatants. The following quotation may illustrate this aspect:

> The tasks we were executing gave us considerable amounts of experiences ... It is all about building confidence gradually. It is about knowing the area in general but also knowing each particular village or city. Useful knowledge about a specific village may be, like, this is where we had some trouble last time – this is where somebody was spitting or throwing small rocks at us, or this is where the people are friendly, maybe caused by a Mullah who speaks kindly about the presence of allied soldiers. Normally, we approached a specific village to gather information about a person, some probable hostile activity or about the situation in general. The liaison officer and the squad leader, accompanied by the interpreter, were normally invited inside their homes for conversations while the rest of the team secured the outside area. This way to operate worked well and it gave us useful information as well as useful experience.

Even if this soldier claimed that the missions were highly relevant and gave considerable amounts of experience, it is interesting to question the relevance of those experiences. I followed up by asking:

> Did you ever approach a situation where you in fact discriminated combatants from non-combatants? And did you ever respond to such a challenge?

The soldier answered this question by saying that some situations escalated to angry crowds, but that they never identified any of the citizens as insurgents or combatants. None of the locals showed behaviour that was considered as containing a real threat. This answer emphasizes the need to be specific about what kinds of skills are developed through particular situations. Even if these soldiers gained considerable amounts of experience handling the local population in a morally acceptable way, due to their need for information, they never experienced a situation where combatants were identified. In fact, these soldiers, after six months on duty among the Afghan people, had not yet gained any real experience about how to respond to a situation where combatants became part of the picture. According to Dreyfus and Dreyfus, this statement indicates that in relation to the challenge of discrimination between combatants and non-combatants, these soldiers should still be considered as inexperienced. They had only gained experience in the task of handling non-combatants.

But is it really the fact that moral behaviour is impossible to practice before deployment, and that a soldier at the time of deployment must be considered as a *blank slate* when it comes to decision-making involving context-sensitive knowledge? The US Army has a much more optimistic view of the possibility of developing moral behaviour through practice situations:

> These skills develop through frequent and deliberate exposure in training to complex and realistic moral dilemmas followed by open discussion *in advance* of deployment. As Soldiers increase their experience through these situational exercises they refine their judgment, which further builds self-confidence. Once deployed, when Soldiers experience actual moral dilemmas, leaders must continue discussing the circumstances,

> decisions, and outcomes in order to help Soldiers make sense of their experiences, improve moral reasoning skills, and build confidence. Over time these experiences transform Soldiers into confident moral individuals better able recognize and make judgments on complex moral issues, who possess the confidence and personal moral courage to act in difficult circumstances. (TRADOC Pamphlet 2008: 70)

Practicing realistic and complex moral dilemmas may help to prepare for the development of moral behaviour in real operations in at least two ways. Firstly, soldiers become accustomed, at all times, to including moral considerations as part of their situational response to complex situations. Secondly, soldiers may develop a solid general foundation for moral behaviour. Since intuitive decision-making relies on passing through a period as non-experts, relying on deliberative decision-making, the dilemma training as used by U.S. Army Training and Doctrine Command (TRADOC) seems to be an appropriate approach, providing exactly the foundation upon which more expert decision-making may be built. A well-developed basis for moral behaviour may contribute to reducing the time it takes a soldier to adapt to context-sensitive challenges in real situations, and so speed up the development of intuitive expertise. A prerequisite for such an accelerated process consists of the view that specific parts of moral conduct are transferable between contexts. To practice situations in which professional military values are constantly stressed will presumably help to equip the soldier with consistency in this capacity at all times, and as such it should be possible to consider this as transferable. Another point to emphasize is that moral behaviour must also be considered as containing capacities that are context-independent and so it should not be problematic to practice and develop this outside the operational theatre. What I have in mind are the underlying components of moral standards such as courage, character,[19] self-discipline, endurance, and empathy to name a few. In this regard it should be possible to believe that experienced soldiers can employ their context-independent moral standards in an intuitive expert style, even from the day of deployment.

Due to the necessity of gaining sufficient relevant experience it may be demanding for soldiers to develop intuitive expertise from context-dependent knowledge; however, it should not be *impossible* to develop this capacity. Yet, it is important to highlight that the phenomenon of expertise is, by nature, hard to achieve,[20] which therefore implies that legitimate unreflective immediate coping (intuitive expertise) is achievable only by the few soldiers who fulfil the requirements for such behaviour. It is important to emphasize that soldiers without enough relevant experience to develop expertise may also respond immediately and unreflectively to similar situations, which can happen when insufficiently experienced soldiers do not have enough time to involve themselves in deliberate activity. Such behaviour should not be confused with intuitive expertise, but should rather be considered as a reflexive or instinctive response that is not founded on the same basis of experience-based knowledge. It can be likened more to a shot in the dark: the soldiers may respond correctly to the situation, but this response is not built on situated knowledge; it is more about luck.

About Everydayness

Another challenge regarding the suitability of applying Dreyfus and Dreyfus's approach to the domain of military operations is that their description of moral behaviour is related to '*everyday ethical comportment*' (Dreyfus & Dreyfus 1992: 113). What they describe is how the expert intuitively copes with moral challenges in normal daily life. Varela (1999: 5) pinpoints this stand when he states: 'We can only say we do such things because the situation brought forth the situation from us. And yet, these are true ethical actions: in fact, in our daily normal life they represent the most common kind of ethical behaviour'.

Dreyfus and Dreyfus's emphasis on this day-to-day kind of coping finds its foundation in the works of philosophers such as Heidegger (1962), Merleau-Ponty (1962) and Dewey (1960) who all, with corresponding approaches, are concerned with how human beings inhabit the world through effortless coping by means of our *habits.*[21] So, if Dreyfus and Dreyfus's approach should fit the domain of military activity, soldiers coping with morally challenging situations must find these integrated in their daily duties, and their soldier identity must consider moral coping as being part of the soldier's normal everyday life. Theoretically, this should be possible, and the role of habitually coping with morals is in fact also expressed in the US Army doctrines: 'soldierly conduct must involve the practice of values and virtues until doing the right thing becomes a habit' (TRADOC Pamphlet 2008: 67). The characteristics of such soldier behaviour seem possible to maintain under conditions perceived as normal; when everything is under control and the upcoming situations turn out as expected. But at the same time, the nature of war and military operations should also be considered as containing elements far from the characteristics of normalcy, control, and expectedness; situations within which it is highly interesting to discuss the use of intuitive moral behaviour. How does a soldier respond if he fears for his life? Is such emotional pressure compatible with Dreyfus and Dreyfus's emphasis on everydayness and habitual responses? Is it possible to maintain a kind of absorbed and intuitive moral coping in situations that should seemingly provoke fight and flight responses? Or, is it rather the case that soldiers who are pushed to extremes of physical and psychological stress will respond in a style that overrides the demands for moral behaviour and instead utilize the possibility of the situation to take care of their own safety? An objection to this argument may be proposed: why not practice situations that include enough stress to produce fear and anxiety, and which in turn will create realistic experiences that deal with issues of morality under influence of such pressure? This objection contains at least three important implications, the first being moral concerns about the amount of pressure that is acceptable to apply on soldiers in a practice situation. The second raises concerns of safety and whether it is possible to maintain the demands for safety if a practice situation is to be sufficiently realistic to produce fear and anxiety. The third implication returns to the issue of 'relevant experiences' and whether a practice situation, even if it produces fear and anxiety, is relevant to handling

situations with moral implications in Afghanistan. Even if fear and anxiety could be created during practice, it is questionable whether soldiers would become sufficiently used to such pressure so as to perceive it as a kind of everydayness, which would not interfere with their normal everyday behaviour.

About Relevance

Before we turn to the consequences and implications of applying intuitive expertise to the domain of military operations, it could be an interesting exercise to investigate the relevance of Dreyfus and Dreyfus's approach through the eyes of soldiers describing their encounters of real-world experiences of a military operation:

> I think the most important capacity to develop concerns how fast I manage to get an impression of the situation, and as a consequence, how alert and focused I have to be. I used a kind of levelled system which indicates different states of alertness; green, yellow, orange, red and black. Green is careless, not thinking of a threat at all. Yellow indicates a little suspiciousness; something does not fit the total picture. Orange, something has triggered me. I start to consider what to do if something happens. Red is action, based on the considerations made in orange. Black occurs because you are in green when you should have been in orange. If somebody suddenly points at you with a gun, out of the blue, that's black; no consideration has been made about how to respond.

Does this soldier's description of how he copes with his daily challenges harmonize with Dreyfus and Dreyfus's approach? The soldier is seemingly describing a deliberate approach to decision-making; his way to prepare for possible situations harmonizes with Dreyfus and Dreyfus's *advanced beginner*. Based on previous experiences the soldier creates his own rules/maxims to guide his behaviour and his strategies are based upon analysis of the situation. But the soldier's description does not in fact describe his situational responses; he only describes how he prepares for possible responses. If his approach has been employed and practiced enough times and it fits the perceived situation, he may respond intuitively, even if he uses a deliberate approach to prepare himself. And as such, the soldier's description of his use of cognitive strategies illustrates how difficult it is to acquire an explicit understanding of how we really respond to situations. The soldier's description must also be considered as pragmatic. His goal is to be perfectly tuned to respond to emerging situations and he utilizes what he considers as being the best way to achieve this goal. The soldier's flexible use of strategies becomes even more salient in the following quote:

> Sometimes, when we receive a warning that a suicide bomber may take action, we become alert, of course: a kind of explicit implementation of orange. Then we start to look for persons shaved both on head and cheeks: a typical ritual before a suicide attack. It is very important to know what to look for. But often we just get a hunch, an indescribable feeling that something is about to happen. It's incredibly important to be alert; to be able to identify a threat as early as possible. If you are alert, you may detect the threat earlier, and the chances for responding in the right way increases. Sometimes I thought: 'If something happens now, I will respond like *this*.' Sometimes I could feel that

> my teammates got alert. They had sensed something that I was not aware of. It's easy to get this impression after a while. How my teammates move; they may grasp a smoke grenade; if they change the way they carry their gun, etc. It is not only about understanding the locals; it's also about understanding my teammates. At the end of our mission, we did not have to communicate how alert we were. That was something we communicated through our behaviour.

This soldier emphasizes that the flexible use of different strategies as a response to highly complex situations and the way the soldier adapts, both to particular situations, and also to the mission in general, is closely connected to the perceived importance of development. The soldier's responses are constantly refined owing to his evaluation of the outcome of previous actions, and he engages in a process characterized by an eagerness to utilize all available sources, both deliberate and intuitive, to optimize his response. In this regard, Dreyfus and Dreyfus's approach may be seen as highly relevant in contributing to the provision of a better understanding of these processes. In particular, the need for a solid, legitimate, ethical foundation for situated and context-dependent behaviour seems to be required in a situation where flexibility, improvisation and speed are among the most important components in modern military operations.

Consequences and Implications

What is at Stake?

Of course, if soldiers behaving intuitively are considered to be zombie-like warriors who are encouraged to engage in military operations with no demand for thoughts of consequences or responsibility, we would have a severe problem. But zombie-like behaviour is not, of course, what Dreyfus and Dreyfus want to achieve with their approach. Dreyfus and Dreyfus are not afraid that the expert's actions will be considered as outside the realm of the prevailing rules and maxims for the particular skill domain. Rather, they intend the complete opposite: these rules and maxims must be considered as an internalized foundation for expert behaviour, since this was how the experts initially learned their skills. The moral considerations are so incorporated with the expert's situational responses that the expert does not have to engage in any deliberate activity to ensure the moral aspects of his actions. Such a response is rendered possible by all his relevant experience, and, in this respect, intuition should be considered as a solid foundation for reaching good and wise decisions.

This view stands in marked contrast to a common understanding that is well established inside the realm of military doctrine thinking: that deliberate and thoughtful considerations are a prerequisite for right moral decisions in war. To *recognize* moral implications, to *reason*, to form a moral *judgement*, to *choose* an action, and to carry through with *intended* behaviour are all human actions that require the use of our deliberate capacities. As the US Army doctrine states: 'A breakdown or inability to carry through with any one of these steps can result in inaction or the wrong action' (TRADOC

Pamphlet 2008: 67). The following quotation exemplifies this concept when it comes to the question of discrimination:

> The principle of discrimination is indeed worth preserving, on conceptual and moral grounds. In my view, one of its main benefits is to force soldiers to think before they shoot. And this will nearly always mean that the soldier will shoot less, which is nearly always good in itself. (May 2005: 44)

But is it really the case that an intuitive response will cause more shooting? How might Dreyfus and Dreyfus respond to this question? Probably they would suggest that if *not* shooting is the appropriate response to the particular situation, the expert soldier will come to this decision intuitively. He will not shoot. But at the same time Dreyfus and Dreyfus will surely claim, in accordance with May (2005), that non-experts should think before they shoot, since this is how non-experts optimize their performances. Furthermore, Dreyfus and Dreyfus object to the understanding that moral conduct is best executed by *forcing* people to think. If an intuitive expert is forced to behave in a way characterized by deliberate and reflexive responses, the expert, according to Dreyfus and Dreyfus, will be forced to respond no longer as an expert. When forced to think, the expert will have to use some of his cognitive repertoire that may not be considered as his preferred and optimized way to respond (Dreyfus & Dreyfus 2005). This will in fact not only hamper the expert by slowing him down, but it will also force the expert to consider aspects of the situation that he would normally have discriminated as not relevant to this specific situation (Dreyfus & Dreyfus 2005).

An interesting question in this regard is whether intuitive acts are different in any important way from deliberate ones? Should intuitive acts be considered as ethically privileged compared to deliberate and reflexive responses? According to Dreyfus and Dreyfus, this is a question about utilizing experience. As such, a highly experienced soldier when, for example, it comes to the challenge of discrimination, will probably, by utilizing his experience-based intuition, solve these situations in a more nuanced and confident way than a less experienced soldier. In such situations, the expert soldier by engaging in deliberate activity will not necessarily respond more ethically, but he will probably respond more slowly. At the same time, it is hard to claim that an intuitive response should be considered as containing some kind of higher ethical standard. Rather, it will utilize the expert's experience-based knowledge in a better way. Klein also states that intuitions are not always reliable. He warns about always following every impulse and every gut feeling: 'Usually they guide us in the right direction, but sometimes they are mistaken' (Klein 2004: 3). To consider intuition as a foolproof and secure recipe for good ethical decisions may be seen as an uncertain foundation for such behaviour.

According to Dreyfus and Dreyfus, a prerequisite for intuitive behaviour is the soldier's ability to recognize the situation as sufficiently known or familiar. If not, novel situations make the expert's experiences irrelevant and so lead to an inevitable regression to behaviour preferred by less experienced performers (Dreyfus 2006). This implies that the ability to identify the

situation as novel or not is crucial to the expert since this will predict how the expert will respond. The expert's regression to thoughtful processes when facing novel situations may also be used as an argument against those claiming that Dreyfus and Dreyfus's expert behaves like a zombie. Their expert thinks before he acts when the foundation for intuitive behaviour is lacking. Planning, goal directedness, and analysis will be utilized until the expert is able to gain sufficient experience to build up new intuitive responses (Dreyfus 2006).

Objections to Dreyfus and Dreyfus's Approach

Dreyfus and Dreyfus's emphasis on the expert's use of intuition may be understood as one-sided; the expert will prefer to respond intuitively to all situations as far as they are recognized as known.[22] Dreyfus and Dreyfus state that the best of experts, when time permits, think before they act. The expert's way of thinking differs from the deliberate thinking done by less experienced performers since it is mainly done with an eye to challenge and perhaps improving the expert's intuition (Dreyfus & Dreyfus 2005). But the case of responding *immediately* to situations will probably not allow the expert to think; time will not permit it. As such, Dreyfus and Dreyfus' approach pays limited attention to a more flexible use of both cognitive capacities, something also emphasized as important in the last soldier's statement. Dreyfus and Dreyfus would probably respond to this soldier in two possible ways: (1) the soldier is an expert with time enough to think, or (2) the soldier has not gained enough experience to solve all situations intuitively. Both comments may be reasonable. This view stands in contrast to more traditional cognitive views of how we flexibly switch between different kinds of cognitive behaviour. Frameworks like 'the cognitive continuum theory' (Hammond 1980) describe our moment-by-moment variation in the use of intuitive and analytical cognition. According to this approach, the performer may control his own cognition and choose to change from intuitive to analytical cognition, even if the characteristics of the task are constant (Hamm 1988). These quick changes will occur frequently if the challenge requires a high level of precision (Hammond 1996). It is the task at hand that determines what kind of cognition the performer will utilize (Hamm 1988). This approach emphasizes a more nuanced understanding of how the task characteristics influence the decision-making process, which may be a fruitful contribution to a better understanding of the soldier's use of different cognitive capabilities.

There is also the possibility that intuition based on experience serves us well in what might be considered 'easy cases' from the moral standpoint, but not 'hard ones' where the underlying principles in play are somewhat at odds. Such considerations imply that difficult moral judgements should be raised to a more conscious level to assess their relative weight in choosing a particular course of action. Findings from cognitive psychologists also indicate that decision-makers develop strategies to override their intuitive behaviour when much is at stake (Eysenck 2004). Another important objection to Dreyfus and

Dreyfus's approach concerns their emphasis on *immediate* responses. Many decisions relating to use of force, including moral aspects, permit the soldiers greater time for deliberation than decisions truly requiring split-second judgment. Even if Dreyfus and Dreyfus emphasize that intuition is an immediate situational response, it should also be understood as describing our continuous and ongoing absorbed coping with our environment. But in contrast, it is possible to argue that such situations may contain the possibilities for a voluntarily use of deliberate behaviour, also by the expert. If Dreyfus and Dreyfus's approach is to be understood as relevant only in regards to split-second judgements, it should rather be considered as having limited relevance.

Intuition: A Challenge for Commanders?

If intuition is a legitimate foundation for moral behaviour, it involves a challenge for the commanders who are leading the soldiers in action: finding a way to identify the expert soldiers who are able to respond intuitively to situations. Dreyfus and Dreyfus state that the behaviour of experts and the characteristics of the way they respond should not count as criteria for selecting the experts:

> Of course, there may be several wise responses. Indeed, on my account, the idea of a *single* correct response makes no sense since other virtuosi with different funds of experiences would see the matter differently, and even the same *phronemos* would presumably respond differently once he had had more experience and therefore could discriminate a richer repertoire of situations. (Dreyfus 2004a: 268)

The lack of consistency between experts and their performances should call into question whether there are other ways to identify the experts. Accumulated experience, understood as time on duty in a mission, may be one possibility. The reflections of this MOT soldier pinpoints some challenges relating to this aspect:

> We drove around in our vehicles in our area of responsibility, all on our own, and collected information from the local communities. And we felt the information we collected did in fact contribute to changes. I felt this part of the service was very satisfactory. The missions lasted from one day and up to ten days. Ten days is about the limit of such operations because of supplies and the need for maintenance. We got into challenging situations every day; often several in one day, even. In this way our duties gave us much more experience than for instance those in the Quick Response Force (QRF). They were mostly practicing inside or around the camp; practicing and waiting. When they finally came into action, it was the first time they met a real threat or a real situation at all.

This soldier's statement clearly shows that different tasks give soldiers different amounts of relevant experience. Even if the MOT soldiers did not gain much experience in the task of discriminating between combatants and non-combatants, they were exposed to a huge amount of other relevant experiences, which gradually increased their skills related to tasks and challenges that themselves contain moral aspects. This notion indicates that

commanders must be sensitive to what kind of experience their soldiers achieve and be aware of whether such experience qualifies for development of intuitive expertise. To be aware of the soldiers' use of deliberate versus intuitive cognitive strategies for responding to situations is of great importance for commanders; this is largely because of the very nature of intuition. According to Dreyfus and Dreyfus, intuitive behaviour implies that no accessible or conscious thoughts are produced during this kind of situational response (Dreyfus 2004b). This is simply not necessary because the response to the situation relies on experience-based dispositions to react immediately in a specific situation. One may try to recapitulate what one did through retrospection, but since we have not engaged in any deliberate activity, we do not have access to our thought; there are in fact no explicit thoughts available (ibid.). One may construct a pleasing description about what one believes one was doing, but that is not what one really did. Another strategy is to try to monitor how one is responding, but in doing so, one regresses oneself to non-expert behaviour through reflection. This implies that if an expert soldier has to give *reasons* for why he responded to the situation as he did, he will probably answer: 'Because it felt right', or, 'Because the situation triggered the response.' And this is in fact the best answer he can give. To pinpoint the intricacy of this situation: if a superior officer asks an expert soldier why he shot at a person, he must expect to get the following answer: 'Because the situation triggered the response.' The expert soldier's lack of detailed description may not fit well with the demands for a specific step-by-step description of the actions taken, especially if the action turns out to be bad.

A more deliberate and rational response to the same situation, which produces explicit descriptions of the preferred response, would probably harmonize better with the requirements for defending an action. Dreyfus and Dreyfus claim that this is the reason why: 'In bureaucratic societies . . . there is the danger that expertise may be diminished through over-reliance on calculative rationality' (Dreyfus & Dreyfus 2005: 780). To know the consequences of intuitive behaviour should, therefore, be of crucial importance to commanders.

Conclusion

The perhaps provocative question 'Should soldiers think before they shoot?' was used to open this article in order to situate the discussion about ethical implications of experience-based intuition among soldiers in military operations. If this question did provoke the reader, it is presumably because it challenges the hegemonic military understanding of how soldiers are considered to live up to the requirement for moral conduct during military actions. But since soldiers' use of intuition seems to be a subject of increasing interest among military academic writers, it is timely to question the extent to which such behaviour is based on legitimate ethical foundations. The aim of this article has been to examine whether Dreyfus and Dreyfus's approach to moral behaviour is transferable to the domain of military operations, and

whether their description of the developing intuitive expert can contribute to a better understanding of the utilization of this capacity among soldiers.

This examination has emphasized that extended experience from relevant situations is required to develop into Dreyfus and Dreyfus's intuitive expert. Considering the nature of military operations, it is questionable whether relevant experiences can be attained outside the operational theatre, an aspect that is also underscored by this article's empirical material. This notion implies that intuitive expertise is probably achievable amongst only the most experienced soldiers, who are engaged in tasks that present context-sensitive and relevant experiences. Looking to the specific concern of this article – the ability to discriminate between combatants and non-combatants – it is questionable whether the soldiers are exposed to relevant situations enough times to develop any kind of intuitive response. If, contrary to expectations, they are sufficiently exposed to such situations, it should theoretically be possible for them to develop into intuitive experts for that specific task, but there are many factors that indicate that a high enough level of experiences may be inaccessible.

Yet, if Dreyfus and Dreyfus's prerequisites for relevant experiences can be fulfilled, their model should be considered transferable to the domain of military operations. This will have consequences and implications. First, it should be considered ethically legitimate for experts to respond to immediate situations without thinking, or in Dreyfus and Dreyfus's view, the expert should not think if the situation is perceived as known. Rather it should be discussed whether it is problematic to force expert soldiers *not* to utilize their expertise. Secondly, to utilize intuitive expertise presupposes not only knowledge about the development of intuition, but also about how to practice this capacity and the challenge of how to identify intuitive experts. Thirdly, to utilize intuitive expertise presupposes knowledge about the nature of intuition. A situation where a soldier has problems giving logical reasons for why he responded as he did, challenges the traditional way of maintaining ethical standards in military systems.

For the military profession it should be of the highest importance to get a better understanding of how soldiers optimize their performances in real situations while maintaining the requirement that they behave morally. In this regard, Dreyfus and Dreyfus must be considered as contributing to this process. And whether we like it or not, some of our soldiers, the ones with enough relevant experience to behave as expert soldiers, are probably, at this exact moment, responding intuitively to known situations, out there, somewhere.

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Notes

[1] The term 'discrimination' is normally used negatively, as in racial discrimination, but in this context the meaning of the word is morally neutral. It refers to the process of separating or distinguishing between groups on the basis of recognizable characteristics; see US Army War College (2001).

[2] In this study, moral behaviour refers to the soldier's moral standards and conducts while ethics refers to the reflection over standards and conducts.

[3] *Coup d'oeil* more or less corresponds to the words glimpse or glance in English. It has also been explained as the flash of insight when a strategist sees what to do, despite the uncertainties all around. The literal meaning of *Coup d'oeil* is 'stroke of the eye'; see Merriam Webster's online dictionary: http://www.merriam-webster.com/dictionary/Coup%20d'oeil.

[4] These contributions primarily focus on how commanders utilize intuition as a foundation for decision-making, but should also be considered as highly relevant for all soldiers facing challenging situations.

[5] Gary Klein is one of the founding fathers and an important contributor to the naturalistic decision-making (NMD) approach, which emphasizes the study of decision-makers in real world situations. NMD was established by a group of behavioural scientists who shared common themes regarding the importance of time pressure, uncertainty, ill-defined goals, high personal stakes, and other complexities that characterize decision-making in real-world settings. See for instance Zsambok and Klein (1997).

[6] Even if intuition, or automatic information processing as classical cognitivism prefers to term it, is a well-known and appreciated human capacity, scientists have diverging ways to explain the underlying structures for this capacity. Moe (2005) gives a thorough analysis of different understandings of this topic, related to the skill domain of sports.

[7] See also Duggan's (2005) discussion about intuition's role in the doctrine US Army (2005) Field Manual (FM) 0-5.

[8] Even if the topic of intuitive decision-making has been thoroughly discussed by writers within psychology, like Klein and the naturalistic decision-making approach, minor effort has been made to elaborate on the ethical implications of such behavior. An interesting point in this regard is the fact that Klein has acknowledged Hubert Dreyfus for his impact on NMD research and in particular on his Recognition-Primed Decision Model (Klein 1998). As such, Dreyfus and Dreyfus's understanding of intuitive expertise should be understood as being in accordance with these psychological perspectives, even if they diverge in how they understand the underlying cognitive structures which supports such behavior. For a more detailed discussion of this topic, see Dreyfus (2004b).The article which elaborates on ethical consequences of intuitive behaviour has occurred in several versions. The one I consequently refer to in this article is their version from 1992 (Dreyfus & Dreyfus 1992).

[9] Since Dreyfus and Dreyfus claim that intuitive situational responses are based on what experience has shown to be successful, it may be necessary to elaborate on where that feedback about success comes from. What is understood as success and how do the soldiers achieve this feedback? Dreyfus and Dreyfus answer this question by referring to a specific human capability.

The learning agent produces expectations about the outcome of a response. If the experience is as expected or better, the response is perceived as successful, and the response is reinforced as the preferred response to similar situations. See for instance Dreyfus (2004b) and Dreyfus (2002).

[10] Dreyfus and Dreyfus' approach to skilled behaviour must be considered as being highly general regarding the different skill domains for which it is intended to give a reliable description. During their work with *Mind over Machine* (Dreyfus & Dreyfus 1986), they studied the skill-acquisition process of quite different skill domains, such as of airplane pilots, chess players, automobile drivers and learners of a second language, and found that there existed a common pattern concerning skill development in all the cases.

[11] The research interviews we conducted were in accordance with Kvale and Brinkmann's (2009) recommendations regarding qualitative research interviews.

[12] Both Max van Manen (1990) and Kvale and Brinkmann (2009) pinpoint the scientific value of goal-oriented informal conversations.

[13] This discussion about how to approach moral behaviour has roots far back in the history of philosophy. What is here coined 'the traditional approach' may be understood as influenced by the Kantian approach, while the tradition that Dreyfus and Dreyfus belong to has more similarities with Hegel, who opposed the Kantian view (Varela 1999).

[14] Dreyfus and Dreyfus have borrowed this quotation from Aristotle. It contributes to placing their phenomenological approach to expertise in a wider philosophical context.

[15] This way to treat moral development has its foundation in an Aristotelian-inspired philosophical tradition (Dreyfus & Dreyfus 1992).

[16] Character virtues, as defined by Aristotle, include fortitude, temperance, justice, generosity, magnificence and high-mindedness.

[17] See for instance Patricia Benner's study of expert nursery (Benner 1984). The nurses qualified for expertise after about seven years.

[18] See for instance Ward et al. (2004).

[19] 'When the correct moral course of action is unclear, a lifelong habit of doing the right thing in all areas of one's personal and professional lives may be the only guide.' This is how the US Army doctrine (TRADOC Pamphlet 2008: 67) describes the importance of character.

[20] Dreyfus and Dreyfus claim that different skill domains require different amounts of practice to develop expertise. They operate with two different kinds of problem areas, which contain distinct differences as regards the question of expert development; these skill domains are characterized by being 'structured' and 'unstructured' (Dreyfus & Dreyfus 1986). The structured area is characterized by having clear and relevant information and goals. The outcomes of the response to situations are known, and provable solutions can be reasoned out. Dreyfus and Dreyfus state that the development of immediate intuitive responses to such problems require far less concrete experience with real situations than in the case of unstructured problem areas. Such situations contain an overwhelming number of possibly relevant facts and features, and it is often unclear how these elements interconnect and influence other events. In some of these skill areas, only a very small fraction of beginners can ever expertly master the domain after extensive practice from real-world situations (ibid.). According to Dreyfus and Dreyfus, this implies that we are all experts at many tasks; due to many of our everyday coping skills it is even unavoidable, while in other domains only very few have the ability and involvement needed to develop expertise.

[21] Dreyfus and Dreyfus even find support in Aristotle as regards this topic: 'Aristotle stays close to normal everyday experience and sees the immediate, intuitive response, precisely as characteristic of an expert. "Know-how [techné] does not deliberate", he says in the *Physics* (Bk. II, Ch. 8)' (Dreyfus & Dreyfus 1992: 121).

[22] This view also gets support from the already mentioned 'Recognition-Primed Decision Model' by Klein (1998).

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Paper III

Eriksen, J.W. From Expert Skills towards Optimized Performance. Submitted, *Armed Forces and Society.*

From Expert Skills towards Optimized Performance

Abstract

This paper aims to highlight some of the challenges that military operations represent to development and utilization of human expertise. The paper will further try to emphasize on possible consequences and implications for the force producing units, due to these challenges. Of particular interest is the question: what happens to expertise when soldiers' skills are transferred to another military context; from the familiar practice arena to the more unknown operational theatre? This question is definitely not a new one, but by approaching it with arguments founded in phenomenological philosophy, new perspectives will hopefully contribute to a better understanding of the challenge. Particular emphasis will be placed on how we change our modes of being when facing circumstances different from those we consider as known. Finally, the paper will propose a relationship between expert skills and how such expertise can be manifested in optimized performances.

Introduction

In spite of increasing technological inventions and improved weapon systems, modern military warfare is more than ever dependant upon dedicated soldiers with a level of performance and skill set sufficient to operate in complex, stressful and ambiguous environments. How to develop soldiers with optimized skills and capabilities for demanding operations is a recurring challenge for the force producing units. To recruit the right soldiers, to gain relevant experience from practice, to identify crucial capabilities needed to be best possibly prepared for military operations, to establish a competent learning environment and to bring back the experiences from military operations to further skill development are only some of the aspects involved in this demanding process. To develop appropriate *skills*, understood as "[To] come into situations with readiness to deal with what normally shows

up in that sort of situation"[1] should as such be of high priority, and especially important inside the military domain where the outcome of the responses to particular situations are considered crucial. For soldiers, it may be a question of life and death. But, the nature of military operations does involve aspects that complicate the picture when considering both how to develop and to utilize expert soldiers. The fact that the practice arena is more or less isolated from the arena where soldiers are expected to deliver high level performances separates the military domain from most others. This implies that it is a challenge to create realistic training situations that capture the context of real military operations. Colonel McCoy pinpoints this notion when he describes his experiences from the Iraqi war: "The battlefield is a dynamic environment that simply cannot be duplicated in training. That is not to say that we cannot strive to learn from the environment and man's behaviour in order to learn how to best condition him for that environment".[2] In a time where military conflicts are often outplayed on other continents characterized by cultural and environmental conditions unfamiliar to the participating allied soldiers, the demand for transferable capabilities increases. An interesting question to ask in this regard is to what extent the pre-developed skills and capabilities are suitable and useful when *transferred* from the practice arena to the operational theatre. To be more concrete: is it a realistic ambition to develop expert soldiers prior to their first deployment to Afghanistan with an expectation of utilizing this capacity in real operations? Based on this introduction, this paper aims to enlighten the question:

What happens to soldiers' expertise when transferred to another operational context?

In order to approach the topic, an outline of what may be considered as soldier expertise in the *practice arena* will be given. Based on participating observations in a Norwegian recognisance team during a nine-day-long winter exercise, a description of how the soldiers' coped with some particular challenges will be given.[3] To what extent such expertise is relevant and transferable to *real military operations* will be contrasted using information collected through observations before, and interviews and conversations with soldiers after their first mission in Afghanistan.[4] In order to enlighten why some kinds of the soldiers' pre-developed expertise is arguably hampered by transfer, the notion of *breakdown* will be presented. This term, borrowed from phenomenological philosophy, describes how our readiness to deal with the world that surrounds us is interrupted by the influence of particular circumstances. The following discussion will mainly dwell upon two central aspects concerning employment of the soldiers' pre-developed expertise: 1) To what extent are the soldiers influenced by facing an unfamiliar culture, and 2) What consequences and implications will new operational concepts have on the soldiers' ability to utilize their expertise?

Expertise at the practice arena:

The following description of a winter exercise may contribute to situating the topic:

The winter exercise has been ongoing for about 7 days in the northern parts of Norway, just above the Arctic Circle. It is January 28th and the temperature is minus 10 degrees Celsius (14 degrees Fahrenheit). The wind, which has created quite unbearable conditions for the last couple of days, has finally subsided to a less tense level. The patrol that I have been following during these days, equipped with skis and other material sufficient to be self sustaining, has been chased by snowmobile patrols for the last 48 hours after successfully

'damaging' a railroad bridge. The wind has served as an ally to the team during this period. The team have been very cautious in choosing their way through the terrain. Their emphasis has been on choosing terrain where their tracks are easily covered by drifting snow; after a couple of minutes, their tracks become invisible. The team has mostly been moving in fairly steep terrain under cover of darkness. They know that the chasing snowmobiles are hampered by lack of light, and the steep terrain makes it quite impossible to follow their movements. They are moving slowly. Quick movements are easier to detect than slow ones. They are moving very quietly. Their signature is minimized by rarely following ridges or hills. This makes the team very difficult to detect by the use of night vision or thermal sights. If they need to check the map or the GPS, which they do surprisingly seldom, they hide under a poncho or a tent-canvas to ensure that nothing lights up the night. Their eyes get used to the darkness and the snow; the moon, the stars and sometimes the Northern Lights make it unnecessary to use night vision or torches to find their way through the darkness.

The leader of the patrol has two soldiers in front of him. They are both specialized in scouting, helping him to find the best way through the mountainous terrain. The first soldier suddenly stops. He is just about to cross a small ravine when he becomes aware of a track from a snowmobile. He gets down on his knees and starts to 'read' the track. For this experienced soldier the track is like an open book with a lot of information. It struck me that these tracks have been made by a military snowmobile and not by one of the many civilian ones operating in the same area; otherwise the solider would not have bothered stopping to check it out. Military snowmobiles normally use wider belts than the faster civilian ones. Based on how the snow is packed, it is possible for the experienced scout to figure out the direction in which the scooter was heading. It is also possible for the soldier to figure out if the snowmobile carried a sledge, if the sledge was heavily loaded, how fast the snowmobile

was going and if there was more than one snowmobile... It is even possible to get an impression of how many hours have passed since the snowmobile went by. A fresh track is quite soft; cold temperatures make it gradually harder and after a couple of hours the track is more or less like concrete. Wind-carried snow and rime may also indicate duration. The condition of the track, combined with the soldier's interpretation of how the weather conditions have influenced the track, gives the soldier a fairly accurate time estimate. After about ten seconds, the soldier turns to the leader of the team and says: "This military patrol was not looking for us. Or if they were, they did not expect to find us here". Without any further considerations the patrol moves slowly onward.

A couple of hours later, after making what appears to be a kind of fish hook manoeuvre, the team establishes an improvised bivouac on a cold and windy spot with good views over the tracks they have made just twenty minutes earlier. When I asked the scout how he could be so sure and accurate in his interpretation of the track, he responded: "You can't be looking for anybody going at that speed. It is as simple as that". The team continued with this exercise in the same skilful style, and the story finishes with them being the only team not to get caught. In fact they defeated the followers by capturing them in the middle of the night.

Driven by my own curiosity, I had to check out whether the scout's interpretation of the tracks was correct, and not surprisingly it was. A lone military snowmobile belonging to one of the exercise staff - an off-duty officer on his way back home - had passed this ravine at high speed.

The team I observed during this winter exercise coped with the challenges they were exposed to. They were well coordinated as a team and it appeared that they enjoyed this kind

of military exercise. They responded positively to challenging situations and were highly motivated at being followed by chasing units. As an observer, I was quite impressed by how easily they mastered both the harsh winter but also the military-tactical situation. They came into the different situations with readiness to deal with what showed up. If an expert label should be handed out to one specific patrol, then this team would be seemingly hard to outdo.[5] The team had even been recognized through *social acclimation* as this unit's most promising soldiers.[6] But still, none of them had any experience of military operations in Afghanistan, which is considered as one of this unit's most important contributions to the Norwegian Army. As such, their expertise must be regarded as useful and relevant for operations containing much of the same characteristics as this escape exercise, for instance if the military operation were to be outplayed on national ground, preferably up in the mountains. But, to expect that the soldiers' skills and capabilities would be equally well suited for operations in Afghanistan is not necessarily obvious. A presentation of the arena representing real operations may emphasize this notion

The arena of real military operations

One Mobile Observer Team (MOT-team) consisting of six soldiers has been the subject of special attention in this study. The MOT-teams are a crucial element in the PRT-organizational concept, as the teams are self-supported, highly autonomous and far-reaching units. MOT-team missions can last from one day and up to two weeks, with the main goals being to collect provincial information, show military presence, and broadcast information about ISAFs mission to the people. The following description is extracted information from interviews with soldiers after the end of a six month lasting period, from December 2007 until June 2008. This involved them operating under the influence of the Afghan winter

during the first four months of their mission. Although this kind of service may differ severely from other kinds of military involvement in Afghanistan, their experiences should be considered as representing some general challenges.

The soldiers' stated that there exist several similarities between the conditions in north Afghanistan compared to those they are used to from the practice arena back home in Norway. The scanty mountainous landscape is known for cold winds and snowy and icy conditions, especially in the highest areas of the team's responsibility. Conditions pertaining to infrastructure may seemingly also contain similarities; a fairly small number of soldiers are expected to show presence in a huge area, characterized by few roads and few settlings. But, in looking at the question of utilizing these soldiers' pre-developed expertise, at least two categories of important differences exist among the arenas:

- Firstly; the soldiers have to face a new *culture*, or maybe more precisely new cultures, which they must as far as possible cope with. In an operational context where five different ethnic groups are settled, each representing different moods of behavior, values, traditions and sympathies, the soldiers need knowledge and sensitivity to these life-worlds in order to operate in a best possible way.[7]

Secondly, while the *operational winter concepts* in Norway are designed to utilize snow-cowered ground for transportation and tactical movement, the use of armored vehicles is the preferred concept in Afghanistan; a concept hampered by snow and insufficient infrastructure. This implies that the radius in which these soldiers can drive is narrowed, which will arguably also have consequences and implications on the soldiers utilizing their pre-developed expertise.

The two highlighted differences between the arenas should be considered as examples that may hamper the soldiers' ability to show their normal level of skillfulness. But

what these differences also have in common is that they invite a discussion about the extent to which the *transfer* of high-leveled skills and capabilities may be considered possible. They should also invite to emphasize upon the circumstances that may eventually influence the utilization of expertise.

The 'transfer problem'

Questions concerning the possibility for transfer of skills between the practice arena and the arena where those involved are expected to perform under real conditions must be considered a recurring challenge, and not just inside the military domain. Since Baldwin and Ford presented their review of the "transfer problem" in 1988, different approaches have focused on how to lessen the gap between practice and performance.[8] In applied research, in order to determining the worth of a training program, the degree to which the learning of a skill in one situation is transferable to another situation is the key issue and the challenge should be of current interest to all skill domains where the characteristics of the two arenas influences the skill execution differently. But even if the transfer problem seems to be general, the views concerning the possibility for transfer of skills vary distinctly. While some approaches argue that transfer of skills is possible only when the situational elements are identical, others are less worried about the limitations involved in such transfer, and argue that training and practice will have an effect even if the circumstances are perceived as different.[9] Inside the military domain, the focus on transfer of skills has been highly emphasized both in connection to simulator-based training and also the challenge of creating realistic environments that replicate the expected conditions where the skills will actually be executed. What has been highlighted as a challenge for both of these training facilities is to incorporate aspects not only concerning the physical environment of disparate areas and

situations, but also to integrate aspects to culture, language and other human factors, representing varying regions of the world. [10]

In an attempt to supplement and enrich the existing research on the transfer problem of military operations and utilizing of the soldiers' expertise, it may be fruitful to turn to arguments found in phenomenological philosophy.

The philosophical 'breakdown' of expertise

In order to enlighten why it may be difficult to utilize some kinds of expertise when transferred away from a familiar military context it may be fruitful to look to phenomenological philosophy, and in particular to Martin Heidegger, though with useful assistance from Hubert L. Dreyfus and Stuart E. Dreyfus. Even if Heidegger never aimed at describing optimal performances or expertise per se, his writings and also how he has inspired other writers has contributed to influential approaches about how to understand human behavior in general, and expertise in particular. Heidegger proposed a description of how human beings cope with the world that surrounds us in its most basic way. Heidegger argued that we normally encounter the world through our dealings with things or equipment *in order* to use them in an appropriate way.[11] For Heidegger the equipment in itself is not the important aspect; the importance is in what the equipment is for.[12] A soldier uses his skis in order to move on snow and he uses his gun in order to shoot. In such a way we do not deal with the entities in the world in a detached manner to identify objective characteristics of our surroundings, but rather as something in order to get something done. In the soldiers' daily use of their gun, they do not perceive the gun as weight, color, material or shape, but rather they use it as a tool to get their job done.[13] Heidegger went further. He described that this basic behavior may become hampered by three different kinds circumstances which hinder

our ability to cope fluently with the equipment; our preferred way to deal with our surroundings is interrupted and a behavioral 'breakdown' occurs. An important notion for Heidegger was that when our fluent coping with the equipment g*ets interrupted*, the objective features of the equipment again become visible. A broken ski attracts our awareness; we again consider it as a separate individual thing with objective characteristics while our fluent skiing becomes hampered. Such breakdowns are not something that exclusively concern expertise. We are all, independent of our level of skillfulness, influenced by such breakdowns which force us to give up our fluent coping with our life-world. But, in terms of the topic presented in this paper, what is interesting with Heidegger's approach is that it can also be useful to enlighten specific challenges concerning transformation of expert skills to other contexts. According to Heidegger, the circumstances which may cause breakdowns are: [14]

1. **Conspicuousness:** occurs when a piece of equipment is unusable or not properly adapted to the situation where it is meant to be used.

2. **Obtrusiveness:** occurs when equipment is not available at all, the equipment is simply missing.

3. **Obstinacy:** occurs when something stands in the way of our concern and this must be solved before we do anything else.

All these circumstances may occur when soldiers are in the midst of an operation; a gun may be malfunctioning (conspicuousness), the gun may simply be unreachable or missing (obtrusiveness) or the soldier may not be able to shoot because there are civilians in the line of fire who must be removed before further action (obstinacy). In all of these circumstances the soldiers' ability to do what needs to be done to solve the particular situation will be interrupted. But even if these examples are relevant, they must be considered as context

independent; they are equally relevant wherever a military conflict is outplayed. As such they do not particularly enlighten the challenge of transferring expertise to other operational context. But by supplementing Heidegger's notion of breakdown with Dreyfus and Dreyfus' interpretation of Heidegger, the picture becomes more useful. Dreyfus and Dreyfus' important contribution is that they consider relevant experience as equipment in itself, used to deal with particular situations. And the notion of relevant is important because it brings forth the requirement for context sensitive skills and knowledge. Experiences from the practice arena may not be considered as a solid foundation for actions in real operations because the contexts differs so much that the pre-developed experiences may be regarded as irrelevant. If we again turn to Heidegger's circumstances for breakdown and try to implement Dreyfus and Dreyfus' notion of relevant experiences it may perhaps appear as follows:[15]:

1. **Conspicuousness:** occurs when the experiences are not sufficiently relevant or not properly adapted to the situation in which they are meant to be used.
2. **Obtrusiveness:** occurs when relevant experiences are not acquired at all; the experiences are simply insufficient to cope with the particular situations.
3. **Obstinacy:** occurs when something stands in the way of utilizing our experiences and this something must be solved before we do anything else.

While Heidegger emphasized that such interruptions force us to again see the objective features of the equipment, Dreyfus and Dreyfus present a similar idea, but in a slightly different way. When we are fully engaged and totally absorbed in our coping with the situation we are facing, such behavior is rendered possible by our experience-based skills; we

have come into situations with readiness to deal with what normally shows up in that situation. If we lack relevant experience to cope with the particular situation, our readiness to cope with it gets interrupted and we have to deal with the situation in a less fluent style. Dreyfus and Dreyfus state that such lack of relevant experience inevitably causes a regression to behavior known to less experienced practitioners; we are not experts anymore because such a particular situation contains features perceived as sufficiently novel to utilize our experiences.[16] So while Heidegger placed emphasis on breakdowns as turning towards the equipment in a detached way to detect objective features, Dreyfus and Dreyfus place emphasis on our turning to the *situation* in a deliberate way to solve it. Instead of coping with the situation in an intuitive and fluent style, we have to stop and think through how to solve the situation before we make a decision.[17] According to Dreyfus and Dreyfus, thoughtful processes like deliberation and reflection are not the expert's preferred way of coping with the upcoming situations.

'Transfer proof' skills?

If we again turn to the descriptions of the differences between the two military arenas in which they are expected to execute their skills, it makes sense to discuss the challenge of transferring expertise by referring to Heidegger's circumstances for breakdown. But before examples are given about hampered expert behavior it may be useful to discuss the extent to which some skills should be considered as resistant to interruption caused by such transfer.

The soldiers who operated in Afghanistan stated after end of mission that some skills and capabilities was equally well suited for operations in Afghanistan as in Norway: "You know, minus 14 degrees feels just as cold if you are in Norway as in Afghanistan. The temperature is not a problem for us. Neither is snow. We are well equipped and well used to

handling it. I guess low temperature is more to be considered an advantage because it hampers our enemy". As such, to cope with low temperatures and snow are perceived, by the soldiers, as skills that are not interrupted by transfer; the experiences from the practice arena are relevant enough to be utilized in changed operational conditions. As long as the new arena does not interrupt the soldiers' pre-developed skills, such skills should be considered as context independent. How far a bullet will reach, how altitude will influence the helicopter's ability to carry heavy loads and missile blast effects are other kinds of knowledge that may be understood as context independent. This notion is important because it contributes to making explicit that some kind of skills and knowledge can be identified as 'transfer proof', or at least; we may be quite confident that such skills and knowledge will not be interrupted by transfer. But this argument also implies that the opposite is important; to identify what kind of skills should be considered as context sensitive, and therefore be an easier target for interruption of expert behavior by transfer. This should possibly be made explicit by employing Heidegger and Dreyfus and Dreyfus on the main challenges the soldiers are facing in Afghanistan

1) Facing an unfamiliar culture

The soldiers stated that a huge challenge for them was to make use of knowledge derived from how the locals behaved in different situations. Since they did not understand the language, they had to rely on their own interpretations of the local's body language, patterns of behavior and other recognizable features. Such knowledge was something they had tried to implement in practice situations before deployment, but they quickly recognized that this had not been very successful: To dress a Norwegian youth up in Afghan clothes and believe that he/she could represent the Afghan culture in a reliable way, turned out to be rather too

optimistic. One soldier stated: "There are some aspects and skills needed in a military operation which I think are quite impossible to learn from a practice situation". He then recounted the first time their team was driving through a small city. They suddenly found themselves in a street with no people at all; it was totally empty. Should this indicate a situation containing danger or was it more a sign of safety? Later the same day, they drove through the same city again. This time it was totally packed with people. Was this supposed to represent a threat? Such knowledge should be regarded as highly context sensitive, and according to Heidegger's terminology the circumstance of **obtrusiveness** had occurred. They did not have any relevant experiences with such situations and the soldiers just had to accept that they were novices to such a challenge, when their mission in Afghanistan started.[18] This does not mean that the soldiers did not do their job properly, rather that they faced the situations with no relevant experiences. In accordance with Dreyfus and Dreyfus' approach, such lack of experience forces the soldiers to stop and think about how to respond to the situation before they come to a solution. After a while, the soldiers figured out that each village and city had its particular mode and behavioral patterns; experience-based knowledge about each village was necessary in order to interpret the situation. The soldiers could, with increasing accuracy, value the safety situation in the different parts of their area of responsibility, and they started to build an experience-based foundation of what they could expect to meet in each place. Normally these expectations were verified, but sometimes the soldiers were met by a surprise. Their prior experiences from patrolling the area were not sufficiently relevant to cope with particular situations, and **conspicuousness** occurred. Again they had to stop and ask themselves: "What do we do now?"

Dreyfus and Dreyfus find support in the writings of Maurice Merleau-Ponty when they describe how particular situations invite us to respond in particular ways; our skills are

perceived as dispositions to respond to the *solicitations* of the situations in the world.[19] Our past experiences enable us to see those sorts of situations from a distinct perspective and this way of seeing the situation affords certain actions in us. This notion brings forth the idea that if the agent lacks relevant experience with the particular situation, the situation will not invite them to respond in an optimal way. The ecological psychologist James J. Gibson takes this notion a step further when he emphasizes that culture is inevitably connected to how we are *afforded* to respond in particular ways.[20] He used the example of the postbox. A postbox invites letter-mailing, but only to a letter-writing human in a community with a postal system. A person belonging to a non letter-writing culture, with no relevant experiences of mailing letters, will not be invited to mail letters when they see a postbox. And this argument is relevant also for the Norwegian soldiers serving in Afghanistan; features of the Afghan environment will only afford responses from those who are familiar with the Afghan cultures. One soldier stated that, after six weeks in Afghanistan he was incidentally informed by their interpreter that the way in which Afghans wear their turbans may indicate Taliban sympathies: a special knot over the right ear is the clue. After this episode the soldiers were more able to quickly get an impression of the kind of people they were facing during their conversations with the locals. Again, the lack of relevant experience with turbans caused **obtrusiveness**. For the Norwegian soldiers a turban was perceived as merely a piece of fabric used as a headwear, therefore the turban did not afford any response at all.

The notion of cultural knowledge and context sensitivity also brings forth another aspect of transfer of expertise. Different tasks require different sensitivity to context. To pinpoint this notion: an operator of a drone, probably placed on different continent from that in which his plane is located, will be more or less unaffected by context. To drop a bomb in Afghanistan compared to other places in the world is probably not influenced by

the local culture. A MOT-team in Afghanistan must, as such, be considered as placed on the other end of this continuum; the soldiers have to interact with the locals, often face to face. Their tasks should be considered as highly exposed to influence by the local culture. In between these extremities we may place other tasks and duties; an expert soldier operating long range missiles is probably less influenced by the local culture than a sniper. This suggests that that the more distant from an unfamiliar local culture a soldier operates, the less their expertise is exposed to interruption from it. The consequences are even wider with simulator training, a highly appreciated aid inside the domain of military skill development, being directly influenced by this notion. To construct a simulator for a drone operator, considered as quite authentic to a real operation, should in principle be possible as there are few, if any, contextual differences between a practice situation and real operations. This implies that a drone operator should be able to acquire relevant experiences from a practice situation to build relevant expertise. But to construct a simulator that enables a liaison officer to gain experience of interpreting the trustworthiness of an elder Afghan informant, gathered through a tea meeting, should transpire to be more difficult. In other words, it would appear that the kind of expertise that is less exposed to transfer interruption also has the best conditions for development of relevant expertise through simulator training.

The soldiers' homeland expertise should also be considered a matter of culture sensitivity, but this is so much a part of our implicit background understandings that we rarely reflect upon it. How the soldiers utilized the terrain, and even out-maneuvered the chasing scooter patrols in north of Norway is rendered possible by adapting their own responses to the culture dependent behavior shown by the chasing patrol. Because they belong to the same military unit - the same culture - they know exactly the strengths and

weaknesses of the following patrols. They are able to take the 'enemy's' perspectives because this is how they themselves would have approached this challenge if the roles have been reversed. They know how the scooter is hampered by darkness, they know the limits of the night-vision devices, they even know who the chasing soldiers are, and are able to act tactically upon this knowledge. The evening before the chasing patrol tried to capture this team, one of the soldiers told me: "They will try to catch us tonight". When I asked how he could be so sure he said: "It is just obvious, they will consider the conditions as optimal". And that night, they came. But my team was prepared and had made their plans for a counteraction; the chasing patrol was captured instead. Their expertise was definitely rendered possible by relevant experiences with this military culture. To take the enemy's perspective in Afghanistan should as such be considered as more difficult, because the soldiers have limited access to understanding the enemy's rationale for their actions. With experience, patterns are probably possible to detect, but as one soldier stated: "Sometimes, an ambush may be quite easy to foresee, while other times, they just pop up from nowhere".

2) The challenge of changing operational concepts

By turning to the second main difference between the military arenas, new challenges seem to appear due to the soldiers' expertise. The soldiers who were observed during their winter exercise in Norway, as previously mentioned, showed impressive abilities in coping with the challenges to which they were exposed; utilizing the terrain to move tactically, interpreting the snowmobile tracks, skiing, out-maneuvering a chasing scooter patrol and using the wind-drifting snow as an ally. However, such expertise is not worth much when the operational concept is not adjusted to utilize the soldiers' expertise, or when the pre-developed skills do not harmonize the current challenges represented by the conflict. In Afghanistan, Norwegian

troops do not use skis. They seldom operate outside the roads. There are no scooter tracks to interpret. There are no chasing patrols on snow-covered ground. Several of the expert's hallmarks in the practice arena turn out, caused by the more conventional concepts, to be irrelevant and unusable in Afghanistan.[21] This implies that the soldiers, known for their excellence in executing winter operations, must abandon one of their niche capacities; their expertise in specific adjusted winter concepts in Norway is by far left behind.

Gibson's description of how the environment affords us to respond in particular ways may contribute to enlightening why the soldiers' expertise is interrupted by the change of operational concepts. While Heidegger's main concern was about equipment, produced by humans, for the purpose of getting something done, Gibson's approach also contains features of the world not created by humans.[22] For Gibson the different surfaces of natural landscape invite us to respond in particular ways. Take the example of skiing: Heidegger would probably focus on our transparent coping with our skis in order to ski, while Gibson would also include that snow-covered ground will afford some of us to ski, and furthermore that different snow-cowered surfaces will afford different kinds of skiing. A steep downhill mountain side will probably afford the best skiers to go straight down, while those carrying the heavy sleigh with equipment will probably, on the same mountainside, be afforded to avoid the steepest parts. Much of the soldiers' expertise must be understood as being responses to environmental affordances, rendered possible by their experiences. The utilization of the terrain to move tactically, the interpretation of the scooter track and utilization of wind-drifting snow should count as examples of how the environment invited the soldiers to act as they did at the practice arena. And such actions could not have been done without relevant experiences from similar situations. Accordingly, in Afghanistan the soldiers stated that the environment gradually afforded responses from them. During their

first patrols they had problems knowing what to look for in order to identify roadside bombs and mines (IED's) - the biggest threats to these vehicle based teams. But with increasing experience they figured gradually out what to look for. Fresh marks on the gravel surfaced roads, scrap at the roadside, pots or cans placed near the roads normally with a trigger device located nearby were all signs of explosives. Even if the soldiers had a lot of experiences regarding being afforded by environmental features, and even if the soldiers tried to implement aspects concerning IED's while practicing prior to deployment, these experiences would not be relevant to be afforded by the environment in Afghanistan. Again, **obtrusiveness** occurs**.** Scrap alongside the roads is not normal in Norway, so when they identified some, it was synonymous with a roadside bomb. If they had stopped to check out all the scrap found alongside the roads in Afghanistan, they would have been kept very busy with this task. So for the soldiers in Afghanistan the challenge was more about detecting what kind of scrap afforded the soldiers to respond to the situation as a threat. And this ability developed with increasing experience from patrolling the roads.

A lack of utilizing pre-developed expertise may not seemingly have any direct connection to Heidegger's circumstances for interruption. The situations in Afghanistan are not interrupted by the fact that the soldiers are in possession of a wider repertoire of skills than they are able to make use of. It may be possible to argue that the unit could have been better prepared for the mission in Afghanistan if they had only focused on the skills and capabilities needed for the specific operational concept utilized in Afghanistan, instead of also practicing the homelands operational concepts.[23] But since the campaign in Afghanistan should be considered as temporary, the necessity to also maintain our preferred homeland concepts is obvious. It may also be possible to argue that the soldiers could have gained an advantage by transferring their homeland operational concepts to Afghanistan.[24] This could

have caused them to be been hampered less by **obtrusiveness** and **conspicuousness** in Afghanistan, but this is more a matter of speculation. Yet the operational concepts used in Afghanistan may influence expertise negatively in another way, which could cause **obstinacy** to occur; the campaign in Afghanistan stands in the way of our concern and has to be solved before the soldiers do anything else. This could be the case if the soldiers' homeland expertise is considered as most important in the long run; we just have to finish our engagement in Afghanistan before we can again concentrate on refining our homeland concepts.

New tasks – new demands for expertise

The change of operational concepts also influences expertise in another way. Soldiers other than those previously perceived as the best can turn out to be in possession of skills and capabilities considered as highly vulnerable for the new tasks and duties. As the team commander after returning from Afghanistan stated: "Luckily enough, we had a vehicle mechanic in our team. This was quite incidental. He could fix our engine in the middle of the night without any need for light. Our team may have the best soldiers, but if our vehicle breaks down, our ability to execute our missions are hampered severely." This implies that new operational concepts require new expertise. And this notion does have wider consequences. The change in the demand for new expertise will have to influence how the unit prioritizes their training and practice, which kind of skills they use as criteria for selection of new soldiers and how they compose their teams to be best possible prepared for the new challenges. The change of operational concepts in Afghanistan may as well contribute to transforming the unit as a military capacity in homeland operations.

Conclusion: From expert skills towards optimized performances?

As shown, to be in possession of expertise is not worth much when the expert skills and knowledge are not useful or not utilized because of the particular situations the soldiers are facing. This brings forth the difference between expert skills and optimized performances. The experts are not experts when their experiences are not relevant to responding to particular situations; they do not come into situations with readiness to deal with what normally shows up in that kind of situation, because they do not have experience to tell them what normally shows up. They may have the ability to respond to several other situations as experts, but not to those where their experiences are insufficient to cope appropriately. Their expertise is interrupted, and Heidegger's circumstances for interruption have shown to be helpful in making explicit what actually causes these behavioural breakdowns. This implies that expert skills should be regarded as an ability to show excellence if the context supports their experiences. And if the context supports their experiences the possibility to deliver optimized performances is rendered possible. For the military this distinction is crucial; the ability to develop capacities able to deliver optimized performances rather than to develop expertise that it is difficult to utilize. The transfer of skills from one military arena to another does in fact pinpoint this challenge in both facing new cultures and for utilizing other operational concepts than those with which the soldiers are familiar. The implication is that some skills are impossible to practice before deployment, some skills are difficult to employ when transferred and the demand for new expertise for new operational concepts increases. As long as it is difficult to implement context sensitive and situational features from military operations within the practice arena, it should be legitimate to question to what extent the ambition and expectation of producing highly

skillful soldiers prior to deployment is realistic. But this is in fact an important concession to make inside the military domain; the soldiers who take their first steps on Afghan ground are not, and neither have any possibility to be highly skillful to the challenges they are facing.

Notes

[1] This way to define skills is proposed by Dreyfus & Dreyfus, and I find it appropriate to investigating soldiers' skill development. For soldiers, the demand for being able to come into different situations with readiness to deal with what shows up is at the core of what soldiering skills are about. See Hubert L. Dreyfus and Stuart E. Dreyfus, *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer* (UK: Basil Blackwell Ltd, 1986).

[2] Brian P. McCoy, *The Passion of Command – The Moral Imperative of Leadership* (Quantico, Vi: Marine Corps Association 2007).

[3] The description of the *training and exercise arena* is based upon observations, interviews and informal conversations with soldiers during military winter-training. A recognisance team consisting of six Norwegian male soldiers, highly skilled, but still without experience of military operations, were the centre of particular attention during a nine-day-long escape exercise. The exercise was accomplished under exposure to harsh winter conditions in northern Norway. Through participating observation as an integrated member of this team, I got the opportunity to study their skills, habits and procedures at close range during this period. Most of these soldiers were deployed to Afghanistan less than one year after this winter exercise, and served under severe cold and snowy conditions. As such, this winter exercise should be regarded as highly relevant preparation for such duties.

[4]The description presented to characterize the *real military operations* in Afghanistan is mainly built upon information gathered from a Norwegian team serving in Afghanistan under ISAFs Regional Command North (RC N). The soldiers and officers accomplished their tasks at the tactical level in the north-western Faryab Province under command of the Provincial Reconstruction Team (PRT) Meymaneh. The soldiers' experiences have been gathered

through interviews and conversations after redeployment from Afghanistan. This team was also attention of observation prior to deployment. During a six-day-long exercise, only a few weeks before going to Afghanistan, the team was observed in order to see how they prepared for the upcoming mission.

[5] To define someone as expert inside the military domain may be difficult. A skill domain, characterized by few explicit criteria and few measurements for detecting expertise contributes to this picture. The demands for coping with a wide range of different skills implies that the soldiers seldom have enough time to engage in specific disciplines to show excellence in each. One officer stated about this topic: "We don't have time to get really good at anything, but we are pretty good at being *good enough* in most situations"'. The soldiers had experience enough to come into situations with readiness to deal with what they were exposed to An objection to this way of understanding expertise may be that expertise is needed in situations characterized by the opposite; to show particular excellence in highly demanding situations. According to Dreyfus and Dreyfus, the expert will deal with highly demanding situations if their experiences are sufficient to cope. But if the expert perceives a situation as sufficiently novel, the expert is no longer an expert, but has to approach the situation inevitably more as a beginner. See Hubert L. Dreyfus and Stuart E. Dreyfus, "Phenomenological description versus rational reconstruction," *Revue Internationale de Philosophie* 55 (2001): 181–96.

[6] A quite pragmatic, yet still promising approach is to let those within a domain define the experts through 'social acclimation'. Shanteau et al. claims that in every field there are some people considered by their peers to be best at what they do. Those who have been recognized within their profession as having necessary skills and abilities to perform at the highest levels are the defined experts. This approach does identify *who* the experts are without needing to bother with *why* the experts are the experts. It also grasps high-leveled performance which has not been recognized in the granting of certificates. See James Shanteau, David J. Weiss, Rickey P. Thomas & Julia C. Pounds, 'Performance-based assessment of expertise: How to decide if someone is an expert or not'. *European Journal of Operational Research,* 136/2 (2002): 253-63.

[7] Besides different groups of insurgents this area also contains ethnic Pashtu's, the Hazara people, Uzbek's, Tajiks and Turkmen's.

[8] Baldwin, T.T., & Ford, K.J. (1988). Transfer of training: A review and directions for future research. Personnel Psychology, 41, 63-105. Sited in Lisa A. Burke & Holly M. Hutchins, **'**Training Transfer: An Integrative Literature Review,' *Human Resource Development Review*. 6/3 (2007): 263-296.

[9] Jeffery J. Summers, 'A Historical Perspective on Skill Acquisition', In M. Williams & N.J. Hodges (Eds.), *Skill Acquisition in Sport – Research, Theory and Practice* (New York: Routledge, 2004): 1-26.

[10] See for instance J.Y Grau, P. Doireau and R. Poisson, 'Design and use of simulation for training: Lessons drawn from present military use,' *Travail Humain* 61/4 (1998): 361 – 85 about the limitations of simulator based training, and Richard L. Wampler, Jean L. Dyer, Stephen C. Livingston, Paul N. Blankenbeckler, James H. Centric, and Michael D. Dlubac, 'Training Lessons Learned and Confirmed From Military Training Research', *Research Report 1850* (Arlington, Virginia: U.S. Army Research Institute for the Behavioral and Social Sciences 2006) about the challenge of creating realistic practice environments.

[11] Martin Heidegger, *Being and Time* (New York: Harper and Row, 1962).

[12] Hubert L. Dreyfus, 'Why Heideggerian AI failed and how fixing it would require making it more Heideggerian', *Artificial Intelligence* 171 (2007): 1137-60.

[13] For a further discussion about this topic, see Gunnar Breivik, 'Skillful Coping in Everyday Life and in Sport: A Critical Examination of the Views of Heidegger and Dreyfus' *Journal of the Philosophy of Sport* 34/2 (2007): 116-34.

[14] The description of Heidegger's three circumstances for breakdown is to be found in Heidegger, 'Being and Time': 73-4/103-4.

[15] It should be emphasized that this way to present Heidegger's different circumstances with Dreyfus and Dreyfus' notion of relevant experiences implemented, is my own attempt to merge the approaches to an intelligible whole.

[16] Dreyfus, 'Phenomenological Description'185

[17] Dreyfus and Dreyfus emphasize that intuitive behavior is the hallmark of expertise. Hubert L. Dreyfus and Stuart E. Dreyfus, 'Expertise in real world contexts', *Organization Studies* 26 (2005): 779–92.

[18] Wong emphasizes the importance of being *adaptive* in order to master the challenge of transition in modern military operations. The ability to adapt to the context specific features of the environment is, according to Wong, one of the most crucial challenges the junior officers faces in real operations. See Leonard Wong, 'Developing Adaptive Leaders: The Crucible Experience of Operation Iraqi Freedom,' (Carlisle, PA: The Strategic Studies Institute, US Army War College, 2004).

[19]Hubert L. Dreyfus, 'Intelligence without representation – Merleau-Ponty's critique of mental representation. The relevance of phenomenology to scientific explanation', *Phenomenology and the Cognitive Sciences* 1 (2002): 367-83. Dreyfus and Dreyfus are in particular influenced by Maurice Merleau-Ponty, *Phenomenology of Perception* (Routledge & Kegan Paul, 1962).

[20] James J. Gibson, *The Ecological Approach to visual perception* (Hillsdale NJ: Lawrence Erlbaum Associates, Inc. 1979).

[21] For a discussion concerning how winter conditions may be utilized in a better way in Afghanistan, see Jørgen W. Eriksen and Tormod Heier, 'Winter as the number one enemy? – Lessons learned from North Afghanistan', *RUSI Journal* 154/5 (2009): 64–71.

[22] Breivik, "Skillful Coping," 118

[23] It should be emphasized that the Norwegian Armed Forces do both contribute to NATO-led operations abroad, but at the same time are sustaining the demands for homeland sovereignty and national security. This brings forth that operational winter concepts, shown to be best suited for homeland operations must be maintained even if Afghanistan must be considered as the main impetus for the skill development through recent years.

[24] Eriksen & Heier, 'Winter as the number One Enemy'.

Paper IV

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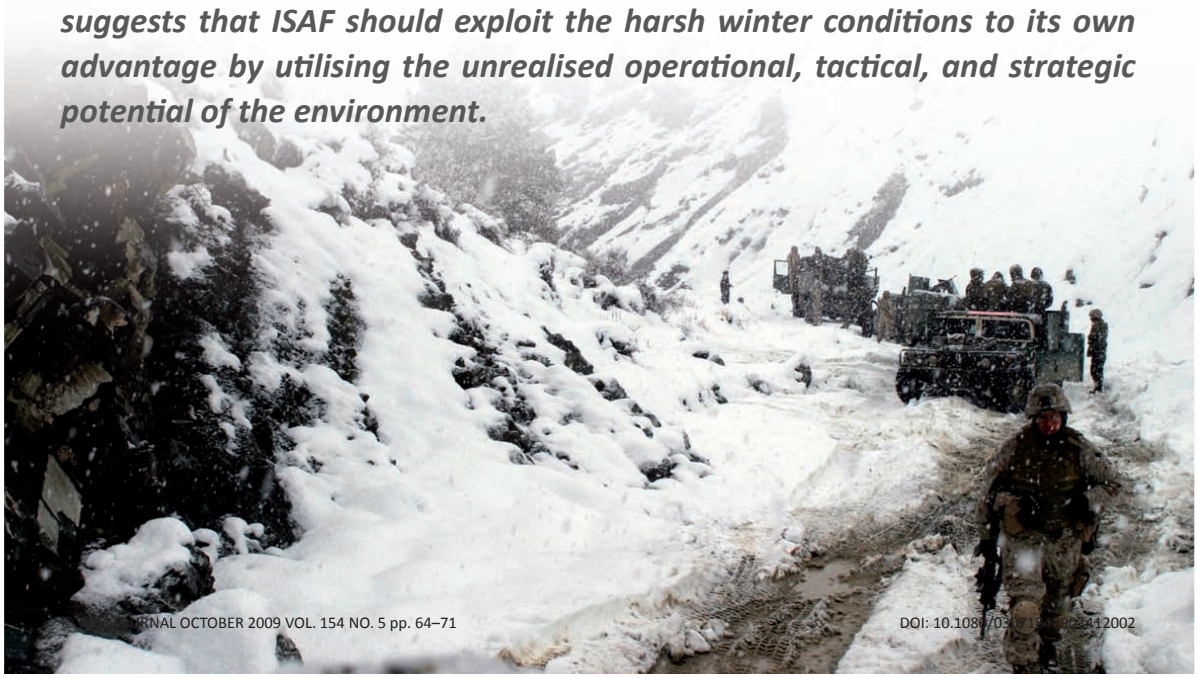
WINTER AS THE NUMBER ONE ENEMY?

LESSONS LEARNED FROM NORTH AFGHANISTAN

JØRGEN W ERIKSEN AND TORMOD HEIER

Winter and cold-weather conditions have significant impacts on armed conflicts wherever they are played out. NATO's first ever ground war in Afghanistan is no exception. Both insurgents and Coalition troops suffer from winter-related deficiencies such as inadequate experience, flawed operational concepts, and little winter-designed materiel. This article suggests that ISAF should exploit the harsh winter conditions to its own advantage by utilising the unrealised operational, tactical, and strategic potential of the environment.



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The Operational Context

The Afghan operation has entered its eighth year, yet the results so far are ambiguous. On the one hand, the Afghan reconstruction is moving ahead slowly but steadily, reflected in the fact that 85 per cent of the Afghan people now have access to health services.[1] Since 2002, the Afghan gross national income (GNI) per capita has increased by more than 70 per cent, and government revenues have increased more than four-fold.[2] In addition, more than twenty million schoolbooks have been produced and distributed,[3] and about 17,000 local societies have received aid to build schools, roads, health services, and water supplies.[4] On the other hand, security is still deteriorating. Insurgent incidents have increased: 2008 was the deadliest year to date, whilst 2009 is on course to be worse still.[5] According to ISAF, from January to May 2009 attacks increased by 59 per cent to 5,222 incidents, compared with 3,283 attacks in the first five months of 2008.[6] More than 2,100 civilians were killed in 2008, which is a 40 per cent rise from the previous year.[7] Parties on both sides are expanding and the fighting is characterised by its higher frequency and increased accuracy.[8] The 71,420 strong ISAF is now fighting in small-scale formations in most parts of the country.[9]

ISAF's opponents in Afghanistan have shown an impressive ability and capability to resist the power of a seemingly superior military force. This is a classic example of the timeless wisdom that local resistance groups are seldom defeated by an opponent fighting a conventional war, even a more sophisticated one. By utilising the possibilities and potentials of the topography and climatic conditions in Afghanistan, insurgents have developed and refined their own tactics. Superb local knowledge enables insurgents to exploit virtually inaccessible terrain. In the war against their better-equipped opponents, the insurgents use hit-and-run tactics, including roadside bombs and suicide bombers.

The impression of a Western intervention force being increasingly immersed in a tribal quagmire is hard to refute. One way to approach this seemingly intractable scenario is to consider alternative operational concepts that have not yet been fully utilised by ISAF. Ongoing operations in the Afghan theatre would be enhanced by the exploitation of winter conditions by ISAF and its component contributing nations. This article will explore three key questions: how can winter and cold-weather conditions be exploited by ISAF in Afghanistan? What conceptual amendments could be introduced to sustain momentum and gain an advantage in the ongoing conflict? What are the implications of such an approach?

The analysis is structured along three lines. Firstly, a brief outline of the impact that winter has on the conflict is proffered. Secondly, based upon empirical findings from north Afghanistan, the impact of cold weather on insurgents is discussed. Thirdly, the paper explores the ways in which ISAF can turn harsh winter conditions to its own advantage. Particular emphasis is put on cold weather expertise, seasonal flexibility, tailored concepts for cold weather operations, and force protection. The article concludes with three recommendations as to how ISAF may regain initiative and momentum by means of a more efficient cold-weather concept.

Method

This paper's empirical material builds mainly upon extracted information from in-depth, semi-structured interviews,[10] and informal conversations[11] with Norwegian soldiers and officers serving in Afghanistan under ISAF's Regional Command North (RC(N)) during the winter of 2007-08. These soldiers and officers accomplished their tasks at the tactical level in the north-western Faryab Province under command of the Provincial Reconstruction Team (PRT) Meymaneh. One Mobile Observer Team (MOT-team) in particular consisting of five soldiers, one liaison officer, and one interpreter has been the subject of special attention in this study. [12] The MOT-team's area of responsibility, due to topography and altitude, was heavily influenced by snow and cold weather. The interviews were conducted two to five months after redeployment to Norway; the interviews are supplemented with non-restricted statistics developed by ISAF, the UN, and other actors engaged in Afghanistan.

Winter's Impact on the Conflict

Despite an enduring and escalating spiral of violence, seasonal variations are considerable. The current Afghan conflict may therefore serve as an example of how environmental conditions such as low temperature, snow, cold wind, and high altitude directly influence armed conflict.

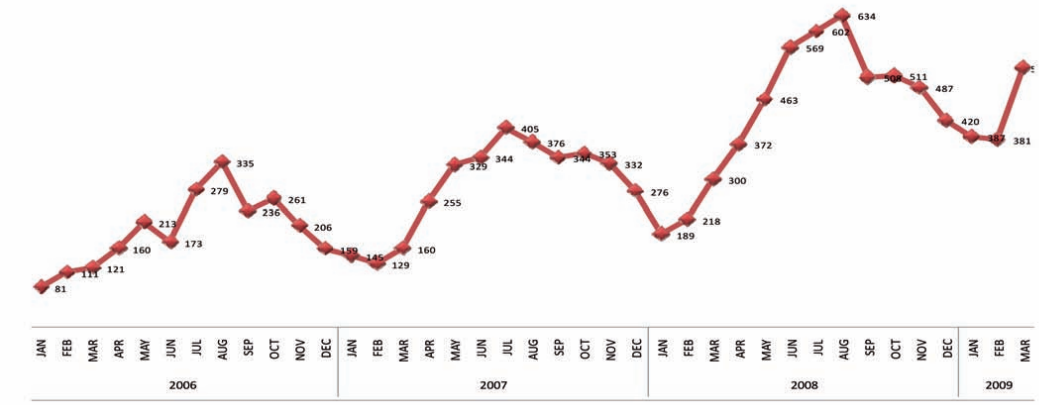
The diagram in Figure 1,[13] developed by the Afghanistan NGO Safety Office (ANSO), illustrates the number of incidents taking place per year in Afghanistan. These are attacks intended to strike ISAF or ANSF. There are two distinct trends in this picture: whilst the number of incidents is continually increasing, snow and cold weather do have a significant impact upon the level of insurgent-initiated attack. What is striking is that the period between December and April is less than 50 per cent of the summer incident level. However, the number of incidents during the winter (the calm period) is now higher than the high-intensive summer period only two years ago.

Snow and cold weather do have a significant impact upon the level of insurgent-initiated attack

The operational area of RC(N) is on the northern side of the Hindu Kush, the central mountain range that separates Afghanistan into its southern and northern segments. The northern part is heavily affected by snow and cold weather during wintertime; in particular, the high-altitude mountain range in the south captures heavy snowfalls due to a predominant northern wind. These factors have a considerable impact on the operational concepts and freedom of movement for different parts of the conflict.

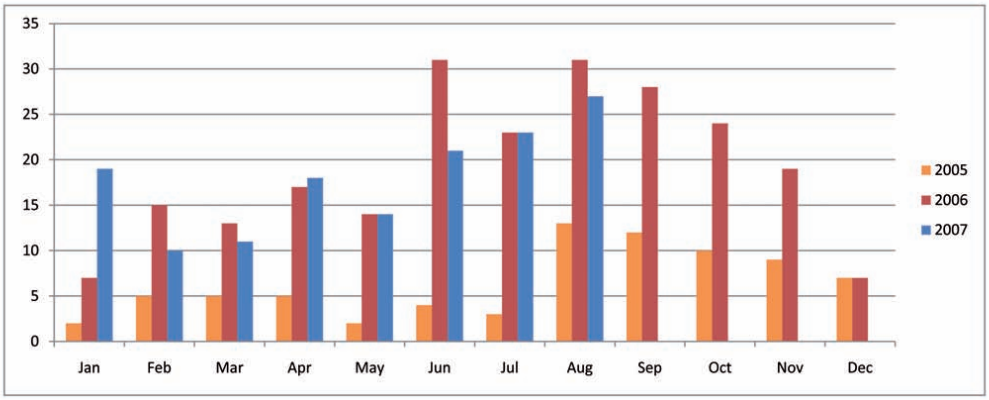
The available data from RC(N) indicates relatively few incidents in the north: less than 5 per cent of the total number of incidents in Afghanistan.[14] This may be in part due to the diversity of insurgent elements in the northern

Figure 1: Armed Opposition Groups (AOG) initiated attacks



Source: ANSO Quarterly Data Report, Q 1 2009, p. 8.

Figure 2: ISAF RC(N) Incidents Statistics 2005-07.



region. Vast areas are dominated by Tajiks, Uzbeks, and smaller pockets of the mountainous Hazara people. These groups are far less disposed to the Taliban than the Pashtun people situated to the south of the Hindu Kush and into the north-western parts of Pakistan.[15] Moreover, chronic ethnic rivalry leads to incidents by local or regional power brokers striving for personal gain, which may therefore differ from the more religious and ideologically motivated incidents of Taliban and jihadist insurgents. Even with relatively few incidents in the north, it is clear that the seasonal variation is considerable. This indicates that the cold weather impacts upon the level of incidents, and may in fact decrease the conflict intensity in the north.

The Influence of Winter on the Insurgency

Relatively stable security conditions in the north throughout the winter may be explained by a variety of factors. Many factors may, however, also be affected by unwanted covariance. Numerous underlying aspects evolve almost simultaneously, leaving the causal relationship between winter and insurgent agility a complex compound of various factors. The following elements are nevertheless of most relevance:

Hibernation

The most valid explanation, according to Norwegian troops, is built upon the assumption that the insurgents, in general, are inadequately trained and insufficiently equipped. Attaining key objectives during periods of harsh winter conditions is therefore almost impossible:

> As we came down to Afghanistan in the beginning of December, we were told that our possibilities to make some kind of influence on the situation were decreasing as the days went on. It was a kind of closing window. As they said: 'The bear is about to go into its winter lair', and in fact, this seemed to be the case to us.

Instead of sustaining momentum by pursuing asymmetric attacks towards ANSF and ISAF, it appears that insurgents in the north settle down and assimilate into local communities. This again provides them with intelligence, supplies, camouflage, and housing in a particularly demanding and harsh period of the year. As a consequence, resistance from these areas seems to drop dramatically. This is underscored by Norwegian rangers:

> To me, it looks like the locals live their lives as much as possible inside their homes during wintertime. They are sitting around their stoves and they try to live as comfortable as possible. As our Afghan interpreter asked me one morning when the ground was covered by 15 cm of snow; 'Why are we travelling around today? We are not going to meet anybody outside their homes.' Sometimes we saw people outdoors searching for some firewood, but that was also about it.

The Norwegian soldiers also confirmed the difficulty of separating insurgents from local civilians during wintertime. 'They turn from guerrilla soldiers into farmers or shepherds in no time', one soldier told us. The soldiers may have a hunch, but as long as there is no evidence connecting locals to hostile activity – such as visible weapons or other devices connected to insurgent activity – this is a delicate and unassailable situation. The fact is that civilians, understood to be non-combatants, have total immunity in accordance with the Geneva Conventions, and this prevents ISAF from harassing any assimilated insurgents – a situation the insurgents are known to take advantage of. The history of counter-insurgency shows that success relies on the ability to separate insurgents from the local population; ISAF's success is not only a matter of dominance on the battlefield.[16] The limited size of the international forces in these vast areas makes this aspect an insurmountable challenge.[17]

Insurgents in the north settle down and assimilate into local communities

Foreign Jihadist Warriors

The effect that winter conditions have on insurgent activity can also be seen within the context of sustained support from the jihadists. 'With the reduction of violence in Iraq, foreign militants were now flooding into Afghanistan', the Afghan Minister of Defence proclaimed in February 2009.[18] The jihadists largely originate from the pan-Arabic region, which enjoys a warmer climate, at least compared to Afghan standards.[19] For many insurgents the Afghan winter is difficult and demanding. Unless they are closely integrated into local communities under the authority of local Mullahs and *shuras*, we may expect foreign jihadists to be considerably strained as they enter into the harsh Afghan winter landscape. Nevertheless, it is also clear that many of the insurgents have been deployed through a well-organised network in Pakistan, with roots back to the Soviet invasion of the 1980s, and are likely to be familiar with the hostile Afghan environment.

Mobility

The Taliban's ability to sustain a high degree of mobility relies mainly upon motorbikes and other lightweight vehicles. This approach is extremely flexible for swift and decisive off-road movements, particularly as operations are pursued along paths and fragile tracks inaccessible to ISAF's heavy armoured vehicles. These transport methods also provide insurgents with a high operational tempo and a large amount of freedom of movement; factors often regarded as a prerequisite for surprise, local dominance, and protection against ISAF's rather static but overwhelming and accurate fire-power. Deep snow, however, severely breaks down the insurgents' mobility concept, as tactical manoeuvres take for granted customised roads and accessible terrain. Again, this may have a severe impact on insurgents' relocation abilities and may impose a more static and predictable operational pattern, rendering them more vulnerable.

Isolation and 'Safe Havens'

The northern Afghan winter often leads to virtual isolation of vast populous areas; a situation due partly to heavy snowfall and partly to a lack of adequate infrastructure and road-clearance capacities. According to one Norwegian ranger:

> Our MOT-team had the responsibility of patrolling two districts. We managed to continue our mission in one of them during the winter. The other one was blocked due to impassable roads. We had to give up patrolling this area in the middle of December and were forced to leave this district alone until the beginning of April. Deep snow, followed by muddy conditions was the direct reason for this obstacle. I'm not sure if these conditions were typical. The Afghans said it was the hardest winter in thirty years.

ISAF and ANSF's inability to efficiently operate during winter reduces the constant pressure on insurgents who, in turn, exploit this shortcoming by regenerating their operational resilience in isolated tribal communities. The situation also enables insurgents to consolidate their influence vis-à-vis local communities and to improve their capabilities following a prolonged period of intense resistance.

There is widespread agreement that the winter is also used by the Taliban to rebuild their strength and endurance in so-called 'safe havens'. For Taliban forces operating in the south and east, safe havens are mainly located within the Federally Administered Tribal Areas (FATA) in north-western Pakistan. These regions are vast, rugged, ungoverned, and are perfect for the undisturbed regeneration of combat resilience. Moreover, Pashtun pockets in the north may also provide critical shelter for radical Mullahs and jihadists, helping to consolidate the Taliban footprint in the

north. Safe havens are normally used to train, recruit, and equip the insurgents; this activity is regarded as the single most important foundation for commencing bolstered operations in the annual 'spring offensive'.

Forging Alliances, Sustaining Influence and Displaying Power

About 90 per cent of Afghanistan's insurgents are historically assessed as being ethnically rooted in the patriarchal Pashtun culture.[20] Embedded in the Afghan tradition, this culture is part of a persistent balance-of-power logic that involves numerous other tribal leaders. Power and control in this feudal network is consolidated and maintained through informal and clandestine negotiations – normally entered into outside legal and accountable state structures.[21] Social and economic empowerment, however, requires insurgents to spend periods of the year in their local communities. This is partly to sustain their influence in the area, but also to forge new alliances or balance emerging rivals on the horizon. With ISAF's operational concept being severely hampered by icy conditions, the winter lull is both convenient and crucial for the insurgents. Fighting in one of the world's most impoverished countries, the winter may also be regarded by insurgents as an appropriate period to look after their families and extended clan. During winter, different kinds of trade, business, and income-related activities are carried out, creating a base of financial support and assets for the spring and summer offensive.

How can ISAF Exploit the Winter?

Despite the severe cold-weather challenges, there are a number of operational possibilities available to ISAF – ideas that so far have been neglected, hampering the full exploitation of ISAF's force capacity. ISAF's operational concept can be amended, in particular by an increased reliance upon the PRT-level, and its ability to collect intelligence and maintain a presence in local communities. The proposed tactical extension also has possible consequences and implications for other high-priority tasks, such as mentoring the ANSF and performing counter-insurgency operations.

ISAF's Cold-Weather Expertise

Among ISAF's forty-two force-contributing nations, winter skills and corresponding equipment vary considerably. Yet, despite severe winter-related deficiencies within ISAF's force-generating pool, there are still numerous troops in possession of unique skills for cold-weather operations. Many of these troops, such as ISTAR, FAC, LRRP and SOF,[22] are trained to sustain their operational agility throughout harsh winter conditions, and it is tempting to promote their relative advantage over more vulnerable winter-opponents. However, ISAF's winter operations have so far been severely hampered. This may be partly due to domestic caveats put on the troops in order to ensure sufficient force protection and prevent politically sensitive losses at home. Operational problems may also be due to a high rotation frequency of troops among the various ISAF contingents. Such a quick turnaround of troops may impede the accumulation of winter-related competence and so impair lessons-learned processes inside ISAF, which undermines the development of expertise in cold-weather operations. Accumulated real-life experiences in a particular skill domain are a pre-requisite for the development of expertise.[23] The short duration of contingents' deployments must, in this regard, be seen as an insufficient foundation for the development of high-level skills for winter operations.

For successful winter operations, forces must be in possession of sufficient cold-weather experience and competency *before* deployment to Afghanistan. By focusing on the force-generating process inside NATO, ISAF and RC(N), the campaign can be equipped with troops that are precisely customised to the changing seasonal conditions prevailing in the operational area of responsibility. To be more specific, troops with particular winter excellence and cold-weather capabilities should be employed for that particular use, and should be spared during summer time. Such an approach would propel a more rational, effective, and mutually enhancing effort among force-contributing nations. This approach may also provide the regional commands with critical experience as various season-specific contingents are deployed throughout the year.

By exploiting technology and innovative ideas to accentuate winter operations, a more dynamic, decentralised, network-centric operational concept may be developed, centring upon a lightly equipped and dispersed force, comprising units with particular operational advantages in cold-weather operations. The concept needs to be underscored by advanced technology in order to fully exploit satellites, aircraft assets, electronic warfare capacities, and precision guided missiles, particularly with regard to more sensors, more aerial platforms, helicopters, and electronic devices in the air and on the ground. This is likely to require joint and combined efforts between highly specialised units on the ground and in the air, which is imperative if ISAF's overstretched force is to gain any operational synergy from their operations. Night-vision goggles, thermal sights, electronic surveillance, satellite mobile-phones and FACs are but some examples.

Seasonal Flexibility and Tailored Concepts for Cold-Weather Operations

ISAF does exploit seasonal challenges by differentiating its tactical and operational approaches, but this currently occurs to a very limited extent. ISAF's *modus operandi* primarily emphasises effective operations under snowless conditions, and is thus sustained until snowfall hinders further operations. The deliberate employment of more mobile troops throughout the winter into hostile districts is nevertheless a delicate issue. It touches the core of any multinational coalition which sees numerous operational caveats guiding national force contributions. Increasingly affected by domestic safety demands and military conservatism (a hangover from conventional Cold War scenarios in Europe), a more decentralised, mobile and low-profile concept may be hard to implement. Indeed, to date this has resulted in the use of heavy and armoured vehicles; outflanking movements, surprise and speed are rarely achieved as a consequence. This problem is reinforced by the often non-existent or fragile infrastructure that is unable to carry

heavy conventional platforms. Operations with these wheel-based vehicles in deep snow have consequently turned out to be problematic. The predicament is highlighted by a serving soldier:

> By my opinion, neither ISAF nor the PRT's [sic] have operational concepts adequately designed to exploit the cold and snowy conditions. I'm quite convinced that we could have continued our operations and kept the contact with the locals, also in quite inaccessible areas during winter time, if we could have operated with our weasels down there.

It seems clear that access to weasels[24] and snowmobiles would energise ISAF's operations throughout the year and thereby also their mission to underscore Afghan authority in the local and regional authorities all year round. Through a robust winter operational concept, forces will increase their potential of reaching out to safe havens, and also be able to display governmental control and authority in even the most autonomous regions. This may also serve to strengthen dialogue and co-operation with local communities, which is crucial for ISAF's own security and situational awareness. Additionally, this also brings an ability to persist in constant harassment of insurgents who would otherwise use this period to regenerate their combat agility.

Forces specifically trained and equipped for cold-weather operations will also contribute significantly to the idea of network-centric warfare by encouraging connectivity between sensors, platforms and decision-makers. Though ISAF units specialised for winter warfare would be lightly equipped, they would possess a great potential for instant fire-power due to the enhanced ability to guide heavier weapon systems such as laser-guided artillery, mortars, and air-launched missiles accurately to target. This operational concept would expose only a very limited number of soldiers to direct contact with the insurgents, because the major part of the force remains a significant distance from the frontline. Troops can thereby operate with a low operational signature, which strengthens their own safety and operational security. Working within such a concept, troops who are trained and equipped to operate independently can be decentralised in small formations, covering wide areas for extensive periods of time. This would give ISAF the ability to gain better situational awareness and to pursue continuous harassment operations against vulnerable insurgents who suffer from limited freedom of movement during wintertime. ISAF's specialist troops, on the other hand, would be better able to operate in the difficult terrain, using helicopters, snow mobiles or even skis to overcome the challenges posed by limited access to regular road systems, modern infrastructure and logistical support.[25]

ISAF's progress in the current Afghan conflict is undercut by its inability to cope with the Afghan winter

Small and flexible units with the capacity to operate with a decentralised profile, with a low signature, and who are widely dispatched in the area of operations are likely to pose a significant threat to insurgents, draining scarce resources that would otherwise be spent on training, planning, networking, and balancing rival factions. Indeed, ISAF's mere presence will create an impression of being watched and observed. By depriving insurgents of a stable and secure environment, a pattern of constant harassment is likely to subdue, and ultimately exhaust, insurgents both physically and psychologically. Such an operational approach has the potential to impact the will and mental resilience of the opponent. Sustaining momentum throughout the year may also result in more favourable operational positions for ISAF as spring gradually emerges. The constant scarcity of basic needs such as secure areas, reliable social networks, credible information, shelter and food have a substantial influence on the psychological dimension that underpins combat agility.

Finally, alterative operational concepts require an increased cold-weather competence among those who are heading up the mission. A possible measure to contain this challenge may be to give increased autonomous power of authority to those nations who already master such operational concepts, and to allow them to execute their missions in accordance with their own understanding of appropriate operational concepts for cold weather. A minimum provision would be to supplement and strengthen the commanding authorities with specialist skills and competence during wintertime. This process will also force the commanding authorities to differentiate their use of operational concepts, due to the genuine capabilities of each contributing country.

Force Protection

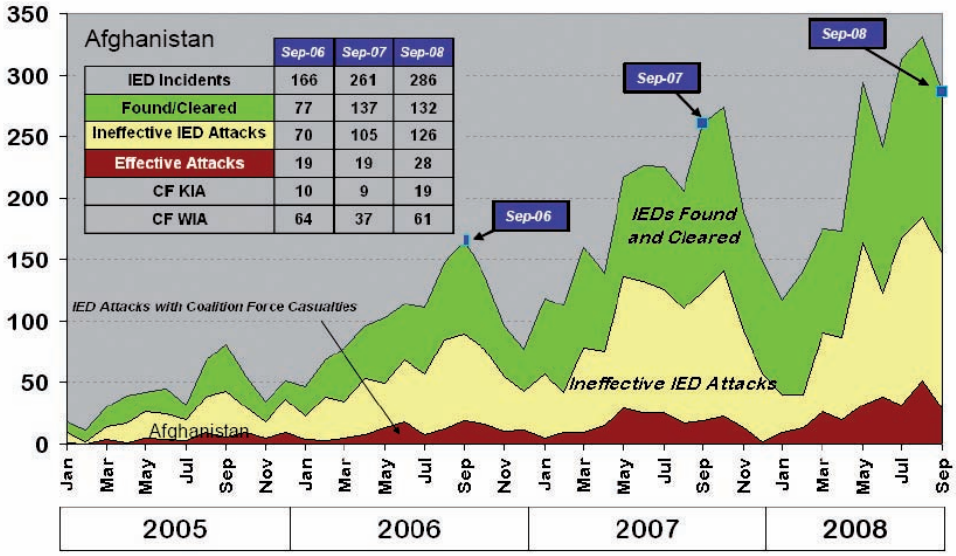
Concepts for cold-weather operations that exploit the potential for snowmobiles and weasels are more likely to expedite operational safety and force protection during operations. As snow reduces a vehicle's pressure on the ground, the surface significantly reduces the risk of pressure plate-activated mines and explosives. Also, by circumventing main roads, ISAF may reduce the risk of roadside bombs; which even in wintertime remains the biggest threat to the allied forces in the north, as shown in Figure 3.

Another advantage of belt-based vehicles is their high-mobility: this type of transportation does not have to follow customised tracks, making ISAF's operational concept more flexible and unpredictable as approaches and lines of manoeuvre can be constantly changed. These factors could potentially increase ISAF's force protection ability, as IEDs and ambushes may be more difficult to plan.

Conclusion

To date, it appears that ISAF's ability to obtain and hold the initiative and momentum in the current Afghan conflict is undercut by its inability to cope with the Afghan winter. The present operational concept is not geared towards exploiting the advantages of seasonal variations. Despite overwhelming superiority with regard to winter skills, technology, and winter-related mobility assets, ISAF finds itself again and again in a reactive

Figure 3: IED attacks in Afghanistan, 2005-08



posture as its forces find themselves incapable of sustaining summer-type offensives throughout the year. As a consequence, vast areas of hostile territory are left inaccessible and out of reach for extensive periods of the year. The political initiative, as gained through a sustained operational momentum, is therefore harder to maintain, and as a result the conflict enters a stalemate during the winter period. This situation arises from the insurgents' aversion or inability to fight during winter, and also because ISAF seems to be content with a calmer period during the winter – this may be a serious operational fallacy. By exploiting the full potential of modern forces, the winter could instead be seen as a window of opportunity.

Based on the analysis of the relationship between cold weather, challenges facing the insurgents, and ISAF's potential operational capabilities, the following three conclusions can be drawn. First, that force impediments have not been adequately addressed, and expertise in cold-weather operations not identified or utilised. Force contingents should be tailored for seasonal variations in order to ensure better force protection, a more agile and offensive concept of operations, and increased presence over the vast terrain throughout the year in order to better control isolated areas. Secondly, ISAF should dispose of the Cold War legacy; conventional forces designed for decisive battles on the European plains are not relevant in the mountainous and often inaccessible landscape where insurgents operate in a decentralised mode and without a clear centre of gravity. Finally, the inauguration of a more decentralised concept of operations for ISAF troops is likely to accentuate transformation efforts inside NATO, in particular since valuable experience will be derived regarding network-centric warfare and specialised combat skills. This may serve to bridge the conceptual divide between major conventional wars and small unconventional wars that currently characterises the military profession.

Such an offensive stance is likely to provide an improved starting point as the annual spring offensive approaches – partly because insurgents have been harassed throughout the winter period, and partly because ISAF have gained enhanced local knowledge and context-sensitive experience, and maintained a continuous dialogue with local communities. Unless ISAF urgently reviews its policy of winter aloofness, the insurgency will continue to retire to the mountains, regaining strength and amassing resources in time for a renewed offensive once the warmer climes descend, leading to a never-ending counter-insurgency operation in Afghanistan. Given the possibilities, winter should be perceived as a valuable ally rather than an operational impediment. ■

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NOTES

1 Jonas Gahr Støre, Norwegian Minister of Foreign Affairs, 'Foreign Policy Address to the Storting', 10 February 2009, <http://www.regjeringen.no/en/dep/ud/about_mfa/minister-of-foreign-affairs-jonas-gahr-s/Speeches-and-articles/2009/address_storting0902.html?id=545344>.

2 *Ibid.*

3 *Ibid.*

4 Jonas Gahr Støre, 'Utenrikspolitisk redegjørelse for Stortinget 5. februar d.å. om en samordnet plan for Norges bidrag til Afghanistan', Oslo, 5 February 2009.

5 UN Department of Safety and Security, Afghanistan, 'ISAF RC N (2008) Incident Statistics 2007', *Afghanistan Opium Survey 2008* (United Nations Office on Drugs and Crime, August 2008), p. 19.

6 These numbers are in accordance with US military officials and excerpts of a report by NATO's International Security Assistance Force, *Al Jazeera*, 'Afghan Violence "Worst since 2001"', 12 June 2009.

7 Speech by John Holmes, 3 February 2009, cited in 'UN emergency relief coordinator launches humanitarian action plan for Afghanistan', The United Nations Office at Geneva.

8 President Barack Obama decided in February 2009 to deploy an additional 17,000 troops to Afghanistan by the summer, bringing the total number of US military personnel in Afghanistan to 55,000, or about one-third the level in Iraq. This decision increases the pressure on the other coalition countries to deploy even more soldiers to Afghanistan. Karen DeYoung, 'More Troops Headed to Afghanistan', *Washington Post*, 18 February 2009, Department of Defense, 'Progress Toward Security and Stability in Afghanistan', Report to Congress in accordance with the 2008 National Defense Authorization Act (Section 120, Public Law 110-181), January 2009, p. 31.

9 Unfortunately the number of troops will never be exact; this figure should be taken as indicative of the number of troops deployed and are correct as of 22 October 2009, <http://www.nato.int/isaf/docu/epub/pdf/isaf_placemat.pdf>.

10 The research interviews conducted by the authors were in accordance with Kvale and Brinkmann's recommendations regarding qualitative research interviews: Steinar Kvale and Svend Brinkmann, *InterViews – Learning the Craft of Qualitative Research Interviewing* (Oslo Sage, 2009).

11 Both Max van Manen and Kvale and Brinkmann pinpoint the scientific value of goal oriented informal conversations: Max van Manen, *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy* (New York: State University of New York, 1990); Kvale and Brinkmann, *op. cit.*

12 The MOT-teams are a very important element in the PRT-organisational concept. The MOT-teams are self-supported, highly autonomous and far reaching units, with missions lasting from one day to up to two weeks. Their main goal is to collect provincial information, show a military presence and broadcast information about ISAF's mission to the Afghan people. The MOT-teams are meant to provide for their own safety whilst travelling around the sparsely populated terrain.

13 The statistics include suicide bombers, close range and indirect fires.

14 No data from ISAF RC(N) is available after the summer of 2007.

15 Fredrik Barth, *Afghanistan og Taliban* (Oslo: Pax forlag, 2008).

16 Interview with Steve Metz of the Strategic Studies Institute at the U.S. Army War College in Pennsylvania, <http://www.afghanconflictmonitor.org/>.

17 ISAF RC(N) consists of approximately 5,600 soldiers, and consists of a headquarters, forward support base in Mazar-e-Sharif and five PRTs, <http://www.nato.int/isaf/docu/epub/pdf/placemat.pdf>, accessed 12 October 2009.

18 Sayed Salahuddin, 'Afghanistan says Foreign Fighters coming from Iraq', *International Herald Tribune*, 4 February 2009.

19 Lawrence Wright, *The Looming Tower: Al Qaida and the Road to 9/11* (New York: Borzoi Books, 2006).

20 Barth, *op. cit.*

21 *Ibid.*

22 ISTAR: Intelligence, Surveillance, Target Acquisition, and Reconnaissance; FAC: Forward Air Controllers; LRRP: Long Range Reconnaissance Patrols; SOF: Special Operation Forces.

23 K Anders Ericsson, 'The Influence of Experience and Deliberate Practice on Development of Superior Expert Performance', in K Anders Ericsson, Neil Charness, Paul J Feltovich and Robet R Hoffman (eds.), *The Cambridge Handbook of Expertise and Expert Performance* (Cambridge: Cambridge University Press, 2006), pp. 683-704.

24 A weasel is a tracked vehicle designed specifically for operation in snow.

25 Tormod Heier, 'Hærens bidrag til nasjonal forsvarsevne - strategisk veivalg' [The Norwegian Army's contribution to national defense capability – a strategically choice of direction], *Norwegian Military Journal* (Vol. 175, No. 2, 2005), pp. 4-9.

Appendix

Norsk samfunnsvitenskapelig datatjeneste AS
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Vår dato: 12.09.2007 Vår ref :17250 / 2 / AMS Deres dato: Deres ref:

KVITTERING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 03.08.2007. Meldingen gjelder prosjektet:

17250	*Ekspertise i fremtidens forsvar. En fenomenologisk studie av ekspertise knyttet til militære vinterferdigheter blant soldater i norske patruljeavdelinger.*
Behandlingsansvarlig	*Norges idrettshøgskole, ved institusjonens øverste leder*
Daglig ansvarlig	*Jørgen Weidemann Eriksen*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, eventuelle kommentarer samt personopplysningsloven/-helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/melding/pvo_endringsskjema.cfm. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://www.nsd.uib.no/personvern/register/

Personvernombudet vil ved prosjektets avslutning, 30.06.2009, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Bjørn Henrichsen

Anne-Mette Somby

Kontaktperson: Anne-Mette Somby tlf: 55 58 24 10
Vedlegg: Prosjektvurdering

Personvernombudet for forskning

Prosjektvurdering - Kommentar

17250

Personvernombudet finner at behandlingen kan finne sted med hjemmel i personopplysningsloven § 8 første ledd (samtykke).

Det skal innhentes opplysninger gjennom feltobservasjon og intervju. Det skal gis skriftlig og muntlig informasjon om prosjektet. Det skal ikke registreres opplysninger om personer som har reservert seg mot feltobservasjon. Informasjonsskrivene som er utarbeidet er tilfredstillende etter revisjon jf. e-post 11.9.07.

Når resultatene presenteres skal det ikke være mulig å gjenkjenne enkeltpersoner.

Ved prosjektslutt 30.06.09 skal datamaterialet anonymiseres ved at direkte og indirekte personidentifiserende opplysninger slettes eller skrives om. Lydopptak slettes.

Interview with the team commander
Translated from the original Norwegian version
October 2008

Can you describe, for your team, an ordinary mission in Afghanistan?

Did you end up in challenging or dangerous situations?

Did you ever feel your life was threatened?

How important do you consider the specific pre-developed procedures to be in real situations?

How many years of military service did the different soldiers in your team have in front of Deployment

How do you consider your (team) contribution to the campaign in Afghanistan? How did the team function as an entity – a whole.

Did any of your soldiers perform better/less than expected? If this is the case, why?

As the team commander, would you have chosen the same soldiers one more time?

One of the soldiers had prior experiences from Afghanistan. How important do you consider his contribution to the team, compared to the other soldiers. Was he most important in the beginning?

About managing the local crowd, was this a challenge for you and your team?

Was it hard to discriminate between combatants and non-combatants?

How was this notion influenced by increased experience?

Did you experience particularly stressful situations? How did stress influence your ability to cope with the different situations?

How does a deployment like this influence on you personally?

Did you ever end up in ethical/ moral dilemmas?

How long time did it take before you and your team developed adjusted and appropriate procedures?

In hindsight, do you consider your team as more skilful after end of this mission? Did you develop any particularly new skills during these six months?