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Group dynamics in avalanche terrain

A qualitative study of backcountry skier's experiences with group dynamics and their influence on decision-making in avalanche terrain

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Master's thesis in sports science, IDR-3901-1, May 2024

Table of Contents

1	Introduction	1
1.1	Research question and terminology	2
	Terminology:	2
2	Theory	2
2.1	What is ski touring?.....	2
2.2	What is avalanche terrain?	4
2.3	Decision-making frameworks	5
2.4	Human Factor(s).....	7
2.4.1	<i>FACETS</i>	8
2.4.2	Strategic mindset.....	9
2.5	Sensemaking.....	10
2.6	Group dynamics	13
2.7	Leadership	15
2.7.1	Conditional leadership.....	16
2.7.2	Transparent guiding.....	17
2.8	Learning and developing avalanche competence.....	18
2.9	Previous research.....	19
3	Method	21
3.1	Qualitative research method.....	21
3.2	Scientific grounding	22
3.3	Interview.....	24
3.4	Interview guide.....	25
3.5	Sampling.....	26
3.6	Doing the interview	28
3.7	Transcribing	30
3.8	Reflexive thematic analysis.....	31

3.8.1	Six phases of the analysis process.....	32
3.9	Ethical considerations	35
3.10	Research quality	36
3.10.1	Subjectivity and reflexivity	36
4	Results and Discussion.....	38
4.1	Introduction of the participants and themes	38
4.1.1	Participants	38
4.1.2	Theme table	39
4.2	Trustworthy relationships.....	40
4.3	Decision-making as a collaborative effort towards consensus.....	45
4.4	Group members with higher avalanche competence.....	51
4.5	Group members with homogenous skiing ability	55
4.6	Group members with homogenous risk acceptance.....	59
5	Conclusion.....	65
5.1	Critical lens and future research.....	66
6	References	68
7	Attachments	72
7.1	Interview guide.....	72
7.2	Information letter.....	74
7.3	Approved application from SIKT	78

Abstract

This study examines how the influence of group dynamics affects decision-making among experienced backcountry skiers in avalanche terrain. The study explores individual skiers' perspectives of group experiences in avalanche terrain and investigates how group dynamics have affected their decision-making. The study has a scientific-theoretical position of a critical qualitative orientation. This orientation proceeds with a relativist ontology, social constructionist epistemology and a hermeneutic phenomenological methodology. The collection of data was through semi-structured interviews with ten experienced backcountry skiers living in Tromsø (Norway). The skiers were strategically sampled through the snowball method (Tjora, 2021). Reflexive thematic analysis with a deductive theory driven approach was used to analyze the data (Braun et al., 2022).

The study's findings show that group dynamics had a multifaceted influence on the decision-making process. Different group dynamics influence groups before, during and even after skiing in avalanche terrain. They were also influential when the skiers decided who to ski with, and where to go skiing. Learning group dynamics were also mainly connected to negative experiences in avalanche terrain, which have certain implications for recreationists as well as professionals teaching avalanche safety. The findings provide new evidence concerning experienced skiers use of decision-making frameworks, while also demonstrating the need for further research on group dynamics and social factors, because of their relevance and influence towards decision-making in avalanche terrain.

Acknowledgements

Today marks the day of delivering this thesis. When I started the process, I thought the work would be somewhat chronological, just like ski touring. Up the mountain, down the mountain, good times with good friends!

In reality, the process has had more resemblance to a multiday traverse of an unknown mountain range. Ups, downs, peaks, crevasses, avalanches, cols, passes, ravines, frustration, excitement, too many impressions to account for. I am somewhat amazed how I managed to get here at all. I don't regret a single day I have been skiing instead of writing. And I don't regret a single day I have been writing instead of skiing. Such is the duality of the writer who skis. Or was it the skier who writes?

Nevertheless, I want to thank certain people for helping me along the way. First and foremost, a big thank you goes to my supervisors Marcel Reinold and Sigmund Andersen, for working as a map and compass in this writing wilderness. Second, I want to thank my mother, Hanne Hellevik and my girlfriend Mathilde Lyford Jahnsen, for trying to help with grammar and text. Thirdly, I want to thank my (un)official mentors, Bjørn Michaelsen and Tim Dassler for conversations and discussions we have had during the last year. And last but not least, the playboy mansion, my collective: Michel Afflerbach, Romain Pitchot and Stijn Hofhuis, for keeping me from going slightly insane.

The sun is shining and the leaves are green. The lakes and the mountains are calling. It's time to go outside!

Emil Telje.

Tromsø, 29. May 2024.

1 Introduction

On average, a hundred people die in Europe due to a snow avalanche every year (European Avalanche Warning Systems, n.d.). In the United States, the last ten winters have claimed 27 lives on average (Colorado Avalanche Information Center, n.d.), and in Canada, the winter of 2022/2023 claimed 24 lives alone (Avalanche Canada, n.d.). Most of these fatalities are caused by skiers, split boarders or snowmobilers who travel in avalanche terrain, as a leisure activity (Tremper, 2018). In Norway, 72 avalanche fatalities have been reported between 2001/2002 - 2019/2020 (Horgen, 2021). Based on statistical data from the winter season of 2008/2009 until now, the Troms region is showcased as the “dark horse” of the geographical spread in fatality and incident rates (Varsom.no, n.d.-b). Avalanche forecasters and other experts are uncertain why the region of Troms has so many fatalities compared to the other parts of Norway (Andreassen et al., 2022), except the fact that there are a lot of skiers here during the winter season, both locals and tourists.

According to statistics from The Norwegian Avalanche Forecasting Service “Varsom” most skiers involved in the incidents and fatalities were part of a group (Varsom.no, n.d.-b). Ski touring in avalanche terrain with a group involves exposing yourself to the risk of triggering or getting taken by a naturally triggered avalanche, among other hazards (Tremper, 2018). It is recommended to travel with a group in avalanche terrain instead of alone (Nes, 2018). If a skier is taken and buried, it is almost impossible for that person to dig themselves out of the snow (Brattlien, 2017). As early as the 1990’s, Fredston et al. (1994) and later McCammon (2004) presented a paradigm shift in the way avalanche accidents are interpreted, which they called the “Human Factor”. In short it means that the social dynamics and relations within the group can lead people to take unnecessary risks and make mistakes leading to avalanche accidents (Fredston et al. 1994; McCammon, 2004). Johnson et al. (2020) presents the magnitude the “human factor” still has in today’s research, while also stating the need for rethinking this paradigm. Studies have revealed that 90 percent of avalanche accidents are triggered by the victims themselves or another person in the group (McClung & Schaerer, 2006; Hetland et al., 2023; Schweizer & Techel, 2017), indicating that what leads to avalanche accidents are not a snow problem, but rather a human factor problem.

Tromsø, coined Norway’s answer to Chamonix in the French Alps (Nordahl, 2018) is the unofficial capital of the Troms region and has been my hometown for the last two years. It is surrounded by mountains where one can go ski touring every month of the year if one is eager

enough. Over the years I have come to know a lot of people who either have been taken or know someone who has experienced an avalanche accident. In the aftermath of such accidents, there have been lots of reflections. Mainly about the snow properties that led to the triggering of an avalanche, but also how the group discussed and agreed to ski something that caused an accident. In 2016, the Center for Avalanche Research and Education (n.d.) was launched at the University in Tromsø. It has quickly grown to become a central hub for avalanche research, with one of their latest paper proceedings being the first systematic overview over peer-reviewed research on the human factor in avalanche decision-making (Hetland et al., 2023). This paper showcases the lack of research on social factors or group decision-making in avalanche terrain (Hetland et al., 2023). This lack of research, combined with my own interest in ski touring in avalanche terrain and my undergraduate degree in *friluftsliv* (outdoor life education), made me choose this topic for my master thesis. To investigate this further, I created the following research question:

1.1 Research question and terminology

“How does group dynamics influence decision-making among experienced backcountry skiers in avalanche terrain?”

Terminology:

Group dynamics: the processes, actions and changes that are influential and befall both inside groups and between groups (Horn, 2008).

Backcountry skiing: Backcountry skiing relates to ski touring in the backcountry. Meaning without the use of motorized transport or lifts (Ski touring, 2024).

2 Theory

In this chapter the theoretic foundation for the thesis is presented. Later it will be discussed with the empirical evidence in the result and discussion to formulate a conclusion, which answers the research question.

2.1 What is ski touring?

Ski touring is a world-wide phenomenon wherever you have snow-covered mountains. The phenomenon is described as leisure activity where you go touring in the backcountry without

motorized transport or ski lifts to get to where you want to ski (Ski touring, 2024). The equipment one uses combines the elements of Nordic and alpine skiing. This means one can walk upwards with skins under the skis, and the bindings in “walk mode” (free heel), before removing the skins and putting the bindings back in “ski mode” (fixed heel) when deciding to ski downwards as in alpine skiing (Ski touring, 2024). Ski touring delineates itself from others types of skiing because of the backcountry context, which requires certain outdoor skills like orienteering, avalanche mechanics and survival skills (Nordahl, 2018).

The origins of ski touring in the mountains dates back to the 1850’s in the Sierra Nevada range of USA, where pioneer John “Snowshoe” Thompson delivered mail between mining camps and settlements (Ski touring, 2024). Around the same time in the small village of Morgedal in Norway, the Telemark wave of skiing downhill with the free heel was blooming with central figures like Sondre Nordheim and the Hemmestveit brothers paving the way (Huntford, 2006). Other features of skiing expeditions like the crossing of Greenland by Nansen (1888-1889) or the Amundsen and Scott’s race to the south pole (1911) established Norway as a central country in skiing history (Huntford, 2006). However, ski touring also emerged in other western countries or regions like North America, the European Alps and the Balkans where skiing was used as means of transportation or hunting (Ski touring, 2024). The earliest skis found to date according to Huntford (2006), were in the northwestern part of Russia around 6000 BC, which also now represents the internationality of ski touring as a phenomenon existing not only in western countries. Nordic and alpine skiing has a much richer tradition as sports with official competitions, as early as the first winter Olympics in Chamonix, France 1924 (Huntford, 2006). While the competitive side of ski touring, called *ski mountaineering*, just became accepted as an Olympic sport (Milano Cortina Olympics, 2024). In addition the “*Freeride World Tour*” (n.d.) just became a member of the International Skiing Federation (FIS), which is the other competitive sport that resembles the downhill part of ski touring, labeled *Freeriding*.

Ski touring in Norway is a cultural phenomenon represented on many different domains. As a sport, you can compete in both disciplines mentioned above. The ski mountaineering is referred to as “*Randonee*”, and is a borrowed French word for “long trip” (Jørgensen, 2024). It is organized through the Norwegian Skiing Federation (Norges Skiforbund, n.d.) The freeride competition is organized through the independent NGO called “*Norway Freeride*” (Norway Freeride, n.d.). Both competitions will grant you the title Norwegian Champion. Ski

touring in school is also an alternative, with high-schools like “Norges Toppidrettsgymnas” (NTG, n.d.) and Meråker Videregående Skole (n.d.) offering it as a special curriculum.

Commercially, as a tourism activity, no guide certification is needed to take paying tourist into avalanche terrain as it is in the alps (Eikje et al., 2019). However, Norway is a member of the International Federation of Mountain Guides Association (IFMGA) and educates mountain- and ski-guides every year (Nordtind, n.d.). The other organization educating avalanche instructors with a ski touring focus is called Norsk Fjellsportforum (n.d.). Norsk Fjellsportforum (n.d.) hosts courses, while Nordtind (n.d.) does ski guiding as well as courses. In Tromsø you even have a female owned and operated guide company with IFMGA and NF (Norsk Fjellsportforum instructors) called Tromsø Ski Guides (n.d.), among many others. Otherwise, there is the national avalanche forecast called “Varsom.no” (Varsom.no, n.d.-d). Here there are skiers working as snow-observers, delivering detailed snow profiles (digging snow pits and analyzing them) to the forecasters which work with meteorologist to deliver the national avalanche forecasts for different regions of Norway (Varsom.no, n.d.-d). There are also skiers whose employment is based on making videos. Two of these profiles are called *Nikolai Schirmer* and *Krister Kopala*, both Tromsø residents, and one of them my neighbor. They frequently post YouTube videos together, generating millions of views (Schirmer, 2022). However, on a national basis, the majority of Norwegians use their leisure time to go ski touring as an activity to be outside and experience the free nature and untouched wild snow (Nordahl & Sande, 2016).

2.2 What is avalanche terrain?

Avalanche terrain is the specific context which the skiers draw their experiences of decision-making and group dynamics from. Because of this, a rich description of that context is needed to understand the environment these skiers tend to operate in.

Avalanche terrain is terrain where it is steep enough for an avalanche consisting of snow to trigger and release, which as a general rule is about 30 degrees (Brattlien, 2017). Parks Canada Agency created the ATES in 2003 (Avalanche terrain exposure scale) which is still used in North America today, while the Norwegian energy and resources directorate labeled their own version: KAST which emerged when Varsom.no was created in 2013 (Nes, 2018). The ATES or KAST for recreational use defines mountains with different types of terrain scales, from simple, challenging to complex (Nes, 2018). Just recently, a fourth category

called extreme was added in Norway due to the growing steep skiing activity (Varsom.no, n.d.-a).

Avalanches have a starting zone where they release, and a runout zone, which describes how long the avalanche path can go, and where the debris will deposit (Tremper, 2018). The physical avalanche mechanics are very complicated, where snow always seeks equilibrium (Tremper, 2018). Therefore, they always change their mechanical properties and bonding, which can create avalanche problems (Tremper, 2018). There are different types of avalanches with different properties and proportions. There are four main types: slab, loose-snow, glide and slush-flow avalanches (Nes, 2018). Tremper (2018) also includes cornice falls and icefall avalanches as subcategories. Some of these can release from less than 30 degrees, like slush-flow which usually starts from 15 degrees (Nes, 2018), nevertheless it is the slab avalanche that is considered the most dangerous and creates the majority of the fatalities (see: Brattlien, 2017; Nes, 2018; Tremper, 2018). What is needed for a slab avalanche to release? According to Tremper (2018: terrain that is steep enough to slide, generally between 30-50 degrees. A slab (bonded snow), a weak layer, a critical balance between stress and strength. As well as a trigger who it either a human or a natural trigger like rain, wind, sun or a temperature increase. But if skiers know how avalanches work, how do they decide if a slope is safe or not?

2.3 Decision-making frameworks

Most skiers assess multiple factors to decide whether or not to ski a particular slope (Landrø, 2021). By looking back at different methods, tools and strategies, Landrø (2021) coined the term decision-making frameworks as basic structures underlying a system used to plan or decide which follows overarching principles. What is common with all these frameworks is that they are based on assessing different factors, like slope steepness, regional danger rating by the avalanche forecast, like Varsom.no (n.d.-d) in Norway, signs of instability assessed in the field, and group size affecting decision-making (Landrø, 2021). Ultimately, Landrø (2021) defined the decision-making frameworks by two different categories, probabilistic and analytical.

A probabilistic decision-making framework is described as regarding a factor as a statistical factor, instead of a physical factor which is analytical (Landrø, 2021). The reduction method from Werner Munter is considered the original probabilistic method (Landrø, 2021; Munter,

1997). It combines a regional, local and zonal assessment on one axis, with the snow/weather, terrain and people on the other axis (Horgen, 2010). All these factors are then combined with the avalanche forecast, group size, steepness and elevation to calculate a risk score (Landrø, 2021). Brattlien (2017) argues that the reduction method became very popular in the alps and in Norway when it was released. Looking retrospectively at the statistics, researcher Ian McCammon utilized the method to conclude that 80 percent of the fatalities could have been prevented when including the steepness factor and the avalanche danger factor (Brattlien, 2017; McCammon, 2005). However, Brattlien (2017) also states that 20 percent would still have happened if the method was used, and questions the safety of the method when it is considered safe to ski in 35 degrees in avalanche danger 3 (considerable). Although the avalanche danger rating is a complicated formula of many factors (Varsom.no, n.d.-c), spending a lot of time in terrain bordering the sweet-spot for slab avalanches is not without risk (see: Brattlien, 2017; Horgen, 2010; Landrø, 2021, Nes, 2018; Tremper, 2018).

An analytical decision-making framework, also called a knowledge-based decision-making method (Landrø, 2021; McCammon & Haegeli, 2005), is an overall structure which is described as an open-ended checklist, which aims to structure the process of making decisions, and not to overlook any important factors or cues (Landrø, 2021). A presupposition is that the user can assess all the various factors and deem which are relevant and not, making the system harder to use than a probabilistic one (see: Brattlien, 2017; Landrø, 2021). Another word used to describe this is “process thinking”, which was developed by Kronthaler et al. (2013) when they presented their method called systematic snow cover diagnosis. This system has later been introduced in Norway (Müller et al., 2015), and is used by Nordtind (n.d.) and Norsk Fjellsportforum (n.d.). As opposed to the probabilistic method which relies more on statistics and calculating risk, the analytic approach tries to weave how factors affect each other. Landrø (2021) uses the example of how the weather (for example. sun, rain, wind) has affected the snow stability in northern aspects to demonstrate the analytical approach. So what frameworks are being used in avalanche courses in Norway? According to Landrø (2021), some outdoor schools have used the probabilistic “Afterski” method created by Brattlien (2017), although most organizations use the “Skikompi” from Nes (2018) which is analytical. If the experts have developed several different decision-making frameworks, are skiers using them?

Looking through the lens of the experts, Landrø et al. (2020) sought to identify which decision-making frameworks they applied, and which factors they deemed the most

important. The study was based on 121 participants, which identified 53 different factors, with an on average use of 38 when asked in the survey about the different factors (Landrø et al., 2020). The factors were compiled into five different categories: snow and avalanche, snowpack evaluation and stability test, avalanche forecast, group and group management and terrain (Landrø et al., 2020). They concluded that the experts applied more factors than existed in the decision-making frameworks, most applied an analytical approach and lastly, they applied decisive factors at the right stage of an “outing” (Landrø et al., 2020). To provide a comparative lens to this study, Heil (2021) employed the same template survey on beginner backcountry skiers to compare the use of the different factors. Using quantitative t-test analysis he concluded that there is a big difference in the use of factors between the experts and the beginners, which the names already implies (Heil, 2021). An important finding was the beginners lack of understanding of the factors. They deemed them all relevant in their decision-making, as well as using mostly the factors where others do the analysis for them, like the avalanche forecast (Heil, 2021). On another note, decision-making in avalanche terrain has proven to involve a lot of other factors outside of snow physics (Landrø, 2021). Issues like group decision-making, communication, motivation among others have recently been included in the research on the decision-maker, which the avalanche community has labeled the human factor (Landrø, 2021).

2.4 Human Factor(s)

Originally constructed as a term from industrial risk management, the human factor describes errors in human judgement and the social dynamics which led to avalanche accidents (Johnson et al., 2020). Fredston et al. (1994) were the first to introduce the word human factor as a concept for describing what led to avalanche accidents according to Johnson et al. (2020). Following this, Atkins (2000) used fatal avalanche accidents in North America from the 1990s and provided new insight as to why the accidents were related to human error, especially judgement errors and some errors in skill or knowledge (Johnson et al., 2020). Another seminal work revolving statistical analysis of recreational avalanche accidents were developed by Ian McCammon. He first presented his findings as evidence of heuristic traps, not human factor (McCammon, 2002). His research was based on reviewing 598 avalanche accidents which proved that four different heuristic traps were present in most of the accidents studied. Later he extended these findings in his new article, which built on the old one, but this consisted of 715 accidents which led to six different heuristic traps (McCammon, 2004). The traps were given the acronym: *FACETS*, which stands for *familiarity, acceptance,*

consistency, expert halo, tracks (social facilitation) and scarcity (McCammon, 2004), which I will explain in a bit.

Heuristic traps fall under the human factor category according to Tremper (2018). As he states, the human factor(s) consist of heuristics, or mental shortcuts which consist of intuition and pattern recognition, which help us as humans make split second decisions on an everyday basis (Tremper, 2018). Referring to the Nobel prize winning scientist Daniel Kahneman, Tremper (2018) explains that our decision-making relies on two different systems of thinking, system 1 (fast), which is heuristics or mental shortcuts and system 2 (slow), which relates to cognitive biases. Heuristics can be described as substituting the answer for a hard question with the answer to an easier question instead, and cognitive biases are systematic errors in thinking that tweaks our rational slow thinking and reasoning (Tremper, 2018). However, in light of McCammon (2004) development of the *FACETS* acronym which was related especially to avalanche accidents, the heuristic traps have been the focal point of human factor related research (Johnson et al., 2020).

2.4.1 FACETS

What does *FACETS* mean? In addition to being a type of snow crystal that can be identified as a weak layer (see: Brattlien, 2017; Horgen, 2010; Landrø, 2021, Nes, 2018; Tremper, 2018), it also refers to the six most common heuristic traps leading to avalanches (Tremper, 2018). I will shortly describe them with bullet points following Tremper (2018) table expanding on McCammon (2004) original framework.

- **Familiarity:** The feeling of safety in terrain you are familiar with. Even though this mountain face is steep enough to produce an avalanche, you have never experienced an avalanche when you have been here, thus thinking there will not be an avalanche today either.
- **Acceptance:** Seeking acceptance by others in the group. Can potentially lead the group into more risky situations because you crave to be accepted as part of the group or as a part of a bigger community.
- **Commitment:** committing to a belief, a goal like a summit, an idea that the snow is safe, even though that might not be the case, thus staying blind to evidence that says otherwise.

- **Expert Halo:** Following an expert who might not be an expert. A leader that might be a leader because of dominance, skiing ability and constant communication does not necessarily know a lot about snow safety.
- **Tracks:** Also called social facilitation. It is the general idea that people tend to behave differently around people than when they are alone. Another related heuristic is called social proof heuristic which explains that when people are doing something, others might follow along (herding instinct), like skinning up previous set tracks in avalanche terrain without considering that you are in avalanche terrain.
- **Scarcity:** Powder fever. A lack of resources or snow. You only ski on the weekend or on holiday and therefore must make the most out of the current conditions without thinking about the avalanche danger.

2.4.2 Strategic mindset

This framework has been a central theme in the avalanche literature since it was published (see: Brattlien, 2017; Horgen, 2010; Landrø, 2021; McCammon, 2004; Nes, 2018; Tremper, 2018). As a strategy for dealing with these human factors, Atkins (2014) presented the strategic mindset at the *ISSW* in 2014, called “*Yin, Yang and You*”. Yin representing subjective judgement and Yang representing rational analysis as complementary elements in dealing with uncertainty and decision-making in avalanche terrain (Atkins, 2014). For balancing the two opposing elements one must understand elements of the human behavior, have an expanded toolbox of different desires and the ability to adjust the desires to fit the current conditions in the mountains (Atkins, 2014). Our different mindsets are described as a collection of attitudes towards our own perception of the avalanche danger, potential risks and our own desires (Atkins, 2014). I will shortly reiterate the different strategic mindsets with operating strategies following Atkins (2014) model:

- **Assessment:** select conservative terrain to gather more information to gain confidence in the assessment of the avalanche danger.
- **Stepping out:** Opening a broader selection of terrain to consider skiing because of more confidence in the avalanche conditions.
- **Status quo:** Do not change strategy and continue to operate as you have been doing.
- **Stepping back:** Something about the conditions has changed, making terrain that was considered safe before, now suspicious. Time to step back and seek safer and less exposed terrain.

- **Entrenchment:** Limiting the skiing to a small selection of terrain where you assess the risk to be acceptable until the situation has changed. New evidence is needed to clear certain terrain because of the changing conditions.
- **Open season:** Almost any skiable terrain may be considered due to the small possibility of avalanches. And if any, they can be monitored on the surface of the snowpack.
- **Spring diurnal:** The sun and temperature decides where it is possible to ski. The snowpack is mostly homogenous making wet avalanches at the surface the only danger to consider.

The strategic mindset as a framework represents a tool or guideline for helping skiers make better decisions in avalanche terrain (Atkins, 2014). Bearing in mind, the paper takes form of an essay and its goal is to involve the reflective process of involving the human factor in the decision-making process, and not to present the absolute solution (Atkins, 2014). Considering that this mindset was presented 10 years ago, how does the avalanche community deal with the human factors now?

Johnson et al. (2020) recently reviewed what they labeled the heuristic traps paradigm which I have presented above. Problems with the framework involved the one-dimensionality of studying accidents as the central consequence, the lack of operationalization of the different heuristics, the treating of backcountry skiers as a homogenous group across both time and space (Johnson et al., 2020). Another downside is the lack of peer reviewed articles in scientific journals, making the general acceptance of using the framework in avalanche education questionable (Johnson et al., 2020). Haegeli et al. (2023) mentioned the same problems with the heuristic traps research in 2023. Even though there exist many decision-making frameworks and strategic mindsets to mitigate the human factors, it seems that skiers still make mistakes and must face the consequences. As another suggestion, Johnson et al. (2020) frames the need for research on what is being implemented as best practices when it comes to making decisions in avalanche terrain. Considering this suggestion, I would like to present another take on decision-making called sense-making.

2.5 Sensemaking

Sensemaking is described as the way individuals and/or groups makes sense of their experiences in their world, and the ways people generate the things they interpret (Løland &

Hällgren, 2022). To develop this concept, Løland and Hällgren (2022) used ethnographic participant observation with ski guides from Norway a whole season to help understand how guides decided where to ski in the planning phase. They outlined the difference between sensemaking and decision-making with describing decision-making as a focus on reducing uncertainty in a problem space by collecting information and processing that information into making accurate decisions (Løland & Hällgren, 2022). Sensemaking on the other hand, refers to reducing ambiguity by collectively referring to past experiences, to find a plausible explanation in the present time (Løland & Hällgren, 2022). Through noticing different cues in the ecological environment, bracketing or categorizing the information you notice and selecting the activity of choosing a certain plausible explanation, you are sensemaking (Løland & Hällgren, 2022; Weick et al., 2005). While the sensemaking process is tacit and emergent in an uncertain context, the decision-making is considered more a process of one-off decision-points where you have to make an accurate decision (Løland & Hällgren, 2022).

Applying a grounded theorizing strategy, the ethnographic fieldwork provided new sensemaking concepts related to ski touring in avalanche terrain (Løland & Hällgren, 2022). These processes were first categorized as having a past and current state, then more specifically as a social embedding process and ecological embedding process (Løland & Hällgren, 2022). The embedding process consisted of ski guides relating to social cues from individuals or the group, or to ecological cues from nature, like strong winds in high altitude or a sudden change in the snowpack to use an example (Løland & Hällgren, 2022). The social embedding process was categorized into three different themes, probing, sensing and framing. Shortly described, probing related to asking or unveiling clients expectations and risk tolerance, sensing related to noticing body language, skiing level or physical fitness, framing, related to informing, explaining or stating dangers, conditions and expectations (Løland & Hällgren, 2022). The ecological embedding process was given four themes, tooling, perceiving, inquiring and postponing. Løland and Hällgren (2022) describes them as follows: Tooling refers to reading maps or forecasts like avalanche and weather. Perceiving is using the senses to make sense of the snow, terrain and weather by looking, feeling, touching or hearing. Inquiring is referring to communication with other local guides and forecasters. Postponing is referring to developing several options, delaying decisions until you are there and challenging previous decisions.

Combining these themes resulted in a model for explaining where ski guides decided to ski. Based on a back and forth tandem between past embeddedness and a current embedding

process, which involved all the themes aforementioned, ski guides decided where to ski by making sense of who they were with what the conditions were through a loop of socio-ecological embedding process (Løland & Hällgren, 2022). To continue developing the sensemaking perspective, Løland et al. (2023) published another peer-reviewed article named: *Updating in the mountains: A sensemaking perspective*. Based on the same ethnographic fieldwork, this article does not have the planning phase as the context like the previous, instead the context is during the trips themselves.

With the snow-covered mountains and avalanche terrain as the context, Løland et al. (2023) followed ski guides both from an “insider” and “outsider” perspective to observe what the ski guides did from different standpoints. To continue the sensemaking perspective, they created first order concepts of what the ski guides did, then sorted them into second order themes which ended up creating three different aggregate dimensions, called monitoring, testing and projecting (Løland et al., 2023). These dimensions provide a richer description of what ski guides actually do in their practice, as Løland et al. (2023) explains, they have to make sense of ever changing ecological and social contexts at the same time, as well as taking care of their clients expectations and experience when balancing risks. The updating process is explained as a continuous loop between monitoring, projecting and testing (Løland et al., 2023), which I will shortly describe here. Monitoring deals with perceiving ecology, like walking on snow and sensing clients which refers to noticing laughing, sweating and worrying. Testing means working hands-on, f. ex. digging in the snow or teaching the clients tasks and collecting span of meanings which is explained by asking clients for preferences or discussing options with co-guides. Lastly, projecting is explained through anticipating or imagining consequences or alternatives and postponing, which states the importance of having several options or delaying decisions (Løland et al., 2023).

The article ends with a discussion thread from the former sensemaking article. Løland et al. (2023) argues that the sense maker is ontologically and epistemologically different than the decision maker. Based on the belief that decisions are an outcome of complex and embodied processes which are experienced by the sense maker, they argue that decision-making in avalanche terrain has been viewed too much as externally perceiving and cognitively processed decision-making points, as individuals strive to obtain the “objective truth”, or the right decision (Løland et al., 2023). Sensemaking on the other hand is a never-ending loop of figuring out lived embodied experiences through projecting, monitoring and testing to find plausible solutions for where to ski in the mountains (Løland et al., 2023). A sidenote in this

article is the influence of group dynamics, which is present in monitoring, testing and projecting (Løland et al., 2023). A further explanation is required for this phenomenon.

2.6 Group dynamics

Firstly, what is a group? Forsyth (2014) defines a group as “*two or more individuals who are connected by and within social relationships*”. Høigaard (2020) shares this definition and continues to outline certain characteristics that shape a social group within a sports framework. The number of people, mutual influence, stability, shared goals and norms, structure and memberships are all factors which help define the group (Høigaard, 2020). To utilize these definitions for skiing in avalanche terrain, one could argue that a group skiing in avalanche terrain share the goal of avoiding avalanches while skiing in terrain where it is steep enough to release an avalanche. Considering the group, we also need to consider group dynamics. Horn (2008) describes it as the processes, actions and changes that are influential and befall both inside groups and between groups. Forsyth (2014) and Høigaard (2020) describe the research on group dynamics as rich and thorough within psychology and sociology, and consisting of an array of different phenomena which are occurring within the group. To include them all would be impossible because of the sheer volume and magnitude, however, some benefit this thesis more than others. I will outline those here.

Group conformity relates to the pressure groups can place on its members to make most of the members accept and adopt the norms within the group (Høigaard, 2020). An individual wanting to be a member of a certain group might adapt their behavior to be liked or adapt it to not be disliked and to be correct or make the right decisions (Høigaard, 2020). This phenomenon links directly to the social facilitation heuristic (McCammon, 2004; Tremper, 2018) in addition to Myers (2013) description of how people change their behavior when others are present. Seeing as groups traveling in avalanche terrain has to knowingly or unknowingly make decisions (Tremper, 2018), including the consideration of the social relations and the ecological conditions (Løland et al., 2023), there might be room for influencing each other. In addition to this, groups might display a difference in risk acceptance, which one as a member must navigate with their own risk acceptance. In fact, Tøstesen and Langseth (2021) explored risk-taking in freeride skiing in western Norway from a sociological standpoint and found that taking risks could provide recognition within certain groups. However, reckless risk-taking which did not balance with skiing ability did not give recognition (Tøstesen & Langseth, 2021). Mannberg et al. (2018) also found indications that

social aspirations (to be liked or admired) affect hypothetical terrain choices, indicating that social factors have a role to play in deciding to ski in avalanche terrain.

Another aspect of group dynamics is group cohesion. At its most basic, group cohesion deals with how well the group is bonded or unified (Forsyth, 2014). According to Høigaard (2020) cohesion is present in every group, with a varying degree. Usually, cohesive groups perform their tasks better than groups which are less cohesive (Høigaard, 2020). There are several components which leads to more cohesion within a group, the most important being social, task, collective, emotional and structural components (Forsyth, 2014). Social cohesion deals with members attraction between one another and within the group. Task cohesion means a commitment to working together as a coordinated unit to pursue goals defined by the group. Collective cohesion refers to a consensual and shared identity and belonging within the group. Emotional cohesion deals with the emotional intensity of the group and the individuals themselves when they are in the group. Structural cohesion is about structural features which breed integrity. Norms, roles or relations between the members as examples (Forsyth, 2014). Even though groups with high cohesion usually perform better, Myers (2013) illustrates that it can lead to conformity because of the wish to adapt to the norms of the group. A problem with high conformity is the risk of groupthink (Høigaard, 2020).

Groupthink is the consequence of high cohesion and increasing conformity (Høigaard, 2020). It is in some ways the antidote of the notion that groups make better decisions than individuals (Tremper, 2018). Groupthink is the dominant wish to achieve unity within the group, and therefore ignoring other realistic assessments and alternative decision-strategies which are not in sync with the groups comprehension and handling of the challenges they are facing (Høigaard, 2020). Following the research by Irving Jarvis (Jarvis, 1972; Myers, 2013), symptoms of groupthink consist of an illusion of invulnerability, rationalization of hazards and danger signs, ignoring feedback, faith in the group's morale, pressure to conform, stereotyped view of the opposition, an illusion of unanimity, censorship of doubt and critical sense (see: Høigaard, 2020; Myers, 2013). Factors which might make a group commit groupthink seem to be linked to having an autocratic and directive leader, dealing with high amounts of stress, that the group isolates itself, or having too homogenous personality types (Høigaard, 2020). On the other hand, there are countermeasures to deal with groupthink, like critical evaluation, impartiality, subdividing the group, seek opinions outside the group and having a critical reflection over the decision-process before making the final decision (see:

Høigaard, 2020; Myers, 2013). However, groupthink is not the only problematic mechanism in group dynamics.

Social loafing refers to the situation where groups work together towards a common goal without individual accountability (Myers, 2013). It is also explained as the “*tendency for people to exert less effort when they pool their efforts toward a common goal than when they are individually accountable*” (Myers, 2013). If a group wants to have a successful ski trip in avalanche terrain, they have to make decisions regarding the weather, snow, terrain and people (Landrø, 2021). It might also be a sensemaking loop between monitoring, projecting and testing the social and ecological conditions (see: Løland & Hällgren, 2022; Løland et al., 2023). This explains the multifaceted decision and sensemaking experience for skiers in groups. Thus it might be a tempting option to hide within the group and let others make the decisions, and the bigger the group size, the easier it is according to Myers (2013). An option to reduce the ability to loaf is to reduce group size and keep everyone accountable with sufficient interaction (Myers, 2013). However, interaction with like-minded people in groups might turn into another pitfall called group polarization (Myers, 2013).

Lastly, we have group polarization. Being in a group of like-minded people can have the effect of enhancing preexisting tendencies, thus strengthening the average tendency of all members instead of splitting it (Myers, 2013). An unfit effect of discussion within a homogenous group, was that different groups increased polarization between them, however, it was the dominant point of view from the start which determined whether a group was polarized towards more risky or more cautious behavior (Myers, 2013). This could have serious ramifications for traveling in avalanche terrain, especially if certain of the abovementioned heuristic traps are present. On the other hand, if a precautious and conservative approach is suggested from the start it might be an asset if the group intensify that opinion. To sum up, there seems to be aspects of influence one has on each other within a group. To make decisions in the group, there must be some kind of structure of power in which the different members somehow make decisions? In the next chapter I will explain some leadership theory centered on groups in an outdoor setting.

2.7 Leadership

I find two leadership theories or approaches suitable for my thesis. Conditional leadership theory, which is outdoor leadership theory, and transparent guiding theory, which is more

centered around the Norwegian nature guide education. Both theories are characterized by highly experiential data gathering and context dependent development.

2.7.1 Conditional leadership

Most of the time there is a power structure within a group. Priest and Gass (2018) frame three different leadership styles as a continuum between autocratic, democratic and abdicratic. The autocratic is where the leader has all the decision-making power, democratic shares the power, and abdicratic means the group has all the power (Priest & Gass, 2018). Furthermore, they explain five sources of power from which one can influence others: referent power, legitimate power, expert power, reward power and coercive power (French & Raven, 1960; Raven & Rubin, 1976; Priest & Gass, 2018). Referent power is based on admiration, identification and valuation, legitimate power refers to authority given by an agency or elected by group members, expert power is achieved through your perceived competence, like knowledge, skill and experience, reward power is based on you giving rewards for effort within the group and lastly, coercive power is involving the threat of punishment for failure, which is rarely used (Priest & Gass, 2018). Another aspect of group leadership is the leadership orientation towards either tasks or relationships which help you determine your leadership style. Task is autocratically oriented, while relationship is abdicratically oriented (Priest & Gass, 2018).

All these models show a spectrum of which you can move around to be a flexible leader. However, as an outdoor leader or group participant it is the favorability of the conditions in nature which truly determine how you should practice leadership (Priest & Dixon, 1991; Priest & Gass, 2018). Thus, five factors were described to help enhance the understanding of conditional favorability (Benson, 1986; Fiedler, 1967; Ford, 1987; Priest & Gass; 2018): Environmental dangers (weather, hazards, risk), individual competence (experience, skill, attitude, behavior, knowledge), group unity (morale, cooperation, communication, trust), leader proficiency (credibility, judgement, stress), decision consequences (clarity of problem, solution time, resources, uncertainty). Using these factors as a spectrum between low, medium and high conditional favorability were developed to help create the conditional leadership theory (Priest & Gass, 2018). This theory combines leadership styles, leadership orientation and conditional favorability to show how a flexible approach to leadership style is recommended in an outdoor setting (Priest & Gass, 2018).

Later, Priest and Gass (2018) combined their conditional leadership theory with Tuckman and Jensen (1977) five stages of group development. The five stages consist of, forming, storming, norming, performing and adjourning (Tuckman & Jensen, 1977). Shortly explained with the outdoor education perspective of Priest and Gass (2018): forming: discomforts, concerns, feelings and doubts group members experience when the group is new. Storming: members start to meet needs of the group, questions authority and start to feel a bit more comfortable with themselves and others. Norming: Members creating appropriate and necessary standards on how to behave, which creates a sense of order. Performing: the group is concentrating on solving their tasks with both mutual support and interaction between each other. Adjourning: closure of the task, and the end of relationships within this group. Through dividing group functions into task- or relationship dimensions, Priest and Gass (2018) provides suggestions for group leadership styles and strategies under Tuckman and Jensen (1977) different stages. As a sidenote, Priest and Gass (2018) also frame factors outside of leadership which affect group dynamics: individual needs, variation in development, group restructuring, members unique characteristics and conflict.

2.7.2 Transparent guiding

Transparent guiding is a practical leadership style, which has been around since the 2000's in the IFMGA community in the European alps (Løvoll & Einang, 2022). As it has lacked a theoretical foundation, Løvoll and Einang (2022) sought to develop the concept further by autoethnographic fieldwork and focus-group interviews with experienced adventure guides. As a visual model, two components are viewed as central competences for the nature guide. One must be able to see, be aware and assess both nature and people, with nature and people acting as the core components (Løvoll & Einang, 2022). Nature and people as components or dimensions share a similarity with the sensemaking perspective of Løland et al. (2023). The concept deals with communication as the core aspect of transparent guiding (Løvoll & Einang, 2022), meaning the importance of communicating your decision-making, assessments, reflections and ideas revolving both nature and people, before, during and after being out in nature with a group. They found that the approach of being transparent in your communication could facilitate trustworthiness, authentic leadership, increase of safety and risk reduction, deep experiences, learning, well-being and action readiness and flexibility (Løvoll & Einang, 2022).

The skill to communicate in a transparent manner seemed to act like a muscle, meaning it required training to work (Løvoll & Einang, 2022). When the communication involved sharing the decision-making, a flexible mindset seemed to be more easy to facilitate and develop among the group whenever a change is needed or wanted (Løvoll & Einang, 2022). They further emphasize these findings as applicable for reducing risk in avalanche terrain, but on the other hand they illustrate that the skill to communicate transparent needs to be trained in a controlled guiding education context, thus excluding many potential applicable platforms.

2.8 Learning and developing avalanche competence

Considering training and education I find it necessary to explain how skiers learn and develop avalanche competence. The first thing to explain is the learning environment, which in this case is snow covered mountains with avalanche terrain. A problem most of the new articles take into consideration is that avalanche terrain is what Hogarth et al. (2015) refers to as a “*wicked learning environment*”. This environment is the opposite of a kind learning environment, where your concrete actions are given positive- or negative feedback in which you can learn and adapt from (Hogarth et al., 2015). Given that avalanche mechanics are very complex and spatial in feedback (see: Brattlien, 2017; Landrø, 2021; Nes, 2018; Tremper, 2018), you seldom get feedback, and if it is negative feedback, it could potentially be a lethal avalanche. So how do skiers learn avalanche competence when they might run the risk of developing a fake sense of safety because of a lack of feedback?

Vereide et al. (2019) tried to comprehend how Norwegian mountain guides and ski guides described learning decision-making. Through focus-group interviews, they found that seeking authentic learning situations facilitated situated learning (Vereide et al., 2019). In this perspective, situated learning meant actively seeking avalanche problems, assessing them, and given responsibility by the teachers, making decisions for the whole group (Vereide et al., 2019). Another implication was that “safe” avalanche conditions with no feedback made it really hard to facilitate learning avalanche competence as a situated practice (Vereide et al., 2019). Landrø et al. (2022) found that beginner skiers viewed avalanche risk assessment as a learnable skill and pointed out that the knowledge-based analytical approach to decision-making (Landrø et al., 2020) should be taught to beginners as well as experts. They also found clear indications that a well-educated instructor with competence to create an experiential learning environment improved learning (Landrø et al., 2022). Experience, perception, cognition and behavior are explained as key factors to facilitate experiential

learning (Landrø et al., 2022), and to avoid the false sense of confidence in decisions from the wicked learning environment (Hogarth et al., 2015), the instructor had to be able to convey and teach knowledge through transparent interpretation of the conditions to the students (Landrø et al., 2022).

Greene et al. (2022) recruited beginner skiers and snowboarders in North America to do a survey before and after an introductory avalanche course to see which impact the course had. Their findings indicated that the participants became more conservative in their perception of risk and their own stated willingness to ski uncertain terrain, on the other hand, their perception confidence increased (Greene et al., 2022). Based on hypotheticals, Greene et al. (2022) was able to prove benefits of avalanche education for this sample. Another example of avalanche courses as the context for research was just presented at the ISSW in 2023. Dassler et al. (2023) used a prolonged Norwegian avalanche course trying to identify when and how learning happened during the course days. They used a multitude of methods to understand that the environment and or the people/instructors could create moments of dislocation, where their previous understanding was challenged by new information which could stimulate learning (Dassler et al., 2023). They called it double loop learning because of the need for a concrete experience with a self-reflective process of the experience either shortly afterwards or at the end of the course day (Dassler et al., 2023). However, double-loop learning only took place in this instance because of the invitation to do so by the researchers, emphasizing the need for this to be implemented in avalanche courses (Dassler et al., 2023).

2.9 Previous research

As an end to the theory chapter, I will present previous research directly connected to the influence of group dynamics in avalanche decision-making. When it comes to research on group dynamics related to decision making, Bright (2010) dissertation on group dynamics among backcountry recreationists sought to understand how decision-making characteristics influenced where to travel and ride in avalanche terrain, from the perspective of individuals. Quantitative cross-sectional survey research was used with 524 respondents from mainly Colorado (Bright, 2010). Her findings suggested that communication worsened and groupthink increased when groups got larger, and as respondents had more days in avalanche terrain per season, their groups had a more thorough decision-making process (Bright, 2010).

Another seminal contribution to research on groups in avalanche terrain is the work of Benjamin Zweifel. In his first shared article, Zweifel and Haegeli (2014) used qualitative group interviews at parking lots, ski areas and lift locations to intercept groups of recreational skiers after trips. They formulated recommended-, questionable- and discouraged group behavior patterns around three central themes, group formation, leadership and decision-making with typical quotes from participants (Zweifel & Haegeli, 2014). A key finding was the participants struggle to remember how they communicated during the trip, indicating the subtleness and situatedness of communication processes (Zweifel & Haegeli, 2014). In his next article, Zweifel et al. (2016) used in-field observation, self-registration and social networking data together with Swiss and Italian accident databases to try and understand group related risk factors. Their findings indicated that there was a higher avalanche risk for groups of four or more people, and lower risk for people traveling alone or in groups of two, which corresponds with earlier avalanche literature (Zweifel et al., 2016).

In correspondence to group dynamics and group size, Ebert and Morreau (2023) recently published an article where they looked at decision-making by groups of skiers from the perspective of social-choice theory, decision-theory, philosophy and political science to explain the social component instead of behavioral or cognitive biases (Ebert & Morreau, 2023). They identified conditions with identified scenarios where the hypotheses of *wisdom of crowds* proved to create worse decisions than if the decisions were made by the individual (Ebert & Morreau, 2023). Continuing this, they framed five stages of best practice for group decisions in avalanche terrain: zero: gathering the evidence, one: framing the decision problem, two: check your competence, three: initial decision, four: open deliberation, five: group decision (Ebert & Morreau, 2023).

Lastly, I want to mention a master thesis submitted at my own university. Sørum and Boger (2023) used qualitative interviews with 24 participants who had experienced avalanche accidents to seek understanding of the group dynamics which led up to the accident. They found that group dynamics impact decision-making in several ways (Sørum & Boger, 2023). First, there was excessive trust in group members which led to a lack of critical thinking and participation in decision-making, second, the person which takes leadership is important, and it is crucial for the leader to involve group members in discussions, third, skiers want to have fun and arousal also affects decisions where to ski (Sørum & Boger, 2023). Thus, they suggest that group dynamics does have an influence decision-making, and it is important to know how this influence is happening (Sørum & Boger, 2023).

3 Method

In this chapter the method will be presented and discussed to the relevance of the research question. The method is considered the approach or tool one uses to solve problems and attain new knowledge (Dalland, 2020). As the goal is to shed light on how group dynamics influence decision-making in avalanche terrain, the method is the tool and the framework one uses to try and attain that goal. First, I will present my method of choice and provide scientific grounding, which sets the stage for certain ontological, epistemological and methodological assumptions. Second, I will present the specific method used to gather data, and the analysis used to process that data. Third, I will consider certain ethical considerations and researcher reflexivity considering the methods and analysis.

3.1 Qualitative research method

In social sciences researchers tend to use qualitative or quantitative methods to understand different human behavior or social phenomenon's (Dalland, 2020). The different methods have different research purposes. While quantitative research methods tend to seek the one truth through development of explanatory models or theories, qualitative research methods are focused on meaning, which is understood by understanding situated meaning or interrogating meaning-making practices which can generate situated and contextual knowledge (Braun et al., 2022). Quantitative methods tend to gather and generate data as quantifiable units (Dalland, 2020), which they aim to analyze by looking at relationships between variables and cause and effect (Braun et al., 2022). Qualitative methods on the other hand seek a rich and in depth understanding of process and meaning, often with data consisting of text (Braun et al., 2022).

Considering I wanted to understand how group dynamics influence decision-making in avalanche terrain among experienced skiers, I deemed a qualitative research method the most relevant. Influence of group dynamics is not a unit easily quantifiable, but a relational social construct which required deep understanding and interpretation. Dalland (2020) outlines characteristics such as, depth of understanding, specialty, nearness to the field, holism, and understanding for the qualitative method. These characteristics resonated with my research question. As I sought to construct and interpret meaning of how individual skiers made sense of being in a group in avalanche terrain. But also, how they explained their decision-making in terms with their own sense of understanding and reality of the context they are existing

within. As Braun et al. (2022) formulates, qualitative methods aim for understanding nuances and complexities, and therefore try to provide a contextually situated interpretation through the researcher. But before continuing with a more specific qualitative method of choice, I needed to choose my scientific grounding.

3.2 Scientific grounding

Choosing a scientific or overarching paradigm means positioning oneself ontologically, epistemologically and methodologically (Braun et al., 2022). I selected a qualitative research methodology, which is in line with certain ontologies and epistemologies. However, as Braun et al. (2022) highlights, qualitative research methodology are categorized under paradigms, which are dependent on different understandings from different fields of research, for example sociology and psychology. Researchers debate what is considered a paradigm, an ontology, an epistemology, a philosophy and sometimes concepts can cover several of these (Braun et al., 2022). As an example: Dalland (2020) differs between positivism and hermeneutics as the two main knowledge paradigms, Markula and Silk (2011) claims there are three different paradigms, post-positivism, humanism and postmodernism/poststructuralism, while Tjora (2021) claims symbolic interactionism, ethnomethodology, phenomenology and social constructionism as paradigms. To not get lost in the complexity of the different variations, I acknowledge that choices had to be made to in relation to definitions and interpretations used in this thesis. As Braun et al. (2022) states, there is no single approach to qualitative research with only one single theory that underpins it, but rather an umbrella term consisting of different approaches which share some fundamental assumptions. This is supported by Friesen et al. (2012) when discussing which research paradigm fits which method.

As a starting point, Braun et al. (2022) frames two orientations to qualitative research: experiential and critical orientations, which works as an alternative to choosing one particular scientific paradigm. These orientations demand ontological and epistemological assumptions which helps to delimit research practices (Braun et al., 2022). My first choice was to select a critical qualitative orientation. A critical qualitative orientation means that I put emphasis on interrogating patterns of meaning, and the effects and implications of these meanings (Braun et al., 2022). A distinction from the experiential orientation is the focus of language as a part of the way truth and reality are put together, instead of conveying truth or reality (Braun et al., 2022). The orientation is informed by *hermeneutics of suspicion*, which uses interpretation to

ask critical questions of the meanings of the data and draws more on theoretical resources than the experiential orientation (Braun et al., 2022). In detail, this means that language is not simply a conduit or communication tool, but as a social practice and a way humans and societies define and create their meaning and realities (Braun et al., 2022). A critical orientation therefore utilizes a social constructionist conceptualization of language, which treats meaning as created or constructed socially by language in how we talk and write about different things (Braun et al., 2022). Thus language is understood as symbolic and active, rather than neutral and passive (Braun et al., 2022).

Which ontological and epistemological assumptions are connected to a critical orientation? At its most basic, ontology is understood as the question of what reality is, and epistemology questions what knowledge is and how to generate it (Kvale & Brinkmann, 2015). A critical qualitative orientation is in line with a relativist ontology (Braun et al., 2022), which is the assumption that there is no objective truth or single reality, but rather multiple realities which are socially constructed by human actions and sense-making. The opposite would be a realist ontology, where there is one single truth and one single reality out there (Braun et al., 2022). A relativist ontology frames a social constructionist epistemology, which entails that knowledge is subjective and produced socially as humans co-construct meanings and realities together instead of a positivist epistemology where there is an objective reality and a possibility to generate objective knowledge with a single truth and reality (Braun et al., 2022).

In line with a social constructionist epistemology, I found it suitable to utilize a hermeneutic phenomenological methodology. Friesen et al. (2012) explains how this methodology combines phenomenology, which in essence is about lived experiences, and hermeneutics, which is occupied with interpretation and meaning. In such, phrasing it: *“the study of experience together with its meanings”* (Friesen et al. 2012, p. 1). The interpretive aspect is important when separating hermeneutic phenomenology from phenomenology, because of the urge to obtain descriptive experiences in phenomenology (Friesen et al., 2012). The methodology is also supported within a social constructionist paradigm (Braun et al., 2022). Acquiring tales of the lived experiences of skiers and interpreting their meanings evolved itself to the most central aspect of trying to answer my research question. I utilized different strategies of the hermeneutic phenomenological methodology when gathering and analyzing data, which will be further explained in the different sections of the method chapter. Based on the choice of a critical qualitative research orientation, with reference to a relativistic ontology, a social constructionist epistemology and a hermeneutic phenomenological

methodology, I deemed it fruitful to conduct semi-structured interviews of skier's experiences with groups in avalanche terrain.

3.3 Interview

So why interviews? As Kvale and Brinkmann (2015) explains, knowledge surrounding peoples lived experiences are created between the one doing the interview and the one being interviewed. To understand peoples lived experiences and their interpretation of their lived experiences, you must ask them about it (Dalland, 2020). Since I was concerned with the influence group dynamics had on decision-making, it seemed like an interesting option to ask experienced skiers about their experiences of traveling with a group in avalanche terrain.

A question worth asking is why I did not choose another method of data gathering to try and answer the research question. Other qualitative methods like focus-group interviews or in field observation could also help answer my research question. A focus-group interview could have provided certain group-perspectives which can be missed when doing an individual one on one interview. Or different types of observation could provide actual empirical evidence of skiers "doing" decision-making in the avalanche terrain context, instead of telling what they do (Dalland, 2020). As examples, articles I have presented in the theory-chapter like Vereide et al. (2019) and Zweifel and Haegeli (2014) used focus-groups, while Løland and Hällgren (2022), Løland et al. (2023) and Dassler et al. (2023) used observation and focus-groups, all with the relevant context of groups of skiers in avalanche terrain. Observation was discarded because of the timeframe, in which I would have needed to conduct the fieldwork in the winter of 2022/2023. Focus groups was considered, but I concluded on rather having individual skiers sharing their group experiences, which could provide experiences from many different groups, instead of gathering less amounts of groups, but perhaps getting richer and more thorough explanations from a group perspective. With this perspective, combined with Haegeli et al. (2023) call for qualitative social sciences contribution and the research gap on social- and group factors in avalanche research Hetland et al. (2023), interviews seemed like a fitting choice.

Seeing as qualitative interviews also have a range of different designs (Kvale & Brinkmann, 2015), I needed to choose the design most fitting to answer my research question, but first I needed to understand how the interview composed empirical evidence. Kvale and Brinkmann (2015) considers seven characteristics of interview based knowledge: knowledge is produced by the interviewer and the interview-person, knowledge is relational, knowledge is

conversationally based, knowledge is contextual and meanings are related to that particular context, knowledge is constructed through language, knowledge is narrative in relation to retelling lived experiences and lastly, knowledge is pragmatic, which refers to the ability to convert it into human action. These characteristics resonate with principles from the hermeneutic phenomenological methodology (Friesen et al., 2012), social constructionist epistemology and a relativistic ontology (Braun et al., 2022).

As far as design goes, I deemed it suitable to create a semi-structured interview. Kvale and Brinkmann (2015) frames the semi-structured interview as a fitting design for gathering empirical evidence of an interview-persons lived experiences and their interpretation of those experiences. The semi-structure refers to selected themes which provide structured lines of questioning, but also the opportunity to create follow-up questions and jump back and forth during the interview, if the interviewer hear an interesting pattern they want to explore with further questioning (Kvale & Brinkmann, 2015). Thus, every semi-structured interview will be a little bit different depending on how the interview-person and interviewer are able to communicate (Kvale & Brinkmann, 2015). To conduct the interviews, I created an interview guide. This interview guide was constructed with specific design principles and choices in mind, presented underneath.

3.4 Interview guide

The interview guide was constructed as a tool to maintain structure during the interview process. Tjora (2021) explains that the semi-structured interview can consist of questions of a keyword character. On the other hand, Tjora (2021) also frames that he prefers formulated and complete questions, and rather uses keyword questions as a helping hand if needed to elaborate on specific subthemes. Based on the aim to understand and interpret the subjective lived experiences of experienced skiers, I found it helpful to structure the interview like an in-depth interview (Tjora, 2021), which is based on start-up questions, theme specific questions, and ending questions. I chose to construct my start-up question and my theme specific questions around their lived experiences with a group in avalanche terrain. The interview then consisted of four open ended questions, with five-eight specific subtheme question underneath. Based on only four open ended questions, it was of utmost importance that I as a researcher had the ability to know what an answer meant and was able to see a horizon of different interpretations right away (Kvale & Brinkmann, 2015). Therefore, I found Kvale and Brinkmann (2015) description of different interview questions helpful in constructing

subtheme related questions. I used follow-up-, through-, specific-, direct-, indirect-, structured- and interpretative questions as well as silence as a tool for the interview-person to answer my questions with the depth that was needed (Kvale & Brinkmann, 2015). Because of the lack of research on social factors and group dynamics, the questions were created with an inductive approach. This meant that little emphasis was put on previous research as frameworks for question development, as you would in a more deductive approach (Kvale & Brinkmann, 2015).

No qualitative semi-structured interview is the same, as Dalland (2020) points out. The openness of the interview guide will reflect itself in the interviewer's ability to be flexible in the interview situation, and jump back and forth between themes and subthemes (Dalland, 2020). To avoid biases towards certain themes I was interested in, and to seek for what Braun et al. (2022) calls latent codes or hidden meanings, there were certain themes I explicitly did not mention before the end of each interview. This was primarily regarding group dynamics and risk. This was a conscious choice because of my planned strategy of reflexive thematic analysis (Braun et al., 2022). I also understood after four interviews that removing some subtheme questions and add some others, would enhance the rest of the interviews. Dalland (2020), argues that such changes are central for a solid interview guide because of they help develop a more dynamic and flexible method for acquiring empirical data. The interviews lasted between 40 and 75 minutes which showcases the notion that no interview is the same. But how did I find who I was supposed to interview? This will be discussed in the next chapter.

3.5 Sampling

The sampling procedure is essential to obtain detailed and meaningful insights from the persons one decides to interview (Thagaard, 2018). When sampling for experienced skiers, I had to use a strategic sampling procedure, which Thagaard (2018) explains as a procedure to choose persons which you know have certain qualities that will help answering the research question. When doing strategic sampling you accept the fact that your selection of persons will not be representative for a bigger population (Thagaard, 2018). However, the aim of this study was not to present cause and effect findings for a broader population, but rather delve deeper and try to understand the meaning and process of how group dynamics unfold and influence experienced skiers. As I was particularly interested in what they say they do, and why. And so, what is an experienced skier?

Drawing on my own experience as a skier and one of my supervisors who is a seasoned mountain guide (Nordtind, n.d.), we created certain selection criterions for our sample. In this case, I would argue that our combined experience within the field of ski touring should be considered a strength. As both Vereide et al. (2019) and Dassler et al. (2023) argues why experience matters with the combination of avalanche competence, we could select and define different levels of experience and formal competence which would help us in selecting skiers. Dalland (2020) argues that your own experience is helpful because you “speak the same language” as the persons you interview, and you probably have contacts with the field in question. Thus, we created the following selection criterions:

- The skier must have formal avalanche competence in form of at least basic and advanced avalanche course. Based on the NF template (Norsk Fjellsportforum, n.d.).
- The skier must have at least five years of ski touring experience in avalanche terrain. Meaning at least 20 trips a season in avalanche terrain. Based on avalanche terrain definition (see: Brattlien, 2017; Landrø, 2021; Nes, 2018; Tremper, 2018).
- The skier must have a good skiing ability, and therefore done ski touring trips in terrain class 3 (complex) and/or 4 (extreme), based on KAST (Varsom.no, n.d.-a).
- The skier must be a recreationist, meaning they do not work with avalanche safety or guiding in a professional capacity.

To locate these experienced skiers, I used a convenience sample based approach as described by Thagaard (2018). In doing so, I utilized strategic sampling to limit my selection to certain competence, experience and ability, but also selecting based on which skiers were easiest to get in touch with. Thagaard (2018) frames the snowball-method as a convenient way to get in touch with potential interview persons when using the abovementioned sampling strategies. Before I could contact any interview persons I applied for allowance for my project through Sikt.no (n.d.) which was the application I needed approved for treating personal data (see: Attachment 3.)

As I live in Tromsø, a central ski touring hub in Norway (Nordahl, 2018), I found it most convenient to ask around within my own circle, if anyone I knew could point me in the direction of such skiers. Thus, I avoided having a pre-existing relationship with the interview persons, because it could mean they provide me with answer they deemed I wanted based on their interpretation of me as a friend and researcher (Kvale & Brinkmann, 2015). Asking around in my circle could also potentially create some ethical issues, because I was receiving

information about potential interview persons without them knowing. To mitigate this, the contact person between me and the interview person was asked to get written consent before revealing the interview person's name and how to contact them, like Thagaard (2018) explains. Another issue with the snowball method is the situation where you collect interview persons from the same network, or even group in this case (Thagaard, 2018). Since I wanted reflections from as many different groups as possible, I made the contact person I had already interviewed affirm that the next person they recommended usually did not ski tour with them.

I ended up with recruiting ten different skiers for interviews. The sample consisted of five female skiers and five male skiers. Nine were working while one was a student. The range in experience was from 6 -18 years in avalanche terrain. Their age ranged from 26-36. Five skiers had taken courses that were half a year long, while the other five had at least basic and advanced avalanche course. They all lived in Tromsø when I interviewed them. Regarding the number of interviews in qualitative research, it's more about depth than a number, meaning you do not really know how many you need to interview to reach saturation (see: Dalland, 2020; Kvale & Brinkmann, 2015; Thagaard; 2018; Tjora, 2021). However, the saturation I deemed valuable was more in terms of data saturation than the number of interview persons (Thagaard, 2018). In doing so, I interviewed six people, before I went over all my data to conclude I needed four more, a strategy similar to what Dalland (2020) demonstrates. My sample was rather homogenous in age, which relates to my own age (27), and my circle of friends which I recruited from. On the other hand, I found all my interview persons had experiences in groups with skiers of many different age groups. I chose an even split between male and female skiers to ensure some heterogeneity in my overall homogenous sample. The aim was not to apply a comparative approach, but rather explore what an even split would give of different interpretations. All factors surrounding my sample will be discussed more in the analysis and the discussion part of the thesis.

3.6 Doing the interview

Before conducting any of the interviews, I had to sit down and write my own pre-understanding of the interview situation and the interview person. Dalland (2020) frames declaring you pre-understanding a central aspect of qualitative research because you as an interviewer and the interview person are co-constructing knowledge through the interview. In this way, you and the interview persons pre-understanding might not affect each other as much. As stated earlier, the interview person did not get a concrete description of the

interview beforehand, other than a “written consent” form which explained the interview would deal with “decision-making in avalanche terrain” (see: attachment 2). With this strategy I aimed for the interview persons to enter with as little information as possible, but still enough that they knew the gist of what was about to happen. My pre-understanding is mostly stated through the research question, because I personally, based on all my experience in avalanche terrain with a group, mean that group dynamics have an influence on decision-making. Taking this into consideration, it was paramount that I did not let my opinion affect the interview with leading questions, which Kvale and Brinkmann (2015) frames as a potential twist of the interview persons interpretation. However, leading questions were also used when I suspected the interview persons were holding back information, which is when it should be utilized, according to Kvale and Brinkmann (2015).

I first interviewed two of my friends which I live with as test-interviews. As I we are all experienced skiers, they also fit the selection criterions of my sample. The test-interviews helped me practice the technique, do some last adjustments on the interview guide, and see if there were some holes, limitations or other challenges which might have affected the authentic interviews. Using the test interviews this way is described by Thagaard (2018) as effective if done correctly. This also helped me to do some adjustments to my recorder of choice, the “*Olympus VN-541PC*” digital recorder (Clas Ohlson, n.d.), which Dalland (2020) frames as imperative before an interview. The test-interviews helped me build confidence in myself as an interviewer with considerable knowledge regarding ski touring in avalanche terrain, which Kvale and Brinkmann (2015) frames as critical for securing quality in the interview situation.

When it came to the authentic interviews, I used a similar strategy in the starting phase on all of them. First, they were given a “written consent” form (see: attachment 2) to sign before we could start. The form contained who I was, the research project aim, why I was doing the project, what I tended to use the results for, how they had been chosen, how I would secure anonymity, and pros and cons of participating (Dalland, 2020; Glesne and Peshkin, 1992). I also explicitly told all of them that I was not meant to judge or assess, but understand, that there were no right or wrong answers and how long the interview would take (Dalland, 2020; Glesne and Peshkin, 1992). They were also informed that they could cancel the interview at any time, and that they would also be given transcripts of the interview if they wished. They would also be able to change their mind and pull their interview and data all together if they wished as long as the project lasted (Dalland, 2020). All these explicit choices were important

for facilitating intersubjectivity during the interview, which Tjora (2021) explains as the interview person and interviewer co-creating a common ontological understanding of the world and more specifically ski touring in avalanche terrain. It was also evident that explaining my own background in ski touring in avalanche terrain to the interview persons created a sense of me being an “insider” researcher (Braun et al., 2022). Thus, I experienced all interview persons freely opening-up with their experiences to me since I was deemed “one of them”. In doing so, it was critical that I assessed their answers with the notion Dalland (2020) frames: is this the genuine answer or is this the politically correct answer they think I want to hear? Braun et al. (2022) also suggests the importance of reflecting you own interpretation during and after the interviews.

The interviews themselves were done where it was most convenient and least time consuming for the interview persons. Two were done at my house, seven were done at the interview persons home, and one at the university. This was a strategy to create a comforting feeling for the interview persons as described by Dalland (2020). Before each interview started, I also used some time to talk with them to not jump straight into the interview right away, as another strategy to create comfort (Kvale & Brinkmann, 2015). Almost all interviews went well according to Kvale and Brinkmann (2015) criteria for good quality interviews. One of the interview persons provided very short answers where the others had provided much richer explanations. In this interview I understood I had to be more dynamic and flexible and create new follow-up questions on the spot which I did not have to use in the other interviews. Luckily this was the seventh interview, meaning I could utilize the other interview persons rich explanations, to formulate new questions on the spot in this interview, which Kvale and Brinkmann (2015) explains as one of the hallmarks of a good qualitative interview. I will finally mention that I took several notes during the interviews, which also provided useful in the coding and analysis phase (Dalland, 2020).

3.7 Transcribing

Transcribing the interviews from oral speech to text is recommended for in depth interviews (Tjora, 2021). The most important loss from oral speech to text is the loss of visual cues and information about the general feeling of the interview (Tjora, 2021). To mitigate this, I took notes during the interview about the visual cues, such as body language, uncertainty, doubt, struggle to find words and so forth. This strategy is described by Kvale and Brinkmann (2015) as a way of limiting the loss of what they call a decontextualized reiteration of the

direct interview conversation. I also took some notes regarding the general feeling of the interview right after, as a help for later interpretation. Some qualitative researchers use transcription software to save time and effort (Kvale & Brinkmann, 2015), however, I deemed the transcription as a first step in the analytical process of reflexive thematic analysis. The step is called data familiarization (Braun et al., 2022) which will be presented in the next subchapter. Therefore, all the transcriptions were done manually.

When transcribing I listened to my digital recorder with headphones at reduced speed to catch all words. Right there I had to decide if I was going to reiterate the interviews word for word or develop the text to a more formal reiteration. Kvale and Brinkmann (2015) explains that there are several possibilities on how to do this, but it all boils down to which way one intends to analyze the data transcripts. Because of my choice of reflexive thematic analysis with a critical qualitative orientation (Braun et al., 2022) I chose to write word for word, and include pauses, intonations, and expressions of feelings (Kvale & Brinkmann, 2015). The thought process behind this choice was that I was looking for more than a descriptive analysis of the text. Indeed, I wanted to discover hidden meanings and more latent codes within the data which Braun et al. (2022) frames as fitting for a critical qualitative orientation to analysis. The only words that were taken out, were words that could potentially help identify the interview person. The interview persons, geographical locations, and other people they mentioned were given fictitious names, thus maintaining their anonymity (Dalland, 2020).

After I was done transcribing the ten interviews, I deleted the files from the digital recorder. I printed out the transcription files to have them in paper, before I deleted the transcript files from the computer too. During the whole thesis, I kept the transcripts in a locked safe at the university which only I possessed the key. When the thesis is delivered, I will shred those paper files in a maculating machine. This process was followed based on the National Research Ethics Committees (2021) guidelines for ethical research, and Sikt.no (n.d.) terms of agreement of treating personal information to conduct qualitative research. After this, the analysis phase started.

3.8 Reflexive thematic analysis

I chose a reflexive thematic analysis approach for my interview data. Shortly described, *“thematic analysis is a method for developing, analyzing and interpreting patterns across a qualitative dataset, which involves systematic processes of data coding to develop themes – themes as your ultimate analytic purpose”* (Braun et al., 2022). However, reflexive thematic

analysis refers to a reflexive approach to thematic analysis, meaning a fundamental belief in the researcher to value subjective, situated, aware and questioning characteristics (Braun et al., 2022). It also refers to a practice of being critically interrogative to what you do, how and why you do it, including the influence and impact this has on the research (Braun et al., 2022). A trait with the reflexive thematic analysis is its theoretical flexibility, which means that it is not delimited by a special theoretical methodology, but have different approaches which are situated within broader paradigms, for example: the critical and the experiential orientation I explained in the chapter of scientific grounding (Braun et al., 2022).

At first I had planned for the data to point me in the direction of which theory I was going to use in my thesis, which involved a strict inductive approach (Braun et al., 2022). However, I quickly understood that my interest in the research theme itself was based on theoretical knowledge I already had, which meant that I already had ideas in what to implement and not. As Braun et al. (2022) explains, the subjective and embedded process with our own research perspectives and theoretical ideas makes pure induction impossible. Realizing this, my strategy shifted to a more deductive approach, where theoretical concepts and ideas was more of a helping framework in the analysis (Thagaard, 2018). Braun et al. (2022) frames the deductive approach as more suitable for the critical orientation with the relativist and social constructionist point of view. They also frame that these approaches are part of a continuum, and in reflexive thematic analysis it is possible to use both if you explain how and why (Braun et al., 2022). I found it helpful to adopt both for developing themes which related and challenged the existing theoretical framework. The reflexive thematic analysis is constructed of six phases which I will explain how I used: familiarization with data, generating initial codes, generating initial themes, developing and reviewing themes, refining, defining and naming themes, writing up (Braun et al., 2022).

3.8.1 Six phases of the analysis process

In the first phase of the reflexive thematic analysis I aimed to become deeply and intimately familiar with my dataset, through an immersion process (Braun et al., 2022). The first time I started this, was during the transcription itself, which was the first immersion with the data after conducting the interviews. The second part of the familiarization was to print out my transcripts, reading them again, while making analytic notes about things I found interesting in the data. The notes were constructed of keywords, such as “feeling safe”, “group agreement” and “skiing ability”. These were just initial thoughts which emerged while I read

the texts. To help me systematize these thoughts, I made visual mind-maps of these keywords for getting a general overview when going through the transcripts.

The second phase of the process was the initial coding. Braun et al. (2022) explains the coding phase as a systematic work-through of the data in a more fine-grained way, by identifying segments of data which might be interesting, relevant or in other ways meaningful for my research question. When these segments were found, I labeled them with codes which describe the segment in an analytically meaningful way, or in other words, code labels (Braun et al., 2022). In this phase I worked inductively when coding segments which emerged without a theoretical background, but also deductively when coding segments like “expert halo” or “sense-making” which I based on existing theory (Thagaard, 2018). I constructed both explicit semantic codes like: “skiing steep is fun” and latent codes as: “feeling ambivalence about learning in avalanche terrain” which were more implicit in their meaning (Braun et al., 2022). However, I focused more on interpreting the latent codes as they are described as more fitting for a critical qualitative orientation (Braun et al., 2022). When I was done with the coding of a transcript, I collated my code labels with relevant data segments to ensure an easy system for further development (Braun et al., 2022).

The third phase my goal was to generate initial themes. This meant compiling or clustering several codes which seemed to share a core concept or idea to help provide some meaningful answers to my research question (Braun et al., 2022). This core concept or idea was then labeled as an initial theme. These themes were supposed to consist of a shared patterned meaning across the dataset and work as candidate themes, which Braun et al. (2022) explain as the first part of theme generating. Again, I worked inductively and deductively to see if themes could be generated in relation to the theoretical concepts or not. An important factor in theme generating is the fact that the themes were not hidden behind a “door” or “treasure chest” anywhere in the transcripts or codes to “emerge”, but had to be generated through me as an active reflexive researcher, through interpretation (Braun et al., 2022). This relates to the social constructionist epistemological assumption of co-constructing knowledge by human interaction (Tjora, 2021). Or simply put, making sense of what is going on within the data (Braun et al., 2022).

During the fourth phase of the reflexive thematic analysis, I focused on developing and reviewing themes. Here, the idea was to look back at the initial codes, clusters and candidate themes to reevaluate their relevance to the overall dataset and the research question (Braun et

al., 2022). An example of this reevaluation is the theme “learning” which I had developed deductively through theory. At first glance I applied it as an initial theme, but going back to the initial codes and transcripts, I found it to be more of a “topic summary” than a theme. This is essential in reflexive thematic analysis, as Braun et al. (2022) formulates clear distinctions between themes and topic summaries. Whereas themes are a pattern of shared meaning which is organized around a central concept, topic summaries capture the whole range of a topic and often contains quite different and contradictory data (Braun et al., 2022). This meant discarding learning as a theme because it did not reflect a shared pattern of meaning across the whole dataset. As Braun et al. (2022) said, if it lacks the scope to be a theme you have to let it go for new themes to emerge.

The fifth phase was about refining, defining and naming the different themes. A key component was to write a synopsis for each theme to define clear demarcation lines (Braun et al., 2022). This meant going back to several of the phases to ensure the quality of the themes. Braun et al. (2022) illustrates the recursive rather than progressive and non-linearity of reflexive thematic analysis when they recommend jumping between phases to secure in-depth analysis. I utilized the visual mind-maps I had created in the familiarization phase, and made new ones with the specific themes, which I compared with the code labels from the initial coding phase to once again make sure the themes captured an overarching shared concept of meaning. This also meant reinterpreting my interpretation of the data. Such a strategy is also explained as the hermeneutic circle (Friesen et al., 2012). In such a way I was able to generate subthemes as well as making sure of thick descriptions which Braun et al. (2022) frames as important aspects of theme generating.

The last phase was the writing up phase which will be demonstrated more thoroughly in the result and discussion chapter of the thesis. However, Braun et al. (2022) shortly outlines the sixth phase as an informal reflective phase with retrospection from the familiarization phase and forward. The way I conducted this phase was through keeping a reflexive journal thorough all phases, which I could later apply and weave into all different phases of the analysis (Braun et al., 2022). As a reflexive thematic analysis is a back and forth tandem between different phases of the analysis (Braun et al., 2022), the sixth phase was used as an editing of all the previous phases. This meant looking through the journal, code labels, mind maps, theme generating to once again make sure to secure quality themes which were coherent and reflected my research question (Braun et al., 2022; Kvale & Brinkmann, 2015; Thagaard, 2018).

3.9 Ethical considerations

Ethical problems with doing interpretation in qualitative research were considered before, during and after the data gathering phase. Braun et al. (2022) considers important ethical responsibilities in qualitative research as follows: making sure the participants understand the purpose of the research and the broad framework of the empirical analysis and reminding them of the value of their contribution to the research. This also includes declaring my own role for them as a researcher trying to understand their subjective experiences and meanings with a conscious strategy to not cause any negative impacts or harmful interpretation on them as individual participants (Braun et al., 2022). Another consideration was the impact their shared experiences might shed on the wider community, in this case the ski touring community in Tromsø especially. The most important issue here was talking about negative experiences in avalanche terrain with the participants. However, all the participants had no issue sharing their negative experiences with me. A reason might be my role as an “inside researcher” (Braun et al., 2022), which seemed to be a quick way to earn their trust in the interview situation. As I consider myself a member of this social group, it was never an intention to use marginalized language or present any critique, but rather use my insider role to explore deep and honest reflections. I will reflect about this in the reflexive subjectivity chapter. Regardless, I was dealing with a lot of personal stories, and in interpreting all this information, I needed to make sure that I maintained the participants anonymity, confidentiality, privacy and consent.

As the process of ensuring this is already explicitly told chronologically in the method chapter, I will quickly summarize this here. Anonymity and confidentiality was secured by establishing fictitious names (which only I knew) to the participants and all geographical locations which they described (Dalland, 2020). This also included a written consent form (see: attachment 2), which explained in detail how the data would be handled during the whole research project. Without approval from Sikt.no (n.d.) I would not have a certificate which proved to the participants that I was able to secure their anonymity and confidentiality and privacy. These forms were signed and locked at the university with a lock which only I have access to, after explaining the whole process orally before the interview. Including their right to pull away from the project at any time during the process. Finally, this also included how I would chronologically delete the different sections of the analyzed data after I was done with it, as described in the guidelines of ethics within qualitative research (National Research Ethics Committees, 2021).

3.10 Research quality

To ensure good quality within qualitative research there is a tendency to discuss reliability, validity and generalizability (Tjora, 2021). Reliability refers to the research credibility, where the main point is to discuss whether the research project could have been replicated by another researcher at another point in time using the same method (Kvale & Brinkmann, 2015). A key concept when arguing for reliability or credibility is how transparent the researcher presents the methodological choices and argues for why this particular method was chosen (Thagaard, 2018). It is also argued that reliability has to be seen in connection with how the researchers' abilities, capacities and position has in the development of the data, including relations to the participants, age difference and gender (Thagaard, 2018). Validity refers to being reflective and critical towards the researcher's interpretation, and questioning the analytical process and what ramifications the interpretation has for knowledge production (Thagaard, 2018). As Kvale and Brinkmann (2015) says: "*to validate is to control*", referring to the continuous process of being critical towards your own interpretation and to reflect around why you have this explicit perspective on this matter. Generalizability is relating to the transferability of the results of the research project onto other contexts and arenas (Kvale & Brinkmann, 2015).

All these parameters of quality assurance seem influenced by the value of objectivity (see: Braun et al., 2022; Dalland, 2020; Kvale & Brinkmann, 2015; Thagaard, 2018; Tjora, 2021). This is not wrong by any means. Braun et al. (2022) gives a thorough explanation of how an experiential qualitative orientation can have a realist ontology and a positivist epistemology, thus having objectivity as an ideal in qualitative research. They also state that the qualitative orientation is to be reflected during the whole research process, which for me, is a critical orientation (Braun et al., 2022). Applying this, I will now discuss subjectivity and reflexivity as values for qualitative research (Braun et al., 2022).

3.10.1 Subjectivity and reflexivity

Viewing subjectivity as something valuable is a key aspect of what Braun et al. (2022) calls qualitative sensibility in reflexive thematic analysis. This is an overarching principle in a critical qualitative research orientation, which values subjectivity as resource with emphasis on meaning that is contextual and situated (Braun et al., 2022). In a hermeneutic perspective, one can only attain well informed interpretation, and our predispositions and prejudices shape the knowledge production (Kvale & Brinkmann, 2015). Therefore, Kvale and Brinkmann

(2015) argue that the “objectivity” in qualitative research means to strive for objectivity in the inherent subjectivity, through what they call reflexive objectivity, which aims to enhance intersubjectivity between interview person and interviewer. In the end, valuing subjectivity entails practicing reflexivity during the whole research process (see: Braun et al., 2022; Kvale & Brinkmann 2015; Thagaard, 2018; Tjora, 2021).

Practicing reflexivity means interpreting one’s own interpretations (Tjora, 2021), or reflecting on how one’s position as a researcher shapes the research and engagement with the data (Braun et al., 2022). It also means to reflect on the methodological choices and disciplinary location, in terms of how these together shape and intertwine in the knowledge production (Braun et al., 2022). Reflexivity in reflexive thematic analysis are categorized into personal reflexivity, functional reflexivity and disciplinary reflexivity, which I will outline with their relevance to my research project (Braun et al., 2022).

When it comes to personal reflexivity, Braun et al. (2022) relates it to how our own personal values shape the research and the knowledge we produce, including our social positioning, personal background and life experiences. Taking this into account for my research, I think the most important factor was to remember is that I was indeed an “insider researcher”. If I would apply the selection criterions on myself, I would be suited to be interviewed for the project. This could gravely influence the research project. On one side, this entails that I maybe possessed the required social position for the participants to be comfortable in relaying their own experiences to me and facilitating rapport (Braun et al., 2022), since I am “one of them”. But on the other hand, my positioning might have influenced the way they thought I wanted them to answer my questions. It also means that I must continually evaluate and reevaluate if I let my own personal opinions on the matters of ski touring in avalanche terrain influence my interpretation. Braun et al. (2022) frames this approach of personal reflexivity as an ongoing process through the whole project.

Functional and disciplinary reflexivity deals with the researcher’s specific view on research practice and how these might have influenced the chosen research project (Braun et al., 2022). For example, my own interest in the *CARE* institute (Center for Avalanche Research and Education, n.d.), and the convenience of doing qualitative research with semi-structured interviews may have been the steering wheel for what I have chosen as a research project. And to fit this into certain theoretical and philosophical assumptions, I may have had to design a certain angle on the project which align with the abovementioned factors.

Nevertheless, Braun et al. (2022) explains that it is a matter of how my assumptions have influenced the project, not if they have or not. This entails that I must continually be reflexive during the rest of the thesis and show it explicitly to be transparent with how I and the outside world have shaped my research.

4 Results and Discussion

In this chapter I will present the empirical findings which stems from the analysis of the interviews and its relevance to the theory I presented in chapter two (2. *Theory*). In turn I will use this to answer my research question which was constructed as such “*How does group dynamics influence decision-making among experienced backcountry skiers in avalanche terrain?*”.

Using reflexive thematic analysis to analyze the interviews left me with five themes which work as ideas or concepts with a shared pattern of meaning across the whole dataset (Braun et al., 2022). These themes will be the framework for presenting and discussing findings within the dataset in relation to the research question. Using the themes as a structure for combining empirical evidence, theory and methodological choices is the aim of this chapter. I will also present my solution to the research question at the end of the chapter, based on the abovementioned discussion. The solution will be presented with limitations and suggestions for further research to enhance this field of research on ski touring in avalanche terrain with a focus on social factors and group dynamics.

4.1 Introduction of the participants and themes

Firstly, I will shortly introduce the skiers who were interviewed. In the previous chapters they have been labeled with the terms interview person or participant. Since I gave them all fictitious names for anonymity reasons, I find it easiest in this chapter to refer to them with their fictitious names. Secondly, I will provide a table with an overview of the different themes with a short synopsis for reference.

4.1.1 Participants

1. Una: Female, 36 years old, from southeastern Norway. Has 18 years of experience in avalanche terrain. Works full time in Tromsø.
2. Ulrikke: Female, 26 years old, from southeastern Norway. Has 6 years of experience in avalanche terrain. Works part time in Tromsø.

3. Ina: Female, 31 years old, from southeastern Norway. Has 12 years of experience in avalanche terrain. Student and works part time in Tromsø.
4. Dina, 28 years old, from northern Norway. Has 15 years of experience in avalanche terrain. Works part time in Tromsø.
5. Anniken, 29 years old, from southeastern Norway. Has 7 years of experience in avalanche terrain. Works full time rotation in Tromsø.
6. Igor, 28 years old, from western Norway. Has 10 years of experience in avalanche terrain. Works full time rotation in Tromsø.
7. Isak, 32 years old, from eastern Norway. Has 10 years of experience in avalanche terrain. Works full time in Tromsø.
8. Are, 31 years old, from northern Norway. Has 18 years of experience in avalanche terrain. Works part time in Tromsø.
9. Vebjørn, 28 years old, from southeastern Norway. Has 6 years of experience in avalanche terrain. Works part time rotation in Tromsø.
10. Stian, 35 years old, from Sweden. Has 12 years of experience in avalanche terrain. Works full time in Tromsø.

4.1.2 Theme table

Theme	Synopsis, or brief explanation
Trustworthy relationships	Trustworthy relationships refer to the nature of the relationships between skiers within a group that go ski touring in avalanche terrain. Trust is centered around the values of being a reliable person, speaking the truth and having confidence and belief in each other's abilities.
Decision-making as a collaborative effort towards consensus	Decision-making as a collaborative effort towards consensus refers to groups making decisions together to reach consensus about what they are thinking or planning on doing in an avalanche terrain context. Or simply making decisions in avalanche terrain as a group.
Group members with a higher	Group members with higher avalanche competence is constructed as a normative ideal. This means that the theme revolves around what it means for the group to have skiers with high avalanche competence,

avalanche competence	or why it is ideal for skiers to wish for the group to consist of skiers with a higher avalanche competence than themselves.
Group members with homogenous skiing ability	Group members with homogenous skiing ability is constructed as a normative ideal. This means that the theme revolves around what it entails for the skiers in a group to have the same skiing ability. When I refer to skiing ability, I mean the ability of skinning up and skiing down, and the physical condition or shape of the skier.
Group members with homogenous risk acceptance	Group members with homogenous risk acceptance is constructed as a normative ideal. Which means that the theme is considering what it entails for the skiers in a group to have the same risk acceptance. Risk acceptance refers to the agreement of exposing yourself to a certain amount of avalanche danger, and agreeing on how much uncertainty you are willing to accept.

4.2 Trustworthy relationships

Trust in each other within the group was a shared pattern among all my participants. However, the factors which created feelings of trust differed somewhat. The most obvious factor was as plain and simple as being good friends, both outside and inside of the ski touring context. *Stian (36)* explains it in short when asked about what facilitates trust: “*At the end of the day, you are there to have fun with friends, if you do not enjoy yourself together and trust each other, what is the point really?*”. It seems that friendship works as a facilitator for trust when he is out ski touring. In a group dynamics perspective, friendship would seem to relate the most to group cohesion because of the values of bonding and unity (Forsyth, 2014; Høigaard, 2020; Myers, 2013). As argued, cohesive groups tend to come up with more good solutions than un-cohesive groups (Høigaard, 2020). Several of the participants share the notion that friendship is the most important factor of selecting skiing partners. Multiple reasons for this are described by *Una (36)*: “*the reasons I go skiing with those friends are because we have the same attitude, values and approach*”. In summary, friendship is a big deal for many participants.

If friendship is seemingly that important, what happens when you are in a group which does not consist of close friends like most of the participants valued so much? Situations like that

are seemingly not problematized by all participants. A reason for trusting a person you do not know so well is explained by *Anniken (28)*: “*you come from the same school, which means we share the same framework, and we think the same way in avalanche terrain*”. She refers to a long avalanche course which she and the other person had done separately. Sharing a decision-making framework like Landrø et al. (2020) explains, seems in this scenario to act as a way of building trust more quickly. And in such a way it might also be a steppingstone for creating group cohesion, if one views a decision-making framework as a collective or structural type of cohesion (Forsyth, 2014). Several of the participants give voice to decision-making frameworks as a contributing factor for creating trust. *Ina (31)* mentions: “*since we have the same method and enjoy talking process, it is easy to feel safe with this person*”, when asked about why she went with a particular person she did not know so well in to avalanche terrain. The process she is referring to seems to be the analytical framework from Krontahler et al. (2013). Which in this case might also work as a collective or structural cohesion (Forsyth, 2014). These examples explain that decision-making frameworks also could work to establish trustworthy relationships.

I also found discrepancies to the idea that good friendships facilitate trust. When asked about negative experiences in avalanche terrain, multiple participants referred to experiences where the trust was somehow broken or at least damaged. As *Una (36)* relays:

“It was very unpleasant, because we are good friends, but we were disagreeing on whether it was safe or not to go up in that couloir when we from the start had a plan to cruise on the ridge in the sun outside of avalanche terrain. Therefore, I felt that there was a break in trust when suddenly the plan was thrown out the window when that person saw something cool”.

In this case it seemed that the trust was broken because of a broken deal which was made during the planning phase. A way to look at it could be that she had the “assessment” mindset and the partner was more in a “stepping out” mindset from Atkins (2014). Another way of saying this is that the group members had different individual needs, which could gravely affect the group dynamics according to Priest and Gass (2018). In this case, it seems that the structural cohesiveness of the group took a toll, because the previously formed norms and rules were not followed (Forsyth, 2014). If the partner had some type of leadership power (Priest & Gass, 2018) or an expert halo (Tremper, 2018), it could mean that the partner was able to convince her of the idea of the couloir. Had she given in to this leadership power or

expert halo, she might have risked the social facilitation heuristic (Tremper, 2018) or group conformity, by accepting the new group norms (Høigaard, 2020). However, she chose to say no and stick to the original plan and ski on the avalanche safe ridge. This decision seemed to be based on learning from previous experiences of disagreement when she said: *“I do not want to be in avalanche terrain with people who seldom follow the plan and are directed by impulsive decisions”*. Which supports Dassler et al. (2023) notion that experiential learning can lead to changes in behavior if they are reflected on afterwards, and that authentic learning situations provide lasting experiences (Vereide et al., 2019).

Another participant also ties a learningful experience to a skiing trip where trust became an issue afterwards. *Ina (31)* described the social and ecological cues from Løland et al. (2023) when she and two others are skinning up an icy couloir together:

“I realized after a while that she was not comfortable at all, I could see it on the way she walked, I could see it displayed by her body-language, or the way she asked questions, that she seemed stressed. So, after some more time I asked if we should turn around, and then she immediately said: yes that’s a good idea. And then I was very disappointed in her as a skiing partner, because I realized that I could not trust her the way I thought I could”.

In this context, the partner she was talking about clearly showed signs of the acceptance heuristic (Tremper, 2018). According to *Ina (31)*, she was pushing herself beyond her capabilities because of her wish to conform with the group (Høigaard, 2020), which Mannberg et al. (2018) frames as having social aspirations. Another factor seemed to be the commitment heuristic (Tremper, 2018) because she explains a motivation for skinning up the couloir: *“we have already walked far, so when you are actually where to couloir starts, it gives an incentive that: we have to go all the way to the top, I think that was in her head”*. From the very detailed experience of this trip, *Ina (31)* showcases once again the learning outcome of such an authentic learning situation (Vereide et al., 2019). She also seemed to make sense of the situation as it was unfolding, not unlike many of the guides from Løland et al. (2023) studies. With noticing this situation, she also seemed to combine several aspects of the conditional leadership theory (Priest & Gass, 2018), like deciding to change from a task orientation (getting to the top) to a relationship orientation (maintaining the group), when communicating the desire to turn around. Thus, exhibiting another factor which had a clear tendency in the data, the role of communication.

Communication was evident in all interviews as a factor which could contribute or diminish trust within the group. I find it interesting to discuss the contributing first. The transparent guiding approach (Løvoll & Einang, 2022) to communication was exhibited as a facilitator for trust development in several cases. *Anniken (28)* mentions: “*Transparent communication*”, *Dina (29)*: “*Transparent dialogue*” and *Are (31)*: “*Open communication*” as reasons for trusting the people they ski in avalanche terrain with. Even though their semantics are different, the latent meaning seems to be the same. A communication process where you explicitly talk and discuss actively all you can see and what it might mean. Løland et al. (2023) shares that this approach is an important way for guides to maintain that they are on the same page and will help them arrive at the same conclusion when they must decide whether to ski. *Dina (29)* refers to what has made her value communication: “*some people are more or less quiet when I have been skiing with them, and they expect me to see what they see without saying anything, which I find to be hopeless*”. Here she demonstrates that a lack of communication might lead to unwanted behavior. In this case, this could be the social loafing group dynamic (Myers, 2013), in which some group members try to exert less effort and hide within the group. As showcased by Sørum and Boger (2023), this was also a group dynamic process which led to several avalanche accidents because of the unwillingness to participate in decision-making. Another reason might be the acceptance heuristic (Tremper, 2018), or the fear of saying something incorrect, and the impact it might have. But in this case, *Dina (29)* shares a fundamental quality of her skiing partner: “*she is not judgmental, so you can talk about anything without being afraid of saying anything that’s wrong*”. Which constitutes the value of a partner which you can share by transparent communication.

On the other hand, there seems to be a threshold among some participants to what extent they want all communication to be transparent. *Stian (35)* said the following when asked about communication: “*you do not need to communicate a lot to necessarily have good communication. If you just ask the others, do you see this? And they say yes or okay what do we do about that? And quickly agree on what to do, I would say we have had good communication*”. In this instance, it seems that efficiency is a valuable facet in the communication process for him. This view seems to be shared by *Igor (28)* when he said: “*Things have to go a bit quickly when we are a group in avalanche terrain, things take time when we are several people and then the exposure time becomes longer. So quick to the point communication is key*”. They seem to share the notion that communication must be efficient to avoid exposure time in avalanche terrain. This principle is well established in the avalanche

literature (see: Brattlien, 2017; Landrø, 2021; Nes, 2018; Tremper, 2018). But for most of the participants, sufficient time for discussing the avalanche problems is viewed as significant for feeling safe. An explanation might be that *Stian (36)* and *Igor (28)* are referring to not stopping in terrain with unnecessary avalanche exposure. Because they both argue that time is a mitigating factor to reduce stress, and the consequence of reducing stress could also reduce the risk of the groupthink dynamic, according to Høigaard (2020). Another reason this efficiency is valued could relate to the vast amount of experience which *Stian (35)* and *Igor (28)* share. As Landrø (2021) and Heil (2021) argues that more experienced and competent backcountry skiers have a clearer view of which factors to use in assessing avalanche danger, and which to discard. Making it clearer for them than the rest of the group, what you need to assess because both are usually the most experienced in their groups. In summary, communication is still important for trust, but maybe it's equally important to choose when to communicate.

Another interesting pattern were the way the participants described the way trust was built or earned over time. Almost half of the participants explicitly mentioned that they need to have some sort of trial period with a new person. The reason for this seems to be that they didn't want to enter avalanche terrain with a person they don't trust. For example in *Ina's (31)* case, she mentions why it is problematic to enter avalanche terrain with a new person: "*You become uncertain because you feel that you have to go an interpret things all the time. And I do not just mean the weather and the snow, you have to interpret the new person too*". This sentence showcases Løland and Hällgren (2022) and Løland et al. (2023) emphasis on interpretation of social brackets and cues as an important part of sensemaking which the decision-making literature undervalues. *Vebjørn (28)* provided a similar observation when asked about a recent trip: "*I at least confirmed that that person is totally green when it comes to avalanche stuff. I realized that he has to be encouraged to do some courses before I do anything serious with him*". These strategies seem to be of a "rather sooner than later" principle which may derive from the different participants' experiences with the social loafing dynamic (Myers, 2013) or the social facilitation heuristic (Tremper, 2018). Such a strategy befalls the conditional favorability model of Priest and Gass (2018) in relation to the unity and experience of the group together shaping what they should do together. Thus, focusing more on forming relationships in the beginning and less on exposure in avalanche terrain. What is interesting here is Bright's (2010) conclusion that the more time spent together as a group in avalanche terrain seemed to create a more thorough decision-making process.

However, a more thorough decision-making process does not necessarily mean that they make better decisions. As all participants acknowledge the fact that avalanche terrain is a wicked learning environment (Hogarth et al., 2015).

As an end to this theme, I will shortly summarize what has been discussed. Well established friendships seem to be an important factor for generating trust. However, if you share the same decision-making framework, trustworthy relations can be established in a shorter amount of time. Trust can be broken among friends and might relate to several different group dynamics, like a lack of group cohesion or a too strong wish for group conformity.

Transparent communication seems to mitigate the risk of social loafing, but it is also important where you decide to communicate. Lastly, a strategy for establishing trusting relations with new people can be to start gradually with a focus on building relations before considering exposing yourself to avalanche terrain.

4.3 Decision-making as a collaborative effort towards consensus

Reaching consensus or agreement within the group before making a decision together was an important element for nearly all of the participants. When asked why they chose to be in avalanche terrain with a particular person, there were patterns in the answers: *“we often agree with our decisions”* - Una (36), *“we agreed to have a dynamic approach in that valley”* - Igor (28), *“we agreed that that particular mountain was a good idea for that day”* - Stian (36). All showcasing agreement as a positive feature. An interesting pattern which also emerged from these experiences was when the decision-making phase started. Just as Løland and Hällgren (2022) observed guides in the planning phase, the participants started the decision-making process there. The planning phase occurred in several different contexts: at dinner the evening before, weeks ahead, in the car on the way to a particular place, or just on the phone the day before. Several of the participants shared an expectation declaration beforehand to agree on what to do. Here they outlined what they expected of that day, their personal wishes and the goals they wanted to achieve. Horgen (2010) frames the declaration of expectations as essential for a group going out in nature. Another facet of this declaration seemed to be focused on choosing a strategic mindset for the day, not unlike Atkins (2014) approach. However, what seemed to steer the expectations and mindsets were the conditional favorability model of Priest and Gass (2018). Especially related to the environmental dangers, the group and the individual. But what were the goals with such thorough planning phases? A tendency in the planning phase seemed to be uncovering hidden motives within the group.

One of which was to uncover the “commitment” or the “scarcity” heuristics (Tremper, 2018). Being driven by these could mean a significant gap in goals within the group, which would relate to a weak group cohesion (Forsyth, 2014) or a group with weak unity (Priest & Gass, 2018). Based on the claim that highly cohesive groups often make better decisions (Høigaard, 2020), it seems easier to understand the need for a thorough planning phase among the participants.

When discussing highly cohesive groups with the same goals and mindsets, Høigaard (2020) alerted about the occurrence of the groupthink dynamic. This was also shared by Ebert and Morreau (2023) when they found instances where groups came to worse conclusions than individuals. These findings share a striking similarity with several of the participants' experiences with unanimous decisions in avalanche terrain. The most descriptive example is when *Are (31)* tells about the time he was caught in an avalanche: “*All six of us came to the same conclusion beforehand, that we were going to ski that couloir, and all six of us were wrong, even though we shared so much experience between us, we all made the same mistake and were not able to predict that avalanche*”. Even though they shared the decision-making democratically (Priest & Gass, 2018), and used time for multiple people to check the snow with different stability tests like the ECT and LBT (see: Krontahler, 2013; Nes, 2018; Tremper, 2018). The snow still provided limited feedback, creating a false sense of safety, which is characteristic of a “wicked learning environment” (Hogarth, 2015). Following the advice from Dassler et al. (2023), *Are (31)* and his friends used a lot of time to reflect over why they triggered an avalanche. In retrospect, he pointed out several factors which relate to the groupthink dynamic: “*We ignored danger signs*” and “*another group also did the same*” were their own reflections. This connects well to groupthink creating a “rationalization of hazard”, “ignoring feedback” and a sense of “invulnerability within the group” (Høigaard, 2020). Another aspect was the familiarity heuristic (Tremper, 2018), because the whole group had skied the couloir where the avalanche happened multiple times before. He also described the situation as very learningful because of the appropriate feedback from the snow. A point Vereide et al. (2019) also labels as problematic when considering learning in avalanche terrain, and the need to experience situations where you receive appropriate feedback. This is a statement all participants acknowledge and feel a certain ambivalence to the “wicked learning environment” (Hogarth et al., 2015).

Landrø et al. (2022) makes a claim that one of the possible solutions to face this problem of temporal feedback is to use experienced instructors to convey the issue. Such a claim is

supported by several participants, but on the other hand, *Anniken (29)* experienced an avalanche accident with an experienced instructor during a course. She and her group were described as very united, with many experiences in avalanche terrain together. This is an extract of what she felt afterwards: *“We had talked so much that day about the snow conditions and made so many assessments, and still we managed to end up in that situation, with a very experienced instructor. It affected my next two seasons at least. Even now it still affects me to a certain degree”*. The most obvious heuristic in this case seemed to be the expert halo (Tremper, 2018), where the group followed the leader which in this case had referent, legitimate and expert power (Priest & Gass, 2018). Again, it seems fitting to assign the groupthink dynamic (Høigaard, 2020) to explain the overlying belief in the competence of the leader. However, as *Anniken (29)* also shared, the decision-making power was shared somewhere between the abdicatic and democratic part of the spectrum of Priest and Gass (2018) leadership styles. Meaning in this case, it was the group who made the wrong assessment together. Another factor seemed to be the commitment heuristic (Tremper, 2018), because of the nature of the terrain they were in. A long ridge had been traversed, meaning that if they did not ski down where they decided to, they would have to follow a long ridge back down again, which she claimed was a contributing factor. Such a case as this, might support the claim Høigaard (2020) makes when he suggests that a cohesive group with increasing conformity might experience groupthink tendencies. Not unlike *Are's (31)* case, she also expressed gratitude for the learning outcome, and the fact that no one was injured. One of the learning outcomes for her was creating what Landrø (2021) would call a rule-based decision making tool. Claiming that: *“I will never again ski a face I haven't skinned up and checked first”*.

Concerning probabilistic and analytical decision-making frameworks (Landrø, 2021), there were some discrepancies among the participants. That being said, most of the participants exhibit the use of a highly analytical decision-making framework when relaying their experiences in avalanche terrain. What characterizes these are the use of an array of different factors when describing decision-making, instead of using categorical rules (Landrø, 2021). *Are (31)* summarizes when asked about his decision-making: *“i do not want to be static in such a dynamic environment. You risk to do something without knowing why, both when you chose to ski but also when you chose not to”*. He seems to express a need for discussing and reason for why, which resembles the “process thinking” attitude of Krontahler et al. (2013) or the “Skikompi” method of Nes (2018). An interesting observation when the participants

describe their decision-making is the ongoing search for cues from the environment or among the others in the group. Noticing and processing the cues from the environment are common in the analytical methods (Landrø, 2021), but the participant also seem to pay much attention to the social cues from the group, which is more emphasized in sensemaking theory (see: Løland and Hällgren, 2022; Løland et al., 2023). An emphasis on the social cues could indicate the severity the participants emit to different group dynamics or heuristic traps. *Anniken (29)* seems to claim this: “*I have been in avalanche terrain with people who are very different than me, and that has made me uncomfortable before, because i have to pay extra attention to what they say and what they want to do*”. Another participant explicitly mentions the same: “*i do not enjoy being on trips where i have to use a lot of energy on interpreting the others in the group*” - *Ine (31)*. In this case it seems that the analytical frameworks (Landrø, 2021), along with the sensemaking perspective of probing, sensing and framing (Løland & Hällgren, 2022), could be a strategy for avoiding unwanted group dynamics or heuristic traps.

There are also cases where the participants describe the use, or the wish of using probabilistic decision-making frameworks. Several seem to prescribe the “wicked learning environment” (Horgarth et al., 2015) as a cause, for a wishing to make ski touring in avalanche terrain more predictable. Therefore, they want to employ probabilistic rule based decision-making tools to have a clear framework for when to make decisions about continuing or turning around. *Dina (29)* explains: “*when i make an ECT, if it propagates within 15 taps, then it's a no go, so it is nice to have some cut-off lines, because if you don't, then you will always just stand there and debate, and i don't want that, i like that its concrete. if it's like this, we turn around*”. A reason for this might be considered that it is easier to deal with clear rules in decision-making. Like Landrø et al. (2020) frames, the probabilistic methods are much easier to learn. However, other participants frame this choice as a consequence of negative experiences in groups. For example:

“After the result of that ECT it was clear to me that we would not continue, because it propagated on the third tap, but one of the other guys tried to convince us that this result did not mean anything, which in itself was very uncomfortable. That time I felt the group dynamic was not the best” - Igor (28).

Here, he explicitly states that the group dynamic was not the best because of disagreement towards a test result. He exhibits a “stepping back” mindset, while the other person in the

group seemed to continue with a “status quo” mindset (Atkins, 2014). Continuing with the same mindset here from the person which wanted to continue could resolve in a group polarization effect (Myers, 2013), because of his wish to continue with the original plan or tendency. This could also be related to the “commitment” heuristic, for summit fever (Tremper, 2018). Another reason for a poor group dynamic could be the newly formed group, which probably operated somewhere between the forming and storming stage of group development (Priest & Gass, 2018). *Anniken (29)* also mentions something similar: “*what's annoying is that even though you have the same theoretical background, you can still interpret test results differently and have a totally different plan of attack*”. Also *Dina (29)*: “*it was unpleasant to disagree on turning around or not because of that whumpf, but i understood that he did not have the mindset to understand what it meant*”. These examples demonstrate the frustration of disagreeing in the decision-making. They also illustrate the situated learning (Vereide et al., 2019) which through active reflection (Dassler et al., 2023) provided reasons to employ probabilistic decision-making tools to avoid certain group dynamics. Especially in newly formed groups, which are also supported by Zweifel and Haegeli (2014) and Bright (2010).

As in the discussion of trustworthy relationships, communication also seemed to play a pivotal role when making decisions in groups. The role communication played when trying to reach an agreement was an intriguing factor for almost all of the participants. One reason seemed to be the strategy to avoid social loafing. As Myers (2013) explains, to avoid social loafing, you have to keep everyone interacting in the group. A way to keep everyone interacting is to communicate transparently (Løvoll & Einang, 2022). *Ulrikke (26)* shares this importance: “*you need to take the time to let everyone express their opinion, if you are several in a group, you need to allow the time to include everyone*”. The point of inclusion was unanimously shared between all participants. This also seems to stem from a wish to avoid groupthink (Høigaard, 2020), because of the desire to consider alternative decision-making strategies. Another reason to include everyone in the decision-making seemed to relate to the fear of being solely responsible for the group's decision-making. Thus, having an autocratic decision-making leadership (Priest & Gass, 2018). Zweifel et al. (2016) shared several pitfalls of this type of leadership leading to unwanted group behavior. Heuristic traps such as the expert halo (Tremper, 2018), or the group polarization dynamic (Myers, 2013) might also befall groups with only one decision-maker. As *Dina (29)* summarizes the importance of communication: “*I do not want to be alone in the decision-making process*”

with others in the group who just don't want to contribute, which is why we communicate openly to force everyone to be included and take part". If involving the whole group seemed to be difficult, avoiding avalanche terrain seemed to be the preferred strategy by most participants, which might explain the frustration and feared consequence of social loafing (Myers, 2013) or the expert halo (Tremper, 2018).

Groupthink also seemed to increase as groups got bigger in Bright's sample (Bright, 2010), Zweifel et al. (2016) study and the Ebert and Morreau (2023) study. All participants seemingly wished to avoid this. Most of the favorable group sizes were described between two and four, which correspond with Zweifel et al. (2016). *Dina (29)* frames her reasoning for a small group size: *"when the communication chain has to go between more than four people, it's starting to get really difficult to address your point clearly"*. However, this might also relate to the participants' description of trips with small groups being in either complex or extreme terrain classes (Varsom.no, n.d.-a). Keeping the group small in such terrain is a strategy most avalanche literature agree with (see: Brattlien, 2017; Landrø, 2021, Nes, 2018; Tremper, 2018). On the other hand, some participants do not relate the communication to group size, but rather the personalities of the different group members. *Ulrikke (26)* considers group size: *"I think I could have done that trip with more than five people, because for me it depends more on the personalities within the group than a specific number of people"*. Furthermore, the qualities of these personalities might be explained by all participants valuing a democratic decision-making process (Priest & Gass, 2018). In that regard, it does not matter how many people you are, but it matters that everyone partakes in the decision-making. Again, this is exemplified by *Ina (31)*: *"the group can be big, as long as we have a flat structure where everyone is heard and can be involved in decisions"*. This approach is essential in the transparent communication process which Løvoll and Einang (2022) describe.

Decision-making as a collaborative effort towards consensus is a multifaceted theme, shown by the different opinions and strategies among the participants. A thorough planning phase was shown as a strategy for avoiding certain group dynamics. A highly cohesive group, with or without high conformity can also run the risk of groupthink which could lead to avalanche accidents. Analytical decision-making frameworks seem to be employed with emphasis on noticing group behavior to mitigate different unwanted group dynamics. Probabilistic decision-making frameworks give some participants more clarity when making decisions, but different interpretations of the probabilistic frameworks have a potential to enhance group polarization. To include everyone in the decision-making seemed to be a strategy to avoid

social loafing and groupthink. One way to do this was through transparent communication, another way was to avoid avalanche terrain. Finally, group size seemed more important for the participants when choosing terrain, than to avoid groupthink. But at the same time, the selection of the group depended more on the personalities and their contribution to a democratic decision-making process.

4.4 Group members with higher avalanche competence

A pattern emerged from the participants when they were asked about avalanche competence. Most were of the impression that they wanted group members with higher avalanche competence than themselves. However, there were different interpretations of what avalanche competence consisted of. Two elements were prominent, either experience as days spent in avalanche terrain, or competence, as the ability to assess the snow with different methods learned through formal courses. The wish for experience might relate to the experiential nature of learning about snow and avalanche safety (Dassler et al., 2023). This experiential dimension is supported by Vereide et al. (2019) when illustrating that participants need to gather experience from real situations to be able to learn avalanche safety. As well as (Løland et al., 2023) emphasis on the embodied nature of monitoring and testing with the active use of the senses. *Vebjørn (28)* shares how he has learned avalanche safety:

“My competence and my experience is built on learning by doing, and not learning first. I was early to take the basic and the advanced avalanche courses. But I felt it was not sufficient enough to make complex assessments in avalanche terrain. So the main part of my learning and experiences has been developed by being in the mountains, and experiencing how much the snow will take before it goes”.

He shares the notion of Vereide et al. (2019) that learning in avalanche terrain is a highly situated practice. At the same time he shows his ability to reflect over his own experiences to facilitate learning, which is supported by Dassler et al. (2023). Experience, perception and cognition, which he exemplifies, are also indicated as important for developing avalanche competence by Landrø et al. (2022). These reflections also question the findings of Greene et al. (2023), but on the other hand, they are the reflections of one skier. He also frames the ambivalence of the “wicked learning environment” (Hogarth et al., 2015) later: *«it's the best form of learning and gathering experience, but at the same time it's the most scary form of learning”*. A question worth asking is if a group member with lots of experience could have gathered this experience while practicing social loafing (Myers, 2013)? The question

materializes from the participants' own reflections. *Dina (29)* says: “*I need people who are experienced and participate in decision-making*”. *Are (31)* reflects: “*the last thing I need are experienced people who just go in the back and don't partake*”. They both have experienced such group members and decided to actively avoid them in the future. Such reflections help share the importance of reflecting over one's experiences (Dassler et al., 2023) to learn by your experiences, thus being able to value experience in other group members.

Several of the other participants also share the idea of learning being a situated practice in avalanche terrain (Vereide et al., 2019). To experience learningful situations, they sought to ski with others who had higher avalanche competence than themselves. As mentioned above, this was more related to formal courses. *Ina (31)* shares why: “*I went with that person because she had a method of decision-making and assessing the snow which I wanted to adopt. It was like a check-list, but very thorough and analytical. I learned so much just by discussing with her*”. *Anniken (29)*: portrays a similar attitude: “*when I am with people who have more competence than myself, it feels like the greatest learning arena possible*”.

Seeking other skiers with more competence to learn seems to be valued by Landrø et al. (2022), but it required leadership skills by the skier who would act as an “instructor”. Landrø et al. (2020) and Dassler et al. (2023) also discussed the pivotal role of the skier who conveys avalanche competence. In addition, Zweifel and Haegeli (2014) as well as Sørnum and Boger (2023) indicated that insufficient leadership skills could have serious consequences in avalanche terrain. The participants which valued learning from more competent skiers seem to describe those figures with expert and referent power (Priest & Gass, 2018). The expert power which is achieved through having the most competence (Priest & Gass, 2018) could potentially result in the expert halo heuristic, because of the nature of the most competent member becoming the leader (Tremper, 2018). On the other hand, one participant discovered that the referent power (Priest & Gass, 2018) also could lead to unwanted group dynamics.

Ina (31) shared an experience where she and a group of friends fell into the old group dynamic from their high-school days:

“the one with the least amount of avalanche competence became the leader of the group because that was typically the case in high-school, whereas I was the local and had the most competence, but still let her take leadership, which became just a weird group dynamic”.

In this case, the leadership power was with the least competent skier, but she had the most referent power (Priest & Gass, 2018), because of her already established position within the group. Furthermore, the trip also seemed to suffer from the “commitment” and “scarcity” heuristics (Tremper, 2018), because of the urge to continue to the top in deteriorating conditions. In addition, the mindsets differed in relation to the goals of the trip. The leader seemed to operate with a task orientation, while the agreed mindset of the day was oriented towards relationships (Priest & Gass, 2018). According to *Ina (31)*: “*the day was about just having a good time with friends who had not seen each other in a long time, not a specific peak or anything*”. Since the leader influenced the group to continue to the top, one might consider the effect of group polarization (Myers, 2013). Because of a dominant leader, the group followed her pre-existing tendencies or wishes to go to the top. Luckily, *Ina (31)* chose to employ her expert power and convince the others to turn around. Thus, following the conditional favorability model’s advice to employ an autocratic leadership style when the conditions are suited (Priest & Gass, 2018). This example also proves that groups tend to go back and forth between the stages of group development (Priest & Gass, 2018). As the group imagined starting at the performing stage, their trip had them back in the storming stage.

Another interesting pattern was that all participants shared experiences where they were the person in the group with the most avalanche competence. In most of these instances, they were adamant in their desire to maintain democratic decision-making. However, *Are (31)*, *Igor (28)* and *Isak (31)* reflected over experiences where they had influenced the group into avalanche terrain as leaders. All expressed confidence in the snow stability as the most important factor, with a clear strategic mindset (Atkins, 2014) and the use of transparent communication (Løvoll & Einang, 2022) to convince the rest of the group. These occurrences also illustrate the unintended effect of group polarization (Myers, 2013) as well as an autocratic leadership style (Priest & Gass, 2018). A different way of looking at it could be that the participants used an autocratic leadership style as a way to prohibit groupthink (Høigaard, 2020), because of the lack of cohesiveness in the groups in general. Or the fact that the groups had many members trying to avoid decision-making, therefore leading the participants to take leadership as a consequence of social loafing (Myers, 2013). On the other hand, most participants shared the assumption that the groups they traveled in did not need a leader, because of their democratic decision-making. But to facilitate democratic decision-making, a certain level of competence was indicated: “*it is very hard for a person in the group with way less competence to say anything, because they seem to fear the risk of being*

wrong” - Stian (36). Strategies to avoid certain influences of a gap in competence were related to several things. Choosing less steep terrain (see: Brattlien, 2017; Landrø, 2021; Nes, 2018, Tremper, 2018), transparent communication (Løvoll & Einang, 2022), and monitoring social cues (Løland et al. 2023). All indicated by the participants with leadership experience.

Having higher avalanche competence appeared to correlate with being flexible and dynamic when making decisions. This was displayed in different contexts by the participants. Many stressed the importance of a “turn-around” culture within the group. Isak (32): *“it always has to be an option to turn around”*, Ulrikke (26): *“i go with people who are not afraid to change plans when we get new information, and can easily turn around”*, Stian (35): *“i turn around with my groups 70 percent of the time”* and Are (31): *“a turn around culture is vital in my group”*. Such statements indicate what Atkins (2014) calls a “stepping back” mindset. However, the stepping back mindset is mostly related to snow stability (Atkins, 2014). The participants seem more focused on the socially embedded cues (Løland and Hällgren, 2022; Løland et al., 2023) when they describe situations where they chose to turn around. An example: *“I noticed that she was not answering when the other person tried to discuss options, so I asked if we should turn around instead”* - Anniken (29). In doing so, they demonstrate a relationship orientation instead of a task orientation (Priest & Gass, 2018). Experiencing discomfort within the group seemed to be a unanimous case of turning around among the participants. Such examples illustrate the evasion of the “commitment” heuristic (Tremper, 2018) and group conformity (Høigaard, 2020) as well as cultivating group cohesion (Forsyth, 2014). The turn-around principle of the participants displayed a rule-based decision, but it was also involved in several analytic decision-making frameworks (Landrø, 2021). This summarizes the importance of a flexible and dynamic approach to decision-making.

Having higher avalanche competence within the group also provided numerous participants to not feel the sole responsibility of decision-making. The participants mostly accepted being the one with the least competence. A reason seemed to be that the groups still employed democratic decision-making (Priest & Gass, 2018), so the risk of group polarization (Myers, 2013) seemed to be low. Are (31) shared an interesting point which several other participants indicated to agree with: *“I do not like it when people just go in the back and rely on the others to make the decisions, however, I understand why they do it. Because I have also done it several times, because I feel so confident in the others to make good decisions on our behalf”*. This expresses the ambiguity in the participants' relation to avoid certain group dynamics,

because of the clear indication of social loafing (Myers, 2013). This confidence could also be an expression of the expert halo heuristic (Tremper, 2018), and an abdicatic orientation to decision-making (Priest & Gass, 2018). Another reason could relate to group conformity (Høigaard, 2020) since there is an expression of confidence in others with higher competence. Zweifel et al. (2016), Zweifel and Haegeli (2014) and Sørnum and Boger (2023) also express the ambiguity of confidence in leadership and unwanted group dynamics. On the other hand, the participants express confidence because of particular reasons: *“I trust that person's leadership because of their ability to involve everyone, and explain transparently why they present these decisions as favorable”* - Ina (31). And: *“that person displays good decision-making qualities because of the openness and humility when framing what they think of the snow stability”* - Igor (28). Both showcasing leadership qualities as important for why they have confidence in others in the group with higher avalanche competence.

Higher avalanche competence means numerous things when the context is a group in avalanche terrain. Firstly, there is a distinction between having high avalanche competence, and having a lot of experience in avalanche terrain. Experience is valued as long as the experience is reflected upon to generate avalanche competence. Having higher avalanche competence also indicated a higher learning outcome among others in the group with less competence, however, leadership was important to avoid certain group dynamics. As leadership also could form without having the most avalanche competence, it was essential to be aware of this and employ countermeasures to avoid group polarization. Having a flexible leadership style could limit certain group dynamics, meaning that autocratic leadership could also be applied if the conditions were unfavorable. Another aspect of high avalanche competence seemed to be displayed when combining rule based and an analytic decision-making framework, especially regarding when to turn around. Finally, higher avalanche competence within the group could also facilitate social loafing or group conformity. To mitigate this, certain leadership qualities have to be present among the one with the highest avalanche competence.

4.5 Group members with homogenous skiing ability

The most indicative element of the role of skiing ability in avalanche terrain was related to a certain stereotype among the participants. The skier with strong skiing ability, but no avalanche competence. This claim follows extracts from certain participants: *“that guy was an extremely good skier, but he had no avalanche competence and just came along because*

he could ski wherever we could ski” - Vebjørn (28), “those good skiers with zero avalanche knowledge are risky because they can get over excited when the conditions are good but the avalanche situation is complex” - Anniken (29), “i doesn’t matter if you are a good skier, if you can't comprehend why the snow is stable or not, i don't think you should be in avalanche terrain” - Stian (35). Almost all participants reflected on their experiences with such skiers. The way the such skiers were described pointed to an alternative mindset among them, resembling the “open season” mindset (Atkins, 2014). However, the mindset was not based on snow stability, but rather the skiers ability to ski all terrain classes (Varsom.no, n.d.-a). A prominent reason for the evasion of such skiers was related to the social loafing dynamic (Myers, 2013), because the skier could not participate in the decision-making. Thus, the participant exhibited fear of the potential for this skier to put an expert halo (Tremper, 2018) upon them. Group conformity (Høigaard, 2020) was also considered because of the potential for the skier to have social aspirations (Mannberg et al., 2018), thus seeking acceptance (Tremper, 2018) among the other group members. Tøstesen and Langseth (2021) provides evidence that this stereotype skier exists, and that the group could discard them based on deviation between skiing ability and avalanche knowledge, as well as risk acceptance.

Skiing ability was also appreciated among several participants. *Isak (32) explains: “i wanted to go with that person because their skiing ability meant that we could basically go anywhere as long as the conditions allowed it”, Vebjørn (28) as well: “i understood that this person could become a good partner in the mountains because of this skiing ability, but I also acknowledged that I needed to help him understand snow stability”.* Both framing the skiing ability as something positive if the premise of developing their theoretical understanding of snow was facilitated. This premise would then work as a mitigator for social loafing (Myers, 2013). Another premise to avoid social loafing seemed to be the fact that they would operate mostly in pairs of two or three. Making the room for transparent communication (Løvoll & Einang, 2022) possible, and in accordance with the “more safe option” of going in small groups according to Ebert and Morreau (2023) and Zweifel et al. (2016). However, such small groups also run the risk of weak group cohesion (Høigaard, 2020) if there is uneven structural cohesiveness, based on the different levels of experience in the group. If they operate in complex or extreme terrain classes (Varsom.no, n.d.-a) as both participants express, there are multiple traps to avoid. On the other hand, both participants also illustrate their strategy for developing a good skiing partnership relies on a relationship orientation (Priest & Gass, 2018), and therefore most likely avoid most heuristic traps and unwanted group dynamics.

Participants were adamant in their pursuit of group members with more or less the same skiing ability as themselves. Dina (29) exemplifies this: *“if i want to ski steep, the most important factor for me is that i know my skiing partners also are able to ski down confidently in the same terrain”*. Her reasoning might suggest a fear of the “acceptance” or “social facilitation” heuristic (Tremper, 2018), meaning that she needs to know their skiing ability before considering them as partners for the trips in more complex terrain (Varsom.no, n.d.-a). In this case, the understanding of the skiing ability would prevent the above mentioned heuristics, because she knew their technical capabilities. Choosing a trip after ability is a hallmark tradition in Norwegian outdoor culture (Horgen, 2010), and presents itself multiple times among the participants: *“the combined ability of the group decided where we skied” - Isak (32)*, *“it is the sum of the groups capabilities technique wise that often decides what we know we can’t do, but also what we decide on doing” - Ulrikke (26)*. This principle is also reflected in the groups who operate in the performing stage (Priest & Gass, 2018) because of the way the group members admire and respect each other's skills and weaknesses as well as unrigid roles. These unrigid roles might refer to the democratic decision-making balance in the group (Priest & Gass, 2018), who are also appreciated by the participants. This could be due to their balance in skiing ability and conditioning because as Dina (29) frames it: *“when our skiing ability and conditioning are the same, we all have the equal amount of surplus to make decisions together. Therefore we are usually tired at the same spots, and are in sync when we want breaks and when we want to stop and discuss”*.

A wish for equality and democratic decision-making also had certain implications. Anniken (29) discusses too much equality in experience and skiing ability: *“if we are all equal in our experiences and skiing ability we might end up just being one voice instead of many. Then we just walk around in our own echo-chamber together”*. This touches on the claim of Ebert and Morreau (2023), when they explain why groups can make worse decisions than individuals. Groupthink is the group dynamic (Høigaard, 2020) that comes to mind in this scenario. In this case, homogenous skiing ability is the factor which unites the group. One can argue for the fact that this also provides collective and task cohesion (Forsyth, 2014). On the other hand, cohesive groups are fully capable of developing groupthink (Høigaard, 2020). Many participants shared experiences where they reflected around situations of groupthink. Thus, exhibiting double loop learning (Dassler et al., 2023) and the need for situated experiences (Vereide et al., 2019). Isak (32): illustrates this:

“that day, I think we were just too eager and we agreed too much. I think in retrospect it was not the best decision to ski down that face. Even though nothing happened, we both discussed afterwards that we had a bit of a sour taste in our mouth because we just agreed to easily”.

In this case, there is an argument for the “commitment” and “social facilitation” heuristics (Tremper, 2018), because they both displayed a desire to reach and descend a certain mountain face. One might also make an argument here for certain shortcomings in the strategic mindset framework (Atkins, 2014), since they also showed a “stepping out” mindset. A clear goal such as this makes for a certain tendency of the group polarization dynamic (Myers, 2013) as well as the groupthink dynamic (Høigaard, 2020). The ambivalence of the “wicked learning environment” (Hogarth et al., 2015) might also be present in the reflections, because of the “sour taste in the mouth”. Such an example illustrates how homogenous skiing ability has multifaceted connections to the decision-making process.

There are similar cases among the participants when homogenous skiing ability also acts as a positive enforcement for safe experiences. A pattern in such experiences were the enactment of the sensemaking perspective in the planning phase (Løland & Hällgren, 2022) and during the trips in the mountains (Løland et al., 2023). Homogenous skiing ability also related strongly to the agreement of a strategic mindset (Atkins, 2014), because of the conditions applying equally to the members of the group. In other words, their capabilities to ski the snow was reflected in their strategic mindset, planning phase and execution phase of the trip. *Una (36)* shares her view from a trip:

“Since we had the same skiing ability it was easy before the trip to choose a certain area with multiple options in several different aspects. There we could see with our own eyes when we got there what we would consider doing, and what we would not even consider”.

Such framing of planning and executing trips in avalanche terrain were prominent among almost all participants. The example of having multiple options on where to ski are similar to Løland and Hällgren (2022) and Løland et al. (2023). This approach seems to correlate with the avoidance of several heuristic traps, such as the “commitment”, “acceptance” and “scarcity” (Tremper, 2018). As well as exhibiting a flexible strategic mindset (Atkins, 2014), because of the “opening” and “closing” of certain terrain. This multiplicity in options would

suggest a use of all sensemaking dimensions. Monitoring the snow and weather, testing the snow and discussing its implications, thus projecting the consequences (Løland et al., 2023). As Igor (28) says: “we always let each other make first tracks to be able to feel and sense if the conditions are changing, and then it's good to know you have safer options nearby which we know we all can ski comfortably”. These examples also seem to reflect some use of rule-based probabilistic decision-making, when considering to “close ” certain terrain because of skiing ability (Landrø et al., 2020). All these arguments would suggest the possibility to claim that homogenous skiing ability can provide a tight and cohesive group (Forsyth, 2014). These groups also seem to be able to make reflected decisions based on multiple frameworks and mindsets.

Having or not having a homogenous skiing ability relates to several different group dynamics. A strong skiing ability combined with a lack of avalanche competence were presented by the participants as a stereotype skier to treat with caution. To avoid the dynamic of social loafing, transparency in communication and choosing a small group size were exhibited strategies. Homogenous skiing ability was appreciated because of its reference to a democratic decision-making framework and performing groups. Many participants had learned experientially how homogenous skiing ability could facilitate groupthink and group polarization. To mitigate this in the future, the participants employed an array of different strategies. Sensemaking, flexible strategic mindsets, probabilistic decision-making and multiple skiing options in the vicinity were the most noticeable strategies among the participants.

4.6 Group members with homogenous risk acceptance

Homogeneous risk acceptance was considered a normative ideal among most of the participants. Meaning that the participants valued members with the same level of risk acceptance as themselves. Risk acceptance was seen as the willingness to expose yourself to some avalanche danger. The participants all acknowledged the influence of residual risk (see: Brattlien, 2017; Landrø, 2021; Nes, 2018; Tremper, 2018), meaning that there was some uncertainty in the snow stability which they could not control, no matter how much they wanted to. The acknowledgement of residual risk also raises the awareness of the “wicked learning environment” (Hogarth et al., 2015). Are (31) explains:

“if you are in avalanche terrain, you accept that there is a probability for an avalanche of fatal consequence. After experiencing an avalanche, I learned that there

is no such thing as “mellow” avalanche terrain. It either is, or it is not, it's that simple”.

An opinion formed through situated experience (Vereide et al., 2019). All other participants share this categoric notion. Either on the basis of being caught themselves or knowing others having been caught and sharing the experience afterwards. As Dassler et al. (2023) and Vereide et al. (2019) demonstrate the need for reflecting over experience in avalanche terrain, it was vital to try and understand the role risk acceptance played in terms of group dynamics among the participants.

A dimension several participants shared were experiences with different risk acceptances within the group. *Vebjørn (28)* illustrates being the one with the lowest risk acceptance:

“I definitely feel the most discomfort when I am in a group where the others are willing to accept more risk than I am. Then I have to really feel and listen to my gut feeling if I should put my foot down or not, which has been really hard before. Luckily i am usually the one with the highest risk acceptance in my groups, so then it's easy for me to relate to the others with less risk acceptance because I have been in their shoes before”.

This pattern emerged unanimously among the participants. All had experiences being the one with the lowest and highest risk acceptance. Here, *Vebjørn (28)* once again demonstrates the function of situated learning (Vereide et al., 2019) and reflection (Dassler et al., 2023) to recognize the emergent pattern. Several participants explain groups of three, where a two versus one dynamic emerges in decision-making, with the influence of risk acceptance. Such instances are clear indications of group polarization (Myers, 2013), group conformity (Høigaard, 2020), “acceptance”, “expert halo” and “social facilitation” (Tremper, 2018). The two versus one dynamic also questions the findings of Ebert and Morreau (2023) and Zweifel et al. (2016). While support for problems with this dynamic are evident when Zweifel and Haegeli (2014) and Sørnum and Boger (2023) discuss implications of leadership qualities in small groups. *Are (31)* concludes: *“by all means i want to avoid the two versus one dynamic in avalanche terrain”.*

Most of the participants determined that having the highest risk acceptance in the group was influencing the experience. Pressuring others with less risk acceptance could create conforming behavior (Høigaard, 2020) as well as group polarization (Myers, 2013). Using

this pressure on others to access terrain they felt discomfoting was the last thing any of the participants wanted. *Stian (35)* shares his view: “*if someone feels discomfort because the snow feels risky to them, we turn around. it is as simple as that, i do not want to pressure anyone, it just feels wrong*”. This statement provides support to utilizing probabilistic rule-based decision making (Landrø et al., 2020) when someone feels discomfort related to risk. Even though all participants share rule-based decisions as helpful in certain contexts, most of them still employ the analytical decision-making process (Landrø, et al., 2020). Thus, showing the application of both, because the decision-making strategy depends on the situation in the group. This flexibility in decision-making complies with the sensemaking perspective of “sensing clients”, “anticipating” and “projecting” which consequences this discomfort will have in the future for the group (Løland et al., 2023). Such an ability to “make sense” of the group appears to be associated with experiential and situated learning (Vereide et al. 2019) among the participants. Following this extract from *Igor (28)* clearly shows the value of reflecting over learningful experiences (Dassler et al., 2023): “*I learned the hard way what it feels like to have the least amount of risk acceptance. And it can be easy to spot when I am in groups now just by body language and the way that person talks*”.

Another dimension of being the one with the highest risk acceptance in the group was expressed by several participants. A dissatisfaction was voiced towards the participants after trips in avalanche terrain where other participants did not feel safe but could not communicate before the trip itself was over. Such instances could relate to the participants having too much expert- or coercive power within the group (Priest & Gass, 2018). Expert power referring to competence, and the coercive power referring to the participants expressing disappointment in the group members decision-making or lack of participation (Priest & Gass, 2018). The lack of participation could imply social loafing (Myers, 2013), which would mean the participants taking a more autocratic role (Priest & Gass, 2018) in decision-making to get things moving. *Dina (29)* reflects this: “*I value efficiency, so if the group I am with struggle a bit with the decisions, I have been known to take the leadership role and get things moving*”. A statement which many participants seem to agree with, especially related to efficiency and time management. On the other hand, those statements also indicated a use of the expert halo- and scarcity heuristics (Tremper, 2018). Expert halo relating to taking the autocratic leadership role and the scarcity to the lack of efficiency social loafing creates. Furthermore, Zweifel et al. (2016) and Sørum and Boger (2023) advise against leaders with an autocratic leadership orientation.

To avoid such heuristics and the social loafing dynamic (Myers, 2013), the participants shared their most helpful strategy: time management. *Are (31)* summarizes this strategy when asked what he valued most in avalanche terrain with groups: “*having sufficient time is maybe the most important factor in avalanche terrain with groups*”. Other strategies which were practiced concentrated on “transparent communication” (Løvoll & Einang, 2022), but this seemed harder to achieve when the groups were in the storming- or norming phase and not performing (Priest & Gass, 2018). Having sufficient time to make sound decisions was crucial for guides in Løland et al. (2023) studies. To be able to delay and postpone decisions was considered a major part of projecting options for the groups (Løland et al., 2023).

Interestingly enough, the participants expressed appreciation and welcome to a leader who took an autocratic role (Priest & Gass, 2018) in decision-making for the group. *Ulrikke (26)* states: “*there does not have to be a leader in the group, but if there is a good leader in the group, I have no problem following that person*”, *Igor (28)* adds: “*a leader in the group can be super nice when they have the right qualities, if they communicate, involve the whole group, and explain why they suggest something, they are welcome*”. This indicates that a group could have a leader if certain requirements are met. Taking the time to involve all members with communication and transparency support the findings of Løvoll and Einang (2022), however, the leader must acknowledge and adapt to the group's stage of development (Priest & Gass, 2018). Apparently, a balance between task- and relationship orientation must also be found (Priest & Gass, 2018). Task refers to time, efficiency and exposure, while relationship refers to involvement, transparency and communication. This type of leadership might counter the shared findings of Zweifel et al. (2016) and Sørum and Boger (2023).

A failure to comply with the norms and rules of the group can lead to weak group cohesion (Forsyth, 2014). Several participants articulated risky behavior from group members they had been ski touring in avalanche terrain with. This behavior was not wanted and led to discrepancies within the group. The description of such a group member fit the description from Tøstesen and Langseth (2021) studies where risk acceptance had to be balanced with sufficient avalanche competence and skiing ability. If no such balance existed, this group member would run the risk of being alienated from the group (Tøstesen & Langseth, 2021). Mannberg et al. (2018) achieved similar results when studying risk taking behavior with hypothetical terrain choices. *Anniken (29)* explains such encounters:

“I have been on trips with such people in my group. It didn't take long to realize that they had a way to high risk acceptance for their own good. To be honest, all those I

have met who have behaved like that, I just don't go on trips with them in avalanche terrain anymore”.

This extract portrays what several of the participants mentioned when talking about negative experiences in groups. In multiple cases, such a group member had displayed a vast amount of either referent- or expert power (Priest & Gass, 2018). In one case, a group member had tried to downplay shooting cracks, a known danger sign for slab avalanches (Tremper, 2018). *Dina (29)* explains:

“To me it was just obvious that we should turn around when we see such big shooting cracks and see wind loading further up the mountain. But that guy did not agree with me and tried to push us further, which we did not want, so he continued and we skied back. I never skied with him again”.

In this case, the group member portrayed indications of “expert halo” and “commitment” (Tremper, 2018), a non-compliance with the conditional favorability model (Priest & Gass, 2018) and a failure to acknowledge the ecological cues from the environment (Løland et al., 2023) which *Dina (29)* referred to. Thus, different goals and motivations within the group created group polarization (Myers, 2013). These ended up in conflict and group restructuring which Priest and Gass (2018) label as factors affecting group dynamics. Another interesting observation was that a strategic mindset (Atkins, 2014) was deliberately planned for that day. But when the conditions out in the field were observed, the difference in risk acceptance had a severe effect on the application of the strategic mindset.

A homogenous risk acceptance was seen as prominent for reaching the same conclusions when making decisions in avalanche terrain. One might immediately consider groupthink (Høigaard, 2020) as having major consequences when being equal to risk and exposure. However, all participants framed that risk acceptance was something they agreed on in the groups when using a strategic mindset (Atkins, 2014) together with the avalanche forecast (Varsom.no, n.d.-d). In other words, all participants found it essential to agree on a certain level of risk exposure (Tremper, 2018) before agreeing on what to do. *Ulrikke (26)* explains: *“we also agree on what level of risk we actually accept that day, and how much uncertainty we have in the forecast. Then we go out and make our own assumption based on what we see, and discuss together to decide what to do”.* Showcasing the analytical decision-making framework (Landrø et al., 2020) in reference to making up own assumptions before deciding

anything. Meaning that new information out in the mountains could have the participants revise the forecast of the day (Varsom.no, n.d.-d) to make new decisions. This also supports the loop between monitoring, testing and projecting to make sense of what is happening in the mountains (Løland et al., 2023). In addition, transparent communication was emphasized before and during the trip in all cases (Løvoll & Einang, 2022). In this context, it seems that the homogenous risk acceptance is a factor helping to generate group cohesion (Forsyth, 2014), and discussing the risk, exposure and uncertainty beforehand can generate performing groups (Priest & Gass, 2018), where there is no room for groupthink (Høigaard, 2020), group polarization or social loafing (Myers, 2013). Again, these strategies were generated by situated experiences (Vereide et al., 2019), which questions Greene et al. (2022) conclusions on risk perception after avalanche courses and how long this risk perception lasts?

All participants described experiences of groups with heterogenous and homogenous risk acceptance. Certain group dynamics, like group polarization and group conformity related to a two versus one dynamic in a group, which all participants actively avoided. Having learned mostly through situated experiences, the participants focused their attention on strategies to involve less risk accepting group members. This was suggested to avoid group polarization and group conformity. Both analytical- and probabilistic decision-making strategies, as well as sensemaking was employed to illustrate mitigative tactics for unwanted group dynamics. Social loafing among group members with less risk acceptance were among the most striking similarities. Certain leadership qualities could prevent social loafing, on the other hand, it could also enhance the dynamic to new heights. Big gaps in risk acceptance within the group also seemed to correlate with weak group cohesion, and a tendency for enhanced group polarization. Therefore, participants valued a homogenous risk acceptance. The consequences of homogenous risk acceptance was evident in the participants descriptions of decision-making and sensemaking quality. Both before and during their trips in avalanche terrain. Strong group cohesion, lack of groupthink, communication tactics and strategic mindsets indicated evasion of other unwanted group dynamics. However, the majority of the learning originated from negative experiences in avalanche terrain. This raises questions to the avalanche course community, especially on how to develop their learning strategy without seeking negative experiences.

5 Conclusion

This chapter provides a summary of the main findings, and their relevance to the research question. Before the end, I will look back on the study with a critical lens and reflect around the implications surrounding the quality of the findings. In addition, some suggestions for future research will be provided.

The aim of this study was to explore and understand experiences of group dynamics through the lens of experienced backcountry skiers' individual perspectives. To guide my thesis, I developed the following research question:

“How does group dynamics influence decision-making among experienced backcountry skiers in avalanche terrain?”

The findings indicated several different themes which emerged as patterns across the whole dataset. Five themes were generated to explain different aspects of how group dynamics influenced decision-making. Three of these themes were constructed as normative ideals, based on my interpretation of the participants' experiences. The group dynamics consisted of five central concepts: groupthink, group cohesion, group conformity, group polarization and social loafing. The discussion of the themes and their relation to the group dynamic concepts varied somewhat in size. This divergence could signify their importance of gravity towards their influence on the decision-making process.

Group dynamics had a multitude of influence on the decision-making process. The influence was present before, during and even after ski touring in avalanche terrain. The findings indicated that different group dynamics along with aspects of the human factor were present in many of the participants' experiences. Experiences with different group dynamics played a pivotal role for the participants' selection of who to ski with, as well as deciding where to ski. The themes encompassed trustworthy relationships, decision-making consensus, higher avalanche competence, homogenous skiing ability and risk acceptance. These themes displayed dimensions the participants used to make sense of negotiating group dynamics and the human factor. These dimensions did not present a causal relationship, but rather an intricate interrelation where they all affected each other differently.

Overall, the participants showed a deep and self-reflective understanding of how group dynamics related to certain behaviors among group members and themselves. This was

demonstrated by their flexible and dynamic approach to alternate between an analytical and probabilistic decision-making framework (Landrø et al., 2020). On the other hand, the sensemaking perspective from Løland et al. (2023) provided a richer and more detailed understanding of how the participants perceived the social- and ecological cues. These cues helped the participants make sense of unwanted group dynamics and apply appropriate countermeasures.

The influence of different group dynamics was related to positive and negative experiences in avalanche terrain. I found it somewhat troubling that the most learningful situations of group dynamic influence often related to negative experiences in avalanche terrain. These findings provide more evidence to support Dassler et al. (2023) in reevaluating the lack of emphasis on the human factor and group dynamics in avalanche courses.

5.1 Critical lens and future research

These findings have emerged as an interplay between the participants and me as a researcher. The use of a qualitative method with a social constructionist epistemology has provided me with deep insight and a contextual understanding of the participants' view of their reality. All participants are shaped by the demographic location of Tromsø, which includes me as the researcher. This demographic induces research limitations such as generalizability. In other words, these findings do not necessarily relate to a bigger population. However, the qualitative method can still provide the findings with transferability to other populations. Maybe the most transferable output would relate to small groups working together to achieve common goals in an outdoor environment where a certain amount of risk is involved.

I acknowledge that these findings cannot be replicated because of my subjective interpretation of the data, and my theoretical and methodological choices. On the other hand, reflexive subjectivity has also been a tool for developing a rich and nuanced interpretation. In addition, my own preunderstanding and “inside researcher” role has been critical to explore and understand latent or hidden meanings within the dataset. A mixed method of focus-groups and narrative interviews would have been my choice of method, if I was to aim for a richer dataset with more transferability than what I was able to achieve.

Research on group dynamics within a ski touring context is still lacking (Hetland et al., 2023). This has had implications for my choices of theory, thus relying more heavily on empirical evidence than existing theory. The existing theory still lacks peer reviewed articles and

contain more conference proceeding papers (see: Haegeli et al. 2023; Johnson et al., 2020) that questions overall research quality. As Johnson et al. (2020) frames it, the avalanche research needs to look beyond the heuristic trap paradigm to develop “best practices” which can be applicable for skiers today. The aim of my master thesis has been to provide new insight into group dynamics and social factors to move “beyond” the paradigm of heuristic traps. Selecting experienced backcountry skiers was a conscious choice based on the lack of representation within the existing theory. Which has mainly focused on beginners, experts, guides or other types of professionals.

Future research should look for ways to teach skiers the influence of group dynamics on decision-making, without it being connected to negative experiences. Another interesting topic would be to explore positive experiences of learning group dynamics, and in which contexts they emerge.

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7 Attachements

7.1 Interview guide

Intervjuguide:

Tema informanter får vite: Beslutningstaking i skredterreng.

Problemstilling:

«Hvordan påvirker gruppedynamikken beslutningstaking i skredterreng blant erfarne ski- og brettkjørere?»

Nøkkelord: Gruppedynamikk, beslutningstaking, skredterreng og erfarne ski- og brettkjørere.

Før intervjuet starter:

Informert om samtykkeskjema, anonymitet, hvordan jeg vil behandle personlig informasjon samt hvordan jeg vil anvende og bruke dataene fra dette intervjuet, i tillegg til lengden på prosjektet.

Struktur: Rundt 1 time, 1-1 person intervju.

1. Kan du fortelle meg om opplevelsen av den siste turen du var på med en gruppe i skredterreng?

Oppfølging: (avhengig av svar)

1. Hvem var du på tur med, og hvorfor akkurat de? (Venner, ukjente, kjønn, alder, erfaring, homo/hetero, ledelse, makt, gruppestørrelse, interaksjoner og beslutningstaking, risikoaksept, konkurranse).
2. Hvordan bestemte dere hvor dere skulle kjøre på ski/brett? Planla dere på egenhånd eller sammen? Før, under, etter?
3. Hvordan opplevde du at dere kommuniserte som gruppe på turen?
4. Hvilke faktorer vurderte dere når dere skulle ta beslutninger? (Trekanten).
5. Lærte du noe konkret på denne turen? (Evt. Hvordan har du lært deg å ta beslutninger i skredterreng?)

2. Kan du fortelle meg om en positiv opplevelse du har hatt med en gruppe i skredterreng?

Oppfølging: (avhengig av svar)

1. Hva gjorde det til en positiv opplevelse?
2. Hvem var du på tur med, og hvorfor akkurat de? (Venner, ukjente, kjønn, alder, erfaring, homo/hetero, ledelse, makt, gruppestørrelse, interaksjoner og beslutningstaking, risikoaksept og konkurranse).
3. Hvordan opplevde du at dere kommuniserte som gruppe på denne turen?
4. Hvilke faktorer var viktigst i beslutningstakingen deres? (Trekanten).
5. Har gruppen(e) du er på tur med noen vaner eller rutiner som kan påvirke opplevelsen positivt?
6. Hvordan har du/dere lært evt. vaner/rutiner for å gjøre opplevelsene positive?
7. Hva skal til for å ha en trygg opplevelse med en gruppe i skredterreng? (Trekanten).

3. Kan du fortelle meg om en negativ opplevelse du har hatt med en gruppe i skredterreng?

Oppfølging: (avhengig av svar)

1. Hva gjorde det til en negativ opplevelse?
2. Hvem var du på tur med, og hvorfor akkurat de? (Venner, ukjente, kjønn, alder, erfaring, homo/hetero, ledelse, makt, gruppestørrelse, interaksjoner og beslutningstaking, risikoaksept og konkurranse).
3. Hvordan opplevde du at dere kommuniserte som gruppe på denne turen?
4. Hvordan opplevde du beslutningsprosessen på denne turen? Var det noen faktorer dere overså eller burde vurdert nøyere? (Trekanten).
5. Hva skal til for at man opplever utrygghet med en gruppe i skredterreng? (Trekanten).
6. Lærte du noe konkret av denne opplevelsen? Hvordan påvirkes læringen av at opplevelsen var negativ?

4. Har du noen spørsmål til meg, eller ønsker du å dele noe mer av dine egne opplevelser?

7.2 Information letter

Vil du delta i forskningsprosjektet:

«*Beslutningstaking i skredterreng*»

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å undersøke hvordan erfarne ski- og brettkjørere tar beslutninger i skredterreng. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Dette forskningsprosjektet utfyller hele min masteroppgave i idrettsvitenskap. Formålet med oppgaven er å undersøke nærmere hvordan erfarne ski- og brettkjørere tar beslutninger i skredterreng. Prosjektet går ut på intervjuer mellom forsker og ski- og brettkjører hvor jeg ønsker å se nærmere på hvilke faktorer som påvirker hvordan man tar beslutninger i skredterreng. Forskningsspørsmålene er knyttet til beslutningstaking, hvor skredterreng er den avgjørende konteksten.

Hvem er ansvarlig for forskningsprosjektet?

Idrettshøgskolen ved UiT Norges Arktiske Universitet er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Du får spørsmål om å delta fordi du utfyller en rekke utvalgsriterier. Det innebærer følgende:

Personen må ha tatt et eller flere skredkurs i løpet av de siste fem sesongene. Skredkursene omfatter grunnkurs og/eller videregående skredkurs som følger malen til Norsk Fjellsportforum. Personen må også ha vært på minimum 20 turer hvor personen var i skredterreng i løpet av turen, (dvs. Snødekt terreng brattere enn 30 graders helning) de siste fem sesongene. Personen må ha gjennomført turer i terrengklasse kompleks eller ekstrem, basert på KAST. Personen skal ikke jobbe profesjonelt med skikjøring i skredterreng som hovedinntekt. Jeg henvender meg til deg ettersom jeg har fått navnet ditt fra en felles bekjent.

Hva innebærer det for deg å delta?

Hvis du velger å delta i mitt forskningsprosjekt, vil det innebære et intervju mellom oss to på rundt en time til halvannen times varighet. Her må du være aktivt deltakende. Informasjonen

jeg ønsker fra deg tar utgangspunkt i dine opplevelser som ski- eller brettkjører i skredterreng. Intervjuene vil gjennomføres enten ved fysisk oppmøte, eller gjennom en digital løsning som Teams eller Zoom. Opptak av intervjuene vil gjøres med en ekstern båndopptaker som er kryptert i henhold til universitetsstandard.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Det er kun jeg og mine veiledere ved UiT Norges Arktiske Universitet som vil ha tilgang til opplysningene fra dette intervjuet.

For å gjøre lydopptak av intervjuene vil det benyttes en kryptert båndopptaker med passord, hvor det bare er jeg og veiledere som har tilgang. Navn, stedsnavn eller andre personlige kjennetegn som kan forringe anonymiteten vil bli kodet. Kodene vil være separert fra båndopptaker, og innelåst i et skap på idrettshøgskolen gjennom hele perioden. Gjennom den prosessen vil ingen personopplysninger kunne være sporbare. Deltakere skal ikke kunne være gjenkjennbare dersom oppgaven skal publiseres.

Følgende vil ha tilgang til datamaterialet fra intervjuet:

- Emil Telje, student.
- Marcel Reinold, veilder.
- Sigmund Andersen, veilder.

Hva skjer med personopplysningene dine når forskningsprosjektet avsluttes?

Prosjektet vil etter planen avsluttes i juni 2024. Etter prosjektslutt vil datamaterialet med dine personopplysninger slettes og være umulig å kunne spore tilbake til deg.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Idrettshøgskolen ved Universitetet i Tromsø har Sikt – Kunnskapssektorens tjenesteleverandør vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene.
- å få rettet opplysninger om deg som er feil eller misvisende.
- å få slettet personopplysninger om deg.
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- Idrettshøgskolen ved UiT Norges Arktiske Universitet ved prosjektansvarlig *Marcel Reinold*, marcel.reinold@uit.no, *Sigmund Andersen*, sigmund.andersen@uit.no eller masterstudent *Emil Telje*, ete022@uit.no.
- Vårt personvernombud: *Annikken Steinbakk*, personvernombud@uit.no.

Hvis du har spørsmål knyttet til vurderingen som er gjort av personverntjenestene fra Sikt, kan du ta kontakt via:

- Epost: personverntjenester@sikt.no eller telefon: 77 64 69 52.

Med vennlig hilsen

Marcel Reinold

Emil Telje

Forsker/veileder

Student

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet «*Beslutningstaking i skredterreng*», og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i intervju om prosjektet «*beslutningstaking i skredterreng*».

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker, dato)

7.3 Approved application from SIKT

28.05.2024, 11:15

Meldeskjema for behandling av personopplysninger



Vurdering av behandling av personopplysninger

Referansenummer
556720

Vurderingstype
Standard

Dato
15.12.2023

Tittel
Beslutningstaking i skredterreng

Behandlingsansvarlig institusjon
UiT Norges Arktiske Universitet / Det helsevitenskapelige fakultet / Idrettshøgskolen

Prosjektansvarlig
Marcel Reinold

Student
Emil Telje

Prosjektperiode
05.12.2023 - 20.06.2024

Kategorier personopplysninger
Alminnelige

Lovlig grunnlag
Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 20.06.2024.

[Meldeskjema](#)

Kommentar

OM VURDERINGEN

SIKT har en avtale med institusjonen du forsker eller studerer ved. Denne avtalen innebærer at vi skal gi deg råd slik at behandlingen av personopplysninger i prosjektet ditt er lovlig etter personvernregelverket. Vi har nå vurdert at du har lovlig grunnlag til å behandle personopplysningene.

FØLG DIN INSTITUSJONS RETNINGSLINJER

Det er institusjonen du er ansatt/student ved som avgjør hvordan du må lagre og sikre data i ditt prosjekt og hvilke databehandlere du kan bruke. Husk å bruke leverandører som din institusjon har avtale med (f.eks. ved skylagring, nettspørreskjema, videosamtale el.).

Personverntjenester legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

MELD VESENTLIGE ENDRINGER

Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til oss ved å oppdatere meldeskjemaet. Se våre nettsider om hvilke endringer du må melde: <https://sikt.no/melde-endringer-i-meldeskjema>

OPPFØLGING AV PROSJEKTET

Vi vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

