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'Where to ski?': an ethnography of how guides make sense while planning

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ABSTRACT

A ski guide's job is to take recreational skiers into avalanche terrain. In this paper, we explore how ski guides make sense of complex social and ecological contexts while planning. Our data arises out of a one-year participant ethnography of ski guiding in Norway, and shows that guides work towards becoming socio-ecologically embedded by making sense of *who* the clients and *what* the mountain conditions are, in their determination of *where* to ski. Our work, through challenging and complementing the decision-making literature, shows how guides notice and act on cues, and through this embed themselves and their clients in the ecological context. We highlight the implications of these findings both for guides working in the outdoors and leisure recreationists.

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Introduction

An avalanche in Austria's Tyrol province in 2022, killed four Swedish skiers and their Austrian ski guide. On the very same day a Norwegian client was killed by another avalanche in Austria. The difficult task of negotiating and balancing the expectations and skills of clients with the real and sometimes deadly ecological hazards of avalanches, steep cliffs, and weather to avoid accidents such as these is one that falls on the shoulders of the ski guide. Much of this negotiation unfolds during planning.

Ski guides, in the exercise of this negotiating and balancing, need to adapt their decisions continuously to the ever-changing conditions. This suggests that a significant level of sensemaking is required prior to a trip. This sensemaking, though appreciated in practice, is not well understood theoretically. We know little about how this sensemaking takes place in the field. Our research question, based on this, is therefore 'How do ski guides decide where to ski?' The increasing popularity of backcountry skiing (Landrø, 2021, p. 13) and the greater number of skiers being exposed to the dangers of the backcountry, underlines the importance of this question.

Historically, much avalanche decision-making research has focused on how individual skiers use (and not use) frameworks (methods and rules) and tools (apps, maps, forecasts etc.) (e.g., Furman et al., 2013; Hallandvik et al., 2016; Landrø, Hetland, et al., 2020; Landrø, Pfuhl, et al., 2020; Winkler et al., 2021). An emergent body of literature has also begun to recognise the influence of biases and social relations in risk assessment (e.g., Johnson et al., 2016; Mannberg, Hendrikx, Johnson & Hetland, 2021). Research in this field has focused on the execution of a trip, and on the stage in which final decisions are made. Guides, however, begin their assessment of their clients and the

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routes they can take in the trip ahead, during the planning phase (Boyes et al., 2019). Still, there is ‘a significant gap in the human dimensions research of avalanche safety’ (Zweifel & Haegeli, 2014, p. 24).

This paper is a response to calls for research that focuses on social relations (e.g., Mannberg, Hendrikx & Johnson, 2021; Zweifel & Haegeli, 2014) and to the lack of understanding of the planning phase. Our aim, with this work, is to conduct an in-situ exploration of how guides select where to ski, that complements the current literature. We interpret guides’ activities using sense-making theory, which is defined as being ‘a process prompted by violated expectations, that involve attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn’ (Maitlis & Christianson, 2014, p. 67). This definition can be applied to ski guides, due to trip selection requiring guides to make sense of ecological systems (Whiteman & Cooper, 2011) *on behalf of others*. The purpose of the paper is to contribute to the literature in leisure studies in general, and the avalanche literature specifically, by exploring the process by which ski guides make sense of their clients *and* the ecological context of their trip choice. This exploration will be carried out through ethnographic fieldwork, which is known for its ability to access such processes (Hammersley & Atkinson, 2019).

Our work makes two contributions to the field. First, we find that guides, in contrast to that described in the decision-making-oriented literature, work hard to become socio-ecologically embedded, and to through this identify trips that strike a balance between client skills, expectations and ecological conditions. Socio-ecological embeddedness is the process by which actors, with and on the behalf of others, become rooted in the land through noticing, bracketing, and selecting from cues. We show that social considerations alter the meaning of ecological conditions. Second, our ethnographic fieldwork also benefits the avalanche decision-making literature, the fieldwork revealing nuances that surveys, questionnaires, experiments, and post-tour interviews have difficulty uncovering.

Theoretical background

Ski guide decision making

Research into skier decision-making in avalanche terrain adopts one of two main perspectives. The first perspective explores the assessment of ecological conditions and the individual decision-maker. Avalanche risk is primarily managed through (1) assessing the local weather, snowpack, and recent avalanche activity and (2) selecting terrain that limits the participants’ exposure to hazards (Thumlert & Haegeli, 2018). Landrø, Pfuhl, et al., 2020 identify 53 factors which should be considered in planning trips, such as loading of new snow and critical warming. Many of the factors change in time and space, and evaluations furthermore being influenced by individual perception of risk (Hallandvik et al., 2017). The rare study of ski guides by Stewart-Patterson (2014) found that guide decision-making is contingent on intuition (and expertise) on the natural conditions. Misleading and inconsistent feedback loops of the nature impact and bias the decision. Recognising the value of the perspective and without trying to diminish past contributions, recent research has shown that human interactions also have an impact.

The second perspective treats decision-making as being impacted by social biases and individual biases, including motivations, emotional responses, and non-conscious cognitive biases. Zweifel and Haegeli (2014) found, for example, that groups without a designated leader, group members wanting to ski on a particular mountain and poor communication lead to riskier decisions. Skiers concerned with social status were also found to make riskier decisions (Mannberg, Hendrikx & Johnson, 2021). Operational pressures could also lead to guides selecting exposed terrain (Johnson et al., 2016), including clients wanting exciting, challenging, or scenic routes (Rokenes et al., 2015).

Both perspectives emphasise the need for cross-stream research that accounts for both the ecological *and* social contexts. Qualitative studies of how skiers decide where to ski is notably absent in the research literature, both perspective streams being instead part of a decision making-paradigm that focuses on the conditions for and the assessment of decisions that avoid decision errors (e.g., Johnson et al., 2020; Mannberg, Hendriks, Johnson & Hetland, 2021). Importantly, for biases to occur, there is an ontological assumption that there is an objective, accurate answer to be biased relative to (Boland, 2008). Both perspectives, thus, take an ‘objective’ measure of human attributes and ecological conditions. We, however, take a different approach in understanding how guides determine where to take their clients, an approach that uses sensemaking theory.

Making sense of human activity exposed to nature

Sensemaking is the way that individuals and/or groups attach meaning to their experiences in their world. Its roots are in social constructivism and sensemaking is concerned with the ways people generate what they interpret. Ontologically, the ‘truth’ is relative to the sensemaker and is actively constructed. Sensemaking is a socially grounded process by which an actor enacts the world, to construct a plausible solution that is based on previous experience, logic, identities, and mental maps. A key phrase is ‘How do I know what I think until I hear what I say?’ (Weick, 1995). The greater appreciation of activity means that today ‘what I say’ can be changed to ‘what I do’, the insight being that until we do, we do not have access to what we think, feel and consider the action may mean (c.f. de Rond et al., 2019). ‘Doing’ represents enactment, constituting ‘an unformed meaning’ (Boland, 2008, p. 57). A sensemaker first notices and brackets a cue, such as a client’s nervous smile. The emergence of an expectancy framework informed by past experiences and future aspirations then provides boundaries to and an understanding of appropriate behaviours (Patriotta & Gruber, 2015). The sensemaker acts to find out ‘What is going on here?’, based on this understanding (Weick, 1995, p. 50). Subsequent feedback facilitates understanding, and is retained for future sensemaking. Sensemaking theory is therefore important in the development of an understanding of how guides create meaning, and meaning is important for how we see guide work (Sandberg, 2000).

Ski guides operate in mountains. Therefore, we focus on the ecological processes and to how ‘actors notice, bracket, make, select connections and act on spatial and temporal cues arising from topography and ecological processes’ (Whiteman & Cooper, 2011, p. 905). *Noticing* refer to how people identify cues, *bracketing* how actors begin to categorise and label the experience, and *selecting* the activity of choosing a plausible explanation (Weick et al., 2005, p. 414). The more embedded or rooted in the land a person is, the more they are able to continuously update and act on cues. The scarce literature on ecological sensemaking shows, for example, that dairy farmers use their experience, gathered by traversing the land, and/or the local physical experience of other farmers, to make sense of weather patterns (Tisch & Galbreath, 2018). Good (2021) similarly shows that Alaskan fishing skippers make sense of where to fish by relating their experience to current conditions, and by using tools such as plotters and sonars and information from other skippers. Bond (2015) finds that people rely on a mix of cues, like barking dogs and neighbours banging drums, to establish the presence of an elephant in the vicinity. Bond concludes that farmers undergo sensemaking processes differently, their social and ecological embeddedness in their environment determining the process. A common denominator across the literature is a focus on the setting, and little attention being paid to sensemaking on behalf of others.

Decision-making vs sensemaking

It is beyond the scope of this paper to provide a full review, but to position sensemaking vis-à-vis decision-making we briefly consider key differences (see also Boland, 2008; Winch & Maytorena, 2009). A decision-making lens is used within a problem space, to collect information, to reduce

uncertainty and increase accuracy, additional information revealing an optimal alternative that solves a future problem. The assumption is that the process is inherently biased, and that flawed decisions are due to cognitive constraints in which decision-makers are instructed to avoid past experiences. Originating in this tradition, Naturalistic decision-making (NDM) and its precursor situational awareness have received significant interest in the avalanche literature. Both theories focus on how experts cognitively frame decisions as they happen (e.g., Endsley, 1995; Shattuck & Miller, 2006). Similarly to both, sensemaking's initial interest was cognitive processes. However, during the past two decades, sensemaking has drifted towards more embodied perspectives. Rather than emphasising the 'de-biasing' of decisions, heuristics, and decisions as inflection points (see e.g., Kahneman & Klein, 2009; Winch & Maytorena, 2009); sensemaking theory has come to emphasise emotional, material, and bodily experiences of people as they construct meaning of what they are doing. In difference to the avalanche literature's focus on reducing uncertainty by collecting information and making accurate decisions, sensemaking focuses on reducing ambiguity by reciprocally referring to the past, to find a plausible (rather than accurate) explanation in the present. It is in decision-making assumed that we first understand and then act. In sensemaking it is assumed that we use the past to construct our way of understanding (Good, 2021). The process itself is tacit and emergent rather than consisting of one-off 'decision points' and emphasises the uncertain context that the sensemaker is in. Snook's (2001) analysis of the accidental shutdown of two friendly helicopters indicate the difference:

This is not an incident where F-15 pilots 'decided' to pull the trigger . . . Framing the individual-level puzzle as a question of meaning rather than deciding shifts the emphasis away from individual decision-makers towards a point somewhere 'out there' where context and individual action overlap. . . . Such a reframing – from decision making to sensemaking – opened my eyes to the possibility that, given the circumstances, even I could have made the same 'dumb mistake'
(in Weick et al., 2005, p. 410).

We now turn to the lived experience of ski guiding, to shed light on the sensemaking process.

Methodology

We are interested in how ski guides plan ski trips. Behaviour in avalanche terrain should, as noted by Mannberg et al. (2018, p. 46), be analysed in real-life. Effective qualitative inquiry requires first-hand experience and a deep understanding of the ecology (Whiteman, 2010, p. 129). Such research is, though, largely absent in the avalanche research community (Gstaettner et al., 2018).

Norwegian ski guiding

The role of the ski guide is to provide a high-quality skiing experience to paying clients in an uncontrolled mountainous terrain (Stewart-Patterson, 2016). A guided ski trip can be divided into three phases: the planning phase, the execution phase, and the post-trip phase (see also Landrø, 2021, p. 18). Planning can, in turn, be divided into long-term preparation, formal meetings, day-by-day planning, and thinking immediately before an event (Boyes et al., 2019). Ski guides in Norway typically operate alone or in pairs, each guide being responsible for 4–6 clients. Guided trips are often based at lodges or small hotels close to the mountains, groups typically booking 2–4 days of skiing. Rescue services are far from the remote Norwegian mountains, and guides need to plan with this in mind.

Guides are not required to hold a licence to operate in Norway. The Norwegian Mountain Guides Association (member of the International Federation of Mountain Guides Associations (IFMGA)) does, however, provide training and certification that focuses on the development of the skills required to ski and climb in the mountains with clients. There are currently around 100 certified IFMGA guides in Norway.

Data collection

According to the anthropologist Geertz (1973, p. 5) ‘if you want to understand what [ski guiding] is, you should look in its first instance, not at its theories or its findings . . . you should look at what the practitioners of it do’. We, therefore, turn to ethnography for data collection. Ethnography allows us to explore the interactions between people and the ecological conditions through which shared meaning are enacted (Musca Neukirch et al., 2018, p. 711). While ethnography is not a requirement for sensemaking research, participating in the setting rather than passively observing, collecting surveys or using databases, the researcher gains a richer understanding and personal experience of the activities (de Rond et al., 2019, p. 1964).

The second author is a back-country skiing novice. In contrast, Stig is an IFMGA guide with 20 years of ski guiding experience. Stig observed six IFMGA guides (1 female)¹ with 15–30 years of guiding experience, from four guiding companies, and their interaction with 66 clients. He followed each guide for one to four days, in total 17 days. Some guides were observed interacting with several groups and across consecutive days, to ensure the reflection of reality in the data and to create variety. The fieldwork included five mountain areas of challenging and complex avalanche terrain, avalanche danger levels here ranging from moderate to high. The fieldwork was collected between January and June 2021. In every instance, informed consent were ensured before the fieldwork (Spradley, 1980).

In accordance with ethnographic best practices (Hammersley & Atkinson, 2019), Stig observed the groups from early morning to late at night. This included observing planning sessions, meetings with clients, and participating in the trip. Our focus in this paper is, however, on planning activities, which began with Stig meeting the guide prior to the trip, and ending with the group putting their skis on. Our focus was primarily on what guides noticed and acted on in their planning of an upcoming trip.

Initially, Stig collected data as a passive observer. He soon transitioned to becoming a participant observer (Spradley, 1980). As a participant observer, assuming the role of a co-guide but fully disclosing his dual role as a researcher, transformed Stig from a ‘useless researcher’ to an active member. This allowed for deeper relationships and better data (Gold, 1958). During the data collection, the risk of ‘going native’ (becoming too close to the participants) was reduced through introspection, questioning preunderstandings, and consistently asking ‘what’s going on here?’ (Spradley, 1980), in addition to (naïve) questions about the fieldnotes from Markus.

Fieldnotes were written invisible to the group, such as in hotel lobbies or by voice memo while breaking trail, to reduce any perceived distance to the participants. Observations were complemented with extensive reflective memoing, and ethnographic interviews with guides and clients. Notes were fully transcribed within 24 hours (Hammersley & Atkinson, 2019; Van Maanen, 2011) and resulted in more than 300 pages of fieldnotes.

Analysis

We used a grounded theorising strategy and an inductive research design (Langley, 1999). This allowed us to go into the field with a broad interest in how guides decide where to ski. This also allowed emerging theoretical ideas to be continuously refined, and additional empirical material to be collected, which is consistent with an ethnographic approach (Hammersley & Atkinson, 2019).

We first read the transcripts, and then constructed a timeline from the fieldnotes, to obtain an overview of the planning activities. We identified two types of cues: *social cues*, which relate to human interactions such as discussing expectations, and *ecological cues*, which relate to ecological conditions such as topography, weather, and snow. Second, we mobilised the sensemaking literature (Weick, 1995; Whiteman & Cooper, 2011), focusing on what the guides noticed and the actions they took to enact and select among the cues to arrive at a plausible understanding (Sandberg & Tsoukas, 2015). Stig coded the empirical material in detail using NVivo and the theoretical

concepts. To avoid taking for granted assumptions of the first author, Markus assumed the role of the devil's advocate 'who asked critical questions and introduced alternative explanations of the data to improve the quality of the theorising' (Rerup & Feldman, 2011, p. 584). This allowed us to challenge and broaden the interpretation of the material.

Relying on grounded theory, the data was structured using emergent categories organised into theoretical dimensions (Gioia et al., 2012). We used the work of Gioia and colleagues as a template to link and visualise the emergence of theoretical ideas from empirical findings. The fieldnotes were first coded line by line into first-order nodes, the nodes becoming clearer as we identified commonalities and differences. For example, discussing the weather forecast became one node, and consulting the avalanche forecast another. We then identified second-order themes explained by multiple nodes, this allowing more abstract ideas to emerge. For example, the avalanche forecast and maps became 'tooling'. Finally, the second-order findings were developed into two theoretical dimensions that underpinned our ski guiding process model. These theoretical dimensions include social embeddedness and ecological embeddedness, the guides reciprocally and iteratively merging these dimensions in their planning, to make sense of where to ski, becoming through this socio-ecologically embedded (see Figure 1).

Findings

All planning sessions were slightly different. There were, however, commonalities. The planning phase and sensemaking began with a booking, which provided the guide with rudimentary information. Stian explains, '*the guests² are 6 individuals from Bærum who have booked a two-day tour in the Sogndal area. I've never met them before. They would like trips around 1000 vertical metres.*' The guide, as the trip date approaches, begins to collect information on the natural conditions and on the clients, seeking more information the less familiar they are with the clients and current conditions. We identified two types of cues for guide sensemaking: *social cues* and *ecological cues* (see Figure 2). Two patterns, made up of different practices, are salient: *past socio-ecological embeddedness* and *current socio-ecological embedding processes*, these reducing ambiguity into viable skiing options. Current embeddings notably rely on past embeddedness such as snow conditions, guides enacting their environment in the current embedding process. This sensemaking process of how ski guides notice, bracket, and select among cues (Weick, 1995), is explained in detail in the next section.

Past socio-ecological embeddedness

A guide can be embedded to varying degrees, past socio-ecological embeddedness referring to the experience a guide has of the setting he is trying to make sense of. Some guides have lived most of their lives in the mountains where they work. Others have never been in the area they work in. Guides on some trips ski with clients they just met, and on others with clients who return year after year for a decade. Understanding is based on expectations, irrespective of how well the guides know the ecological environment and the clients. For example Ole (guide), when reading through a list of clients' names, exclaims: '*oh yeah, that guy, I remember him from last year*'. A spontaneous discussion then ensues of which trips are suitable, based on knowing this client well. Adaptions may, however, need to be made as a well-known client can, for example, be '*in worse shape than he normally is*' (Lars, guide).

Past embeddedness also refers to ecological conditions. For example, Stig asks Lars (guide) if he has been on a specific trip before, Lars replying: '*just once before. And I don't quite know whether I remember all the [route] tricks*', Ole (guide) adding '*It has been windy today too, so it is not easy to know what the [avalanche] conditions are like*'.

Past embeddedness also includes training and experience. For example, Terje says: '*There is going to be crust and bad skiing where the sun has been [melting the surface]*'. Here, the guide demonstrates a general knowledge of snow metamorphism and how this will affect the skiing conditions and the

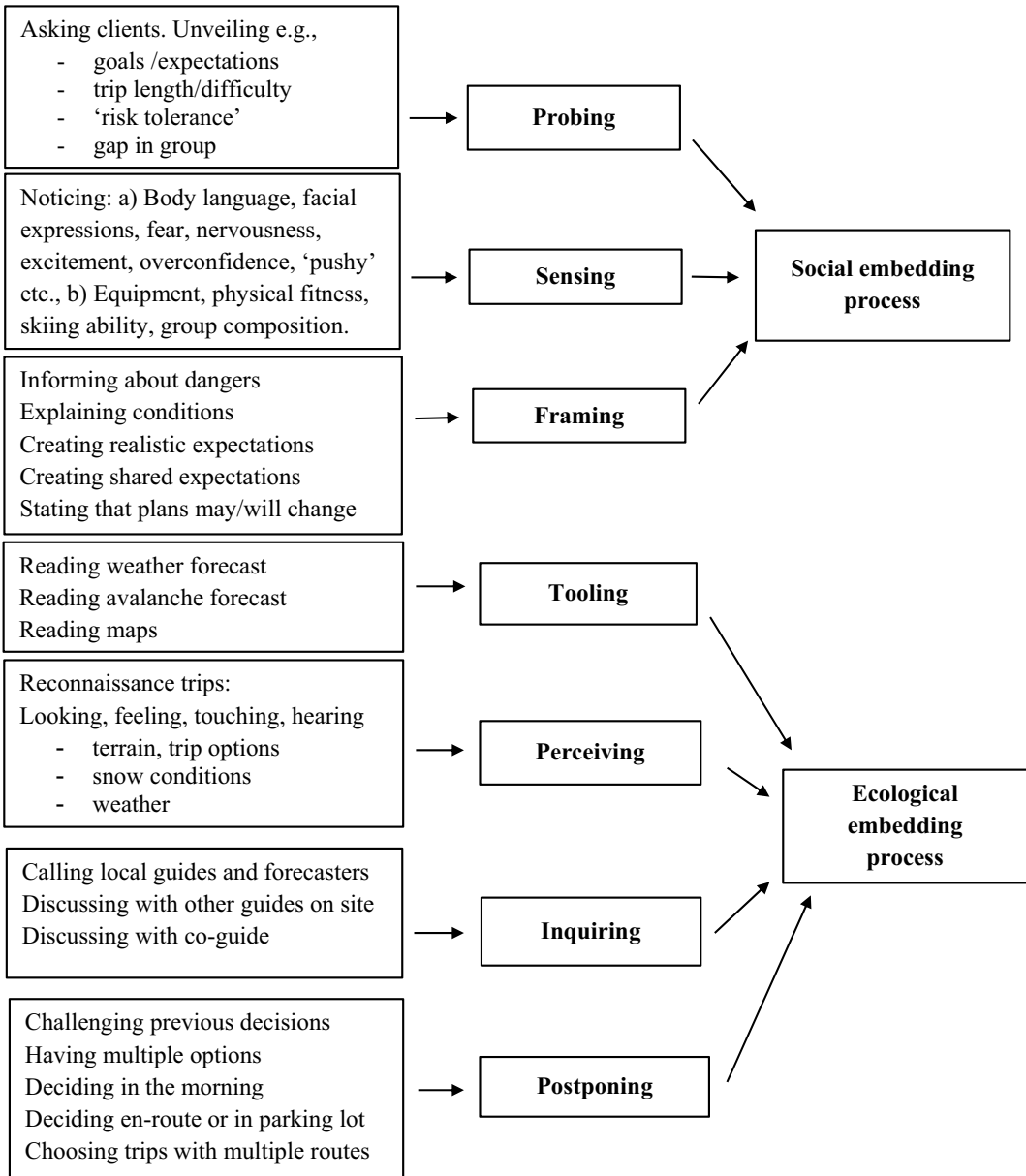


Figure 1. Data structure.

experiences for the clients. Past embeddedness is important but is not a guarantee for current embeddedness, as both nature and clients are subject to changes. Guides therefore need to embed themselves in the current context. We describe retention at the end of the findings, to both close the sensemaking loop and show how current experiences create cues for the future.

Who are the clients?

Guides consider it critical, in planning, to 'talk to all the guests before we decide on a trip.' (Trude, guide). This is usually a one hour meeting at which all are physically present, on the night before the

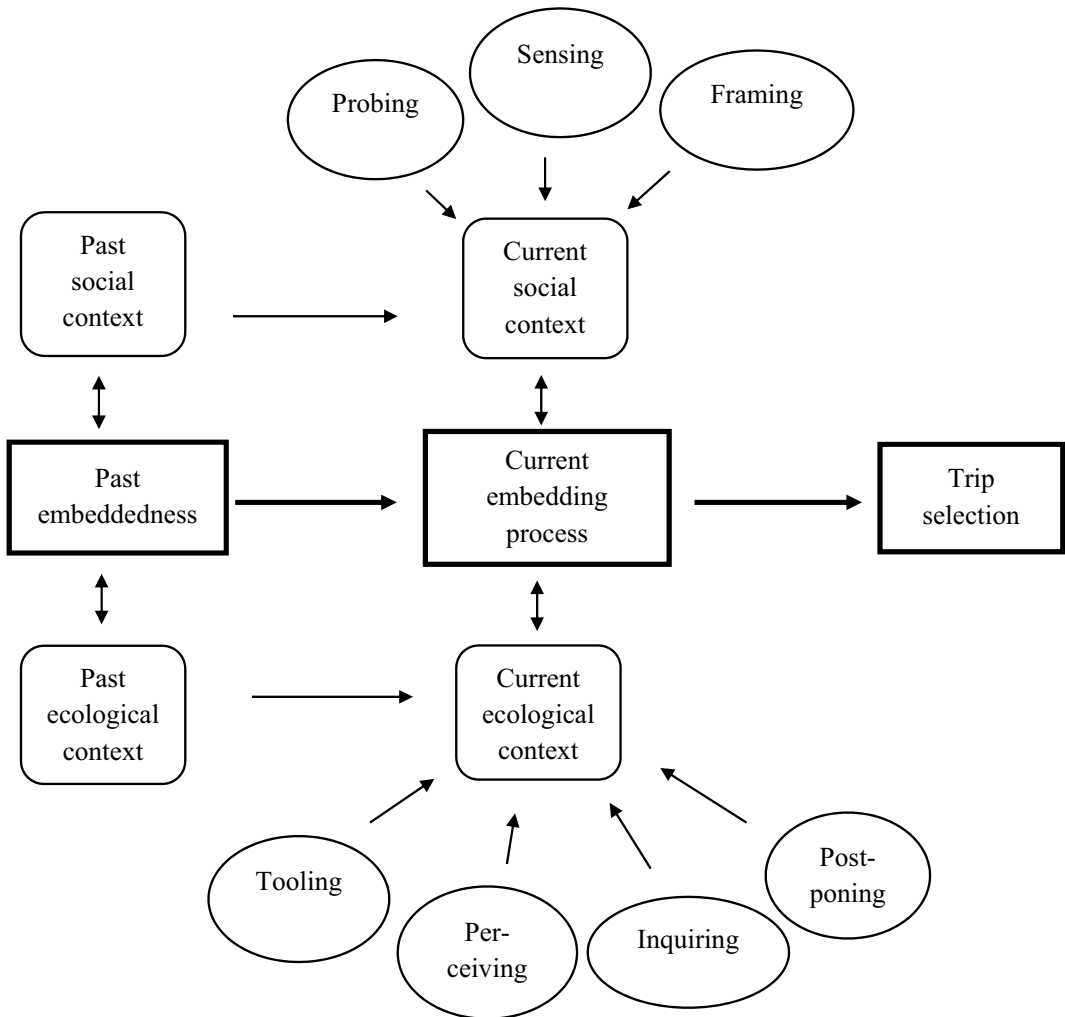


Figure 2. Ski guide sensemaking.

trip. The purpose of the meeting is to get an idea of what the clients want and can do. We identified three themes in the meetings that relate to the improvement of embeddedness with the social aspects of the trip: 1) probing, 2) sensing, and 3) framing.

Probing

Probing clients is asking the clients what they want to do and what their expectations are, for example:

Terje (guide): *‘What would you like to do? Do you have any particular goals or experiences you would like to have during the trip? What are your expectations for these days? Peaks or skiing or something else?’*

Per (client): *‘skiing’* the others nodding in agreement.

Anna (client): *‘... and nice trips’*

This exchange is prototypical of the conversations that we observed, trip wishes also often including *‘having a good time with friends’*. Sometimes wishes to reach specific summits or for steep

exposed skiing are voiced. These verbal cues reduce the options of where to go, but not to an extent that a final choice emerges.

Sensing

Sensing clients relates to *how* things are said rather than *what* is said. Sensing clients is therefore subtler than probing. Guides pick up cues when meeting clients face to face, including on perceived physical fitness, skiing ability and risk acceptance, cues being detected for example through body language and facial expressions, type of equipment, the atmosphere in the room, what they drink, and how much. Cues help guides understand what the clients, as individuals and as a group, are capable of and comfortable with, and provide details on their plausible interpretation of the trips available.

Sensing clients, however, requires a sensate guide. For example, when Stian (guide) suggests a long trip, five of the six clients immediately smile and call out, *'Oh yes, we'll take that!'* Mari, the sixth client, remains silent and has a serious look on her face. She does not smile. Mari is not comfortable with the trip suggestion' (fieldnotes). Stian still decides on the longer trip, explaining to Stig: *'They all look like good skiers, but we'll have to see how good they are uphill'*. The words indicate that Mari's nervousness probably is unwarranted, *'as she does not look any less fit than the rest of the group'*. This exchange shows that cues rely on comparisons with similar groups from the past and guides also often refer to clients as more or less typical.

Guides also pick up cues from everyday interactions. For example, a client laughingly jokes to his friends about the crampons he just received: *'Heck, do we have to carry all this stuff?'* This cue helped the guide assemble the client puzzle, as demonstrated by Andreas' later comment to his fellow guide: *'These guys want it as easy as possible. We might as well do an easier trip'*. This demonstrates that guide planning is a continuous sensemaking process. Cues help guides reduce the options, but guides do need client agreement.

Framing

Framing is the portrayal of potential courses of action in a particular way (Weick, 1995). The guides use framing to avoid future problems by, for example,

taking away the potential pressure for steep skiing [if conditions are unfavourable] by talking to the clients early on. Both on the phone and in the meeting. I want to communicate early on what I accept and what I do not accept. (Terje, guide)

Framing is also used to familiarise the clients with the conditions. For example, Stian explains, with a seriousness to his voice, the route on the map: *'In serious conditions like we have now, we have to . . . avoid steeper sections, to avoid being caught by avalanches'*. 'The clients fall silent, their smiles fading, replaced by serious nodding' (fieldnotes).

Framing is also used to create realistic expectations. Håkon explains to a group of clients, *'we will not get knee-deep powder, because it has blown off to the sea'*. Positive framing can also be used to gain support for preferred options. Terje tells his clients that, *'it's possible that we instead do a few runs in the forest to get the most out of the best snow conditions we have had in ages. What do you think about that?'* The clients are quick to nod in approval, *'that sounds like a good plan!'* they answer.

Guides try to (re)frame the situation where there is little agreement on where to ski. Tor (guide) explains:

It's a bit of a hassle to get everyone to agree that the goal is good skiing and that the summit is less important. Most of the time it works well. But I must sit for a while with the clients on the first night and talk through this, so that everyone has the same understanding of what is going to happen.

The common frame of ‘good skiing’ creates a space in which a suitable trip can be picked. The guides communicate to their clients, in challenging ecological conditions, that ‘we’ll just have to see which trips or summits we go for’, and that plans may change.

In contrast to probing, which is a matter of information exchange, sensing and framing are two practices that rely on developing a feeling for what the clients want and influencing how clients understand a situation, respectively. We come to understand guide work as reaching a common frame of understanding and expectation, embedding both themselves and their clients in the process. Still, guides also has to consider the forces of nature.

What are the conditions?

Ecological sensemaking is ‘the way actors notice, bracket, make, select connections and act on spatial and temporal cues arising from topography and ecological processes’ Whiteman and Cooper (2011, p. 905). Guides use different ways of becoming ecologically embedded: 1) tooling, 2) perceiving, 3) inquiring, and 4) postponing. Most ecological sensemaking unfolds outside of, and starts before the client meeting. Ecological embeddedness ultimately, however, aligns with the image of the clients that emerges from interacting with them.

Tooling

Tooling is the use of artefacts to make sense of the ecological conditions (c.f. Good, 2021; Tisch & Galbreath, 2018). The guides’ primary tools are weather forecasts, avalanche forecasts, and an overwhelming use of maps in electronic and/or paper format to make sense of the terrain, and ecological processes. Guides often sit, on and off, for hours discussing routes and plausible trips both in known and unknown locations (Weick, 1995). They use maps as a medium to prompt discussion, as they look for options and pitfalls. For example, as described in the fieldnotes: ‘Lars unfolds a large paper map.

Stig: *‘Blåfjellet and Unhjemsbotn then?’*

Lars: *‘Look good, but depends on what the wind has done with the snow there, it’s facing the wind, the snow is probably harder’.*

Stig: *‘Mm. Possibly’.*

Lars: *‘What about Hurrungen? Northwest facing, 800 metres’.*

Stig: *‘Not bad. A little short, and few options along the way. In case, we have to do a few laps where the snow is best’.*

How long the discussions last is dependent on the conditions, the terrain, and the clients. Tools, however, only provide limited information, requiring guides to collect in-depth cues.

Perceiving

Perceiving refers to personally having sensed the mountain conditions. Both guides in the following excerpt had read the forecasts and were in mountains well known to them, but were still unsure:

Lars: *‘I have no idea where to ski tomorrow. I have no clue! . . . I took a short trip today, but only just above the tree line, so I don’t know how it looks higher up’.*

Stig: *‘I haven’t been skiing on Sunnmøre lately either, not after the last snowfall’.*

Both guides had little experience of recent conditions. Even Lars’ trip to the mountain did not reveal enough information, as he did not have time to go higher. Unable to go higher, Lars could not ‘feel’ the snow conditions by skiing it. Nor could Lars visually and sensorially inspect the stability by digging snow pits or perceive other signs of avalanche danger. Andreas (guide), on the other hand,

and on another occasion, says, ‘I was here on Sunday, so I’m pretty updated on the conditions and snow. There is a lot of [trips] we can do’. He adds ‘knowing the area like the back of my hand makes the work much easier’. Previous experience goes some way but personal, direct and recent experience of the topography and conditions is highly valued. Guides therefore ideally carry out reconnaissance trips, turning to their peers where a hectic schedule or long commuting distances does not allow for such immersion.

Inquiring

Inquiring refers to reaching out to others that may have current ecological site-specific knowledge. Guides seek, through inquiring, to complement, contradict, and inform their own understandings through the embeddedness of others. Andreas reflects, after inquiring with two fellow guides that were more embedded,

there is no point in going for something that is uncertain when another guide was there today, and you can know something for sure. There is no information that is better than that. As fresh and relevant as it gets.

Inquiring practice can include asking peers, friends, and friends of friends. Conversations also unfolded in a myriad of ways, including face to face in hotel lobbies or by phone.

We observed guides frequently discuss mountain conditions when they met. Particularly when conditions are challenging, such as in high avalanche risk areas or periods. These informal ad-hoc discussions then become extensive, but also timing in relation to the trip is important.

Postponing

Postponing includes delaying further sensemaking until later. Håkon explains: ‘I often have two or three [trip] options, and decide when I look at the weather right after getting up [in the morning]’. Guides, by postponing trip selection, have the benefit of fresh information and can better assess the alternatives they identified the night before. They also deliberately challenge previous choices. For example, Lars asked Stig early one morning ‘have you come up with why we shouldn’t do this [trip]?’

Guides also postpone the final choice until they are en-route to or at the parking lot ready for departure to the tentatively planned skiing area, when conditions are particularly difficult to assess. Trude explains to her clients when at the parking lot: ‘We see both mountains. From what I see now, the one on the right looks better’. Guides improve their knowledge of conditions by postponing the final choice, and through this become more embedded through directly perceiving the conditions. A final way of leaving options open, is to select a trip that has multiple route options along the way. Tor explains: ‘It’s a good trip . . . it’s possible to vary it a lot, go up here or there, depending on how fit [the clients] are and what they want to do’.

The guide must, thus, even though trip selection can be delayed, ultimately decide upon which trip is the best match.

Where to ski?

Social and ecological cues impact other social and ecological cues at any stage, as in this example where Lars is talking about a known client: ‘he can suddenly disappear or ski right where I told them not to. That limits which trips I can choose’. It is, of course, not always as pronounced as in this example. Even so, Lars suggests that the trip chosen ‘depends a lot on the guests. You must play the cards you are dealt. “Here the snow is good. Ok we start with that”. How can we then make the best use of the snow, the light, the terrain?’ He also sarcastically notes that ‘we have to find a trip where we a) don’t die, and b) get good skiing’. The answer to the question of where to ski is, therefore, a matter of reciprocally aligning *who* (guides and clients) to *what* (ecological conditions), to determine *where to ski* (the trip). The retention process explained below provides feedback into future social and ecological cues.

Retention of socio-ecological experiences

We observed the guides across consecutive skiing days. This allowed us to see how experiences from the first day of skiing, through providing information to the next day, became a part of the guide's past socio-ecological embeddedness (see [Figure 3](#)). This closes the sensemaking loop (Weick, 1995). Andreas reflects on the first day of skiing; *'This is going to be great. We can do ok trips with these [clients] ... The skiing conditions were good too, better than I had thought'*. Observing the clients in the mountains, and directly perceiving the conditions, provide guides with relevant socio-ecological information. Many guides, therefore, prefer to start a multiple-day trip with an easier first day. For example, Terje, talking to his clients, said: *'But it's only the first day, so we can get to know both the snow and each other. It makes it easier to find out what to do on the other days'*.

The selection by guides of where to ski is a complex, dynamic, and multiple-layered question. By our descriptions of vocal, visual, and sensate cues, cues appear more direct than they are because of the inadequacies of the written word. The struggle to decide, therefore, appears for analytical reasons, less complex and dynamic than it is. Instead, the understanding is often hidden in minor interactions and 'readings' of the conditions that create a 'feeling' for the situation.

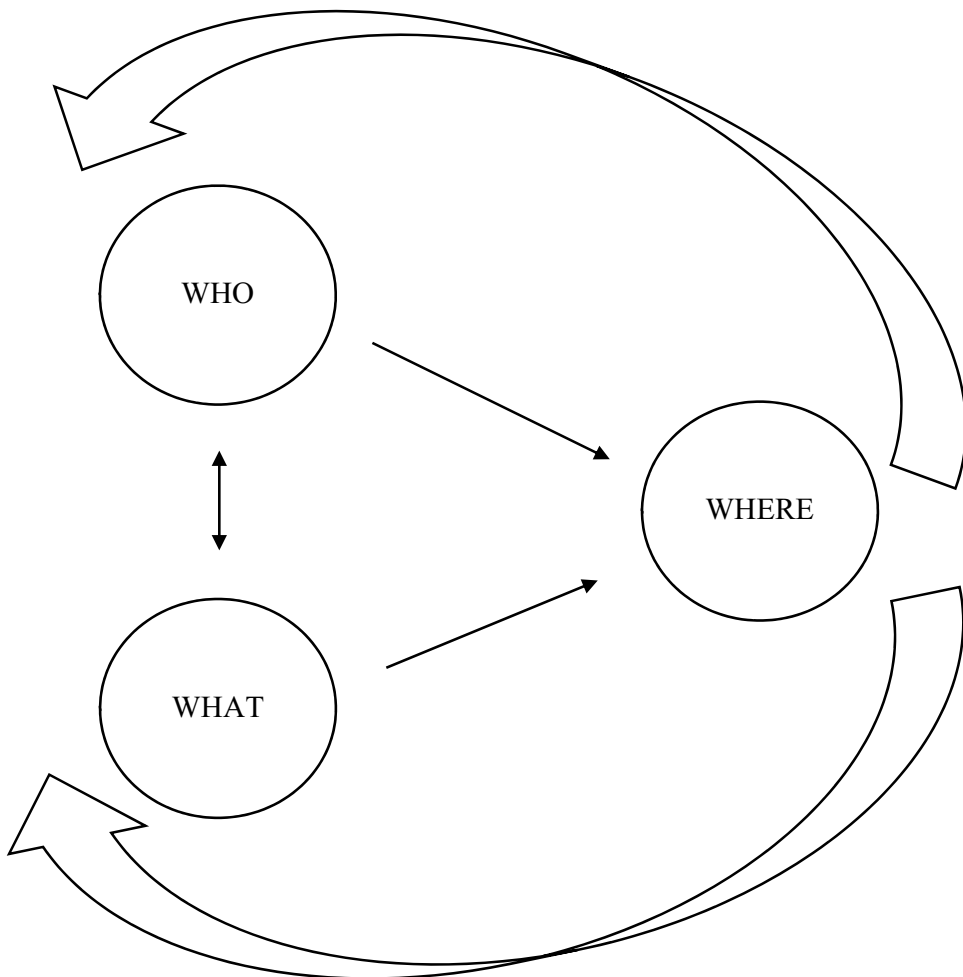


Figure 3. Who, What, Where?.

Discussion

This paper explores how ski guides make sense of where to ski and offers a novel theoretical explanation of how embedding practices are critical for the planning process. Existing literature on decision making in avalanche terrain does not fully explain this. Yet, it is what we observed during our season-long ethnography.

Towards a context-rich understanding of planning in avalanche terrain

According to Boyes et al. (2019), planning in avalanche terrain consists of four discrete stages: long-term preparation, formal meetings, day-by-day planning, and thinking immediately before an event. While we identify similar phases, our findings reveal that these take place as a continuous process of interacting actions, rather than a series of deliberate decisions that end in a distinct plan of where to ski.

Thumlert and Haegeli (2018) have suggested that mitigating avalanche risk is primarily a matter of assessing the weather, the snow, recent avalanche activity and selecting safe terrain. In this respect, and like Landrø, Hetland, et al. (2020)'s identification of 53 factors guides should consider, we noted guides engage in a continuous assessment to ecologically embed themselves in the environment. By engaging with available ecological information, guides collect 'objective' information that is important for their understanding. We postulate that the continuous assessment rises due to doubt about the complex and ever-changing conditions (Hallandvik et al., 2017) and uncertainty from possibly inconsistent feedback loops (Stewart-Patterson, 2014). In addition, our observations suggest that social dynamics also change the meaning of the conditions and vice-versa.

By embedding themselves socially, guides gain increased understanding of what the conditions may mean to clients. What is easy for some clients is hard for others. Even if the conditions are the same, the implications are different, depending on the context. This is important because it is the responsibility of the guide to provide a safe and memorable trip aligned with the expectations of their clients. Research on social and individual biases in avalanche terrain suggests that group composition, lack of leadership, poor communication (Zweifel & Haegeli, 2014), search for social status (Mannberg, Hendrikx & Johnson, 2021) and operational pressures (Johnson et al., 2016) matter for where skiers go. We did not observe direct biases that affected where to ski, besides a feeling of pressure to do a good job. We find, though, that guides become socially embedded by consistent communication and observation of both what is said – or not, body postures and the 'feeling' in the room and within the group. These findings suggest that an in-depth contextual understanding is important for guides' decisions. The main contribution of this article, thus, lies in how sensemaking help to explain how embedding practices create plausibly safe and memorable experiences.

In contrast to extant theorising on avalanche decision making that employs an objective ontology, and focuses on cognitive abilities, and a decision, the starting point of sensemaking theory is a subjective ontology and a continuous series of actions (Weick, 1995). While theories of decision making, including naturalistic decision-making and situational awareness, help us to understand some of the puzzles of human behaviour, such theories remain too cognitively oriented (see e.g., Endsley, 1995; Kahneman & Klein, 2009) and less interested in the construction of meaning. Focusing on actions, the identified embedding process suggests that 'objective' measures, e.g., snow conditions and group composition, result in context-free, simplified understandings of where to ski. This is consistent with the research on ecological sensemaking, where natural conditions only give meaning to others when shared (Whiteman & Cooper, 2011). When ecological and social aspects are seen as context-free they lose some of their meaning. Sensemaking theory, thus, allows us to show a rich context-laden understanding of the complexities of guide work, and enable us to challenge extant theorising. Instead of applying 'objective' knowledge and skills to a particular setting, guide work becomes 'the meaning work takes on for [guides] in their experience

of it' (Sandberg, 2000, p. 9). Meaning is not just associated with cognitive processes but is also tied to the embodied experience it takes on in a particular situation.

There has been a long-standing concern that skiers rarely use decision making frameworks to assess avalanche risk. We theorise that regardless of how complex a framework is, a framework assumes that there can be context-free 'objective' observations, and that these can be used to simulate isolated decisions. The reiterative and reciprocal nature of socio-ecological embedding, however, means that plans are in flux, and where to go is continuously negotiated through the actions of the guides. Put differently, *who* and *what* reciprocally and recursively influence *where* to ski. The famous quote of Dwight D. Eisenhower 'Plans [a noun] are nothing. Planning [a verb] is everything' thus holds.

Limitations & future research

Ethnographic research is limited by the number of situations that can be explored. We believe, however, that the practices that we have identified are, as reflected in numerous conversations, illustrative. Another limitation is that other countries may operate under slightly different operational logics and cultures. While basic practices are likely similar, these limitations therefore providing opportunities for future research. We therefore call for more research into behaviour in avalanche terrain. Our findings specifically show that sensemaking theory, and ethnography, has much to offer. We have, however, only just started to understand how guides decide where to ski. We therefore encourage future research to pay attention to the other phases of a ski trip, and the ways in which the planning phase determines final choices and learning. Our findings indicate the importance of sensate experiences. We believe that future research should therefore pay further attention to this in the execution phase, in which the exposure of the terrain is likely to affect skiers. Finally, we, and others in other fields (Boland, 2008; Winch & Maytorena, 2009), have, shown that there are important differences and some overlap between decision-making and sensemaking. Future research should explore these implications for guide work in greater detail.

Implications for practice

We believe that the training of guides would benefit from an emphasis on guides' sensemaking processes. We also envisage that a greater awareness of making sense of clients, would improve guide training. Our findings should also be informative to other guided outdoor activities, e.g., white water rafting, mountaineering, and sea kayaking, the basic socio-ecological process being ever-present. Finally, the processes that we identified may differ from those in non-guided situations. We, however, believe that amateur groups should learn from the professionals, as there are commonalities.

Conclusion

Through a season-long ethnography of ski guiding in Norway, we have studied how guides, during the planning phase, decide where to take their clients. We have introduced sensemaking theory to compliment and challenge current research on decision making in avalanche terrain. We conclude that guides engage in socio-ecological embedding (the process through which actors become rooted in the land on behalf of others, through noticing, bracketing, and selecting among cues) to make sense of *who* they are with and *what* the conditions are for deciding *where* to ski.

Notes

1. This ratio reflects the overall industry. All guides have fictitious names to protect their anonymity.
2. Clients are often referred to as guests.

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