

WHERE DO WE GO? CONTEXTUAL FACTORS CONTRIBUTING TO DAY TOUR CHOICES AMONG BACKCOUNTRY SKIERS AND RIDERS

Eeva Latosuo^{1*} and Eeva Mäkelä²

¹ Alaska Pacific University, Anchorage, AK, USA

² HUMAK, Helsinki, Finland

ABSTRACT: Understanding how people make decisions in the avalanche environment is critical to support their personal risk management. Decision-making in the avalanche terrain has been approached from a wide variety of disciplines including risk communication, cognitive theory, behavioral economics, and social psychology (for example St. Clair et al., 2021; Maguire & Percival 2018; Mannberg et al., 2021). Research on avalanche decision-making frameworks (Landrø et al. 2020) suggests that providing structure for sense-making of the complex information improves the quality of decisions in the avalanche environment. However, the role of context in choice-making has been sparse in the avalanche literature. Our work investigates context from the perspective of committed backcountry skiers and riders.

We focused on the broad-scope variables that impact individuals' decisions on where to do their preferred activity. Analyzing the different elements, such as information sharing, group membership, and logistical requirements, improved our understanding of the relevant context in which people decide where to go skiing and riding.

This longitudinal research collected data using online questionnaires for two months in the winter 2021-22. The participants (n= 90) from Alaska, Washington, Oregon, California, Colorado and Idaho responded to six weekly questions about the factors that contributed to their choice of trip location. The dataset includes self-reported information on over 500 tour days.

There is a whole lot more going on than checking the weather report and avalanche forecast before showing up at the trailhead. Recreational backcountry skiers and riders make their destination choices using a wide array of contextual attributes beyond avalanche information and terrain characteristics. Examples of key factors include partnership, information availability, and personal motivations.

KEYWORDS: decision-making, contextual factors, user research

1. INTRODUCTION

Decision-making in the avalanche terrain has been approached from a wide variety of disciplines including risk communication, cognitive theory, behavioral economics, and social psychology (for example St. Clair et al., 2021; Maguire & Percival 2018; Mannberg et al., 2021). Research on avalanche decision-making frameworks (Landrø et al. 2020) suggests that providing structure for sense-making of the complex information improves the quality of decisions in the avalanche environment. Avalanche education offers practical decision-

making frameworks focusing on four major topics of terrain, weather, snowpack, and human, and gives specific advice for how to make avalanche decisions. However, the contextual factors of avalanche decision-making in the avalanche literature have been sparse yet upcoming, such as the recent contribution by Langford (2023). We investigate this opaque concept from the perspective of committed backcountry skiers and riders by asking how they decide where to go from all the available destination options. Our work explores the baseline for the universal variables that contribute to making preferential choices for backcountry destinations and the steps taken by the individual to reach that decision. We focus on non-avalanche related elements, such as information sharing, group membership, and logistics, to gain insight on where people go to ski and ride and why. By collecting information directly from backcountry users about their trip destination choices, we identify major variables

* Corresponding author address:
Eeva Latosuo, Alaska Pacific University,
Anchorage, AK, USA;
email: elatosuo@alaskapacific.edu

that people consider and processes groups use to decide where to go ski or ride.

2. BACKGROUND

2.1 *Context*

Context is the circumstances that form the setting of the particular event, statement or idea. The purposeful use of context is a central feature of thorough research, and it allows for phenomena to be understood more deeply (Hinds et al., 1992). Our work considers three nested contextual layers (1) individual context, (2) social context and (3) environmental context. Layers of context organize how we are looking at our data.

Individual context consists of common socio-economic factors (such as education, work, and family situation), as well as affective context of the individual (such as personal values and desires) and personal skills, abilities, and prior experiences. Examples for our study setting, backcountry recreation, include care for personal health or limited days off from work. Social context is both the immediate social environment, networks, relationships and interactions, and the sociocultural forces that shape people's day-to-day experiences (Burke et al., 2009). Examples include a strong cohort of partners or use of common terminology in conversations about the backcountry. Environmental context relates to the physical and natural space and its properties as well as infrastructure. Examples include weather conditions or distance from the closest road.

In addition, the timing of our research coincided with the strange global context of COVID-19 pandemic. The outbreak influenced recreationists psychology and subsequently decision making to participate in outdoor activities (Humagain and Singleton, 2021). Our work contributes insight about drivers, barriers, and negotiation strategies related to the pandemic, for example crowding and the influx of new backcountry skiers.

2.2 *Drivers and barriers for outdoor recreation participation and preferences*

Research on outdoor recreation participation provides a useful perspective on factors contributing to individuals' preferences for winter backcountry travel. We divide the factors in two classes: (1) drivers, the factors that promote participation and allow more options, and (2) barriers, the factors that limit participation and preferences.

Drivers that support outdoor recreation align with common individual goals for outdoor recreation, such as physical health, mental well-being, desired lifestyle, personal development, and outdoor skills (Holland et al., 2018). Certain motivating factors relate to environmental context, such as environmental stewardship, and place attachment; others relate to social context like new perspectives and social interactions (Holland et al., 2018).

Similarly, The Scottish Government's report (The Scottish Government, 2022) divided the motivations to participate in outdoor activities as internal and external drivers. Internal drivers include identity and values, knowledge and skills, ability, routines, and goals; the external drivers include affordability, accessibility, time, weather, infrastructure, information and support, social connections, social norms, and childhood experiences. All the drivers are grouped in five major categories: physical health, mental health, social benefits, nature experience, and discovery of place. The report further summarizes the participation drivers in four questions:

- Do I want to do it?
- Am I able to do it?
- Does the context (place and/or time) encourage the activity?
- What do other people do and value?

Drivers for recreation participation are counterbalanced by barriers that restrict the activity. Crawford and Godbey (1987) stated three types of constraints: intrapersonal, interpersonal, and structural constraints. Intrapersonal constraints such as emotions and attitudes are individual-level psychological attributes that affect preference for an activity. These types of barriers are constantly evolving depending upon contextual and environmental factors. Interpersonal constraints such as the unavailability of companions or partner's characteristics or skill levels might interact with both preference and participation in an activity that day. These constraints depend upon life stage, marital status, or activity type (Crawford and Godbey, 1987). Structural constraints are intervening factors such as time and cost, information, weather, etc.

When an individual encounters barrier for leisure activity, this does not necessarily mean they will stop participating; they can also find ways to lower the impacts by negotiating strategies such as change in timing or reduction of expenses (Lyu and Oh, 2014). These negotiations can require interpersonal communication between partners or reflection on personal routines.

In our research, we seek to identify the internal and external drivers and barriers that play a role in backcountry recreationists' mind when they are deciding where they are going to ski or ride. In addition, we look at negotiation strategies that individuals and groups engage in when they are balancing their own drivers and barriers with those of other group members for a day in the backcountry.

2.3 Theory of distributed cognition, involvement, and cognitive vigilance

Theory of distributed cognition emphasizes the active role of the environment in cognitive processes (Hollan et al., 2000). Thinking occurs when people interact with each other and with environment or material artifacts. Thinking does not happen singularly in one person's brain, rather it is socially distinct, embodied in external context, and anchored in culture. This describes well the cognitive situation of a day in the backcountry. The cognitive process is divided among all the people in the group, and it is responsive not only to previous knowledge or available information but also to observed environmental and social cues (Hollan et al., 2000).

Involvement is the level of energy, time, and participation spent engaged in a particular activity (Lee and Yoo, 2014). Voluntary recreational activities promote strong involvement and cognitive vigilance (Ajzen and Driver, 1992). It is common that individuals have a firm behavioral commitment to their preferred activity type; for example, skiing or snowmobiling can be a major part of their identity and the source for the person's mood and other affective responses (Thomsen et al, 2018). This aligns with strong intentions to reach desired outcomes, such as skiing powder, having fun social interactions, or reaching an objective.

Personal commitment can lead to cognitive vigilance where the recreationist establishes clear goals for their activity and seeks out targeted information and learning opportunities to build an adequate skill set (Ajzen and Driver, 1992). Our work explores the level of involvement as individual and social context for decision-making in the backcountry and how vigilant thinkers the recreationists are in the backcountry.

3. METHODS

The study participants were recruited in the fall 2021 initially through two regional avalanche workshops, Northwest Snow and Avalanche Workshop and Southcentral Alaska Snow and Avalanche Workshop. We continued participant recruitment efforts as the season went on through local forecast center social media channels. Due to the convenience sampling, the participant pool is biased towards more committed backcountry recreationists and is not representative of the entire winter backcountry population.

The analysis included data from 90 individuals. While most of our sample is from Alaska, Washington, and Oregon, we have participants from California, Idaho, Colorado and even a few Finns (the authors' nationality).

The data were collected December 2021 - February 2022, during the second COVID-19 pandemic winter, using SurveyMonkey online survey platform. The initial data collection consisted of a sign-up survey asking basic participant information such as demographics and winter recreation habits.

For the longitudinal data collection, participants received an email invitation to submit information weekly.

The six questions included:

- Where did you go?
- Who did you go with?
- When did you decide where you will go?
- How did you decide?
- Why did you decide to go there?
List of 16 options, examples: Familiarity with location; Fit time restraints; Anticipated weather conditions.
- Overall rating for the trip

The preliminary analysis of the dataset includes summaries of the responses and the initial thematic synthesis of data.

4. RESULTS

4.1 Participants

Majority of our sample are male (n=81) and identify as white, with only six people identifying with other ethnicities. About half of the sample is in the age range 20-29 years (n=40), and one quarter (n=26) 30-39 years. The sample includes participants recreating in Alaska, Washington, Oregon, Colorado, California, Idaho, and Finland. Most of the reported trips are from the Cascades and Southcentral Alaska. Almost all respondents work full time or are full

time students. One in five are married or common law, and only four respondents have children. All the participants had at least awareness level avalanche training, Recreational Level 1 was the most common training level (n=40). Majority of the sample report their skill level in their activity type advanced or expert, but there are two beginners.

Dataset consists of 90 individual respondents who contributed data on 517 individual trips; 320 reports completed all the six questions. Among the trips were several guided trips and few avalanche courses that we removed from the analysis due to individuals not making the destination choices for themselves.

Our respondents were avid recreationists. 16 respondents submitted only one trip report, 13 submitted once a month, 14 every two weeks, and 21 every week of the project. 26 participants submitted trip reports for going out more than once a week. Only 59 trips used motorized or both motorized and non-motorized modes of travel. Our sample is very skewed towards committed, educated and highly skilled non-motorized backcountry travelers.

4.2 Environmental context

The participants' reasons for choosing trip destinations are dominated by environmental conditions. Anticipated snow quality leads the charge for 95% of the trips; people prefer deep powder or at least soft snow. Anticipated avalanche conditions and anticipated weather are the next most frequently mentioned bases for decision-making.

During the trips, groups engaged in varied activities that provided them with cues and observations about the real environment. Majority of the groups (85%) did informal snowpack assessments, such as hand tests or test slopes, formal snow stability tests were done on 26% of trips, while 23% of groups did no snowpack assessments of any kind. The rationale for absence of testing was either ongoing on-the-fly observations or the 'no-brainer' snowpack (hardpack or spring conditions) that did not require tests to figure it out.

Eight individuals reported not going out on a specific week because of the high avalanche danger. Interestingly, there were only two avalanche involvements and four near misses in our sample, these data points represent 2% of trips.

When asked about the reasons for changing the plan during the day, half of the reasons related to the environmental context, such as poor visibility or high winds. The length of the route or remoteness were also mentioned both as a driver and a barrier depending on the individual and the composition of the group. While the participant pool is committed and skilled, the objectives varied from backcountry day to another.

During the pandemic, recreationists complained about the crowded trailheads and parking lots. Trailhead conditions were reported crowded only on 13% of the trips and empty on 26% of the trips, as majority (62%) shared the trailhead with some other groups. In our sample, too many people at the location caused a change of plans on only ten of the trips. Participants considered crowding when they were planning for the trip at home and chose a place with less people in 33% of trips. It is possible that by the second pandemic winter individuals had adjusted to the increased pandemic recreation volume.

4.3 Social context and group decision making

Backcountry travel in avalanche terrain happens in small groups that function as the social context for the day. The people in our sample traveled most often in the groups of two (36% of trips) or three (24%). Surprisingly, 17% of trips had five or more people. Half of the 40 solo trips in the sample happened because they could not find partners, or the partner bailed out. Most of the backcountry trips were done with regular partners (49%), only 45 trips were with first time partners. Our sample of committed backcountry enthusiasts hardly mixed with the newer recreationists of the COVID winter.

The groups usually decide where to go the day prior (41% of trips), but almost as often the decision about the destination is made in the morning (37%). Groups process choices mostly through discussion (46%) that are based on available pre-trip avalanche and weather information (84%). Four of the trips used spontaneous 'on the go' decision-making strategy. Amicable partners allowed an individual in the group to decide the location on 41% of the trips; four individual trips had initial disagreements about the choices.

4.4 Individual context, personal drivers, and barriers

Individual drivers come to play right behind the environmental reasons when groups decide on where to go. Familiarity with the terrain, destination fitting to the time constraints of the day, and the best terrain options for individual skills are mentioned in half of the submissions. Barriers also function as the reasons to choose a specific location, for example choosing a shorter driving distance due to the price of gas.

Individual's prior experiences influence the decision-making as well. People picked a location because they either had not been there for a while (30% of trips) or because it was a new location (23%). Information for new locations was gathered from other friends (31%), guidebooks (24%), and social media (8%).

The sample includes 160 reports of not going in the backcountry that week giving us perspective to the individual barriers for participation or negotiated alterations to activity. Main reason was poor snow conditions (33% of reports), referring to ski/ride quality, not avalanche conditions. Second most common reason was time constraint (17%), a very clear individual barrier. Time constraints led to electing to do something else such as spend a day at the resort or Nordic skiing instead. There was handful of illnesses (including COVID), and injuries restricting the participation. Only on one occasion the group had a disagreement about the trip and chose not to go at all because of the dispute.

In the end of the survey, we asked the participants to give an overall rating for the day. In the "glass half full" crowd, 38% of the days were rated Outstanding (5 of 5) and 42% Very successful (4 of 5). People are generally pleased about the trips, potentially due to positivity bias for their preferred voluntary recreational activity. The open-ended comments for the reasons for success are full of sunshine, fun turns, good company, and stable high-quality snow. One third of the comments mentions the social gains such as time with friends, easy communication, sharing the views, and relaxing.

5. DISCUSSION

Context beyond avalanche and weather conditions matters more than has been given prior attention. The committed backcountry travelers in our sample emphasized the snow

quality as the most important reason for choosing a location - or in reverse, deciding not to go if the snow quality is poor. People seek out the positive experiences and even the most committed recreationists alter their plans when snow sucks. Thus, environmental context can drive travelers' decision making on the destination and negotiations about the activity preference and alternatives.

Social context plays a big role in the overall success of the day and is intertwined in all the decision-making phases according to our participants. It can also make the day worse, if the partner is not fit, has equipment issues, or it is difficult to communicate during the day. The social context aligns also with general socio-economic factors of individuals, such as ability to have a day off.

In our sample, travelers relied on their social network of frequent partners. Traveling with partners whose motivation, level of involvement and personal goals are compatible with the individual improve success of backcountry activities, especially with highly committed and goal driven recreationists. Similarly, doing the high-risk activity with known partners regularly increases the distributed cognition in the group which can assist with cognitive vigilance such as making on going observations while traveling.

Quite a homogenous group of recreationists in our sample showed variability in their location choices on different travel days. Individual abilities, opportunities, desires and restrictions act as a starting point for planning where to go, but the final locations are decided as a group of people within the bounds of changing social and environmental context.

Another interesting observation from the dataset is the minimal number of avalanche involvements and near misses. The partial explanation could be a preference to not report if something happened that week. Other suggestion could be that our participants are doing a good job managing their risk and choosing good locations for safe recreation.

Learning from backcountry travelers on several occasions rather than through a one-off survey paints a more nuanced picture of the multitude of factors that contribute to the trip destination decisions. Our data was collected over two-month period and shows the diversity of individual processes and social settings on the backcountry days.

The limitations of the project are the self-selection and self-reporting biases due to convenience sampling. The project attracted a very committed and highly skilled cohort of backcountry travelers, and our results don't represent the overall backcountry population. It would be beneficial to learn about the contextual factors impacting the decisions of newer recreationists in the future.

6. CONCLUSION

There is a whole lot more going on than checking the weather report and avalanche forecast before showing up at the trailhead. Recreational backcountry skiers and riders make their destination choices using a wide array of contextual attributes beyond avalanche information and terrain characteristics. These factors include individual drivers and barriers, social context of the day, and the varied environmental cues observed about the backcountry.

The preliminary results are the first summary on the dataset. In the future, we would like to examine how certain individual user characteristics and social contexts affect the destination choices.

ACKNOWLEDGEMENT

We would like to thank the *Dena'ina* people on whose traditional lands Alaska Pacific University operates and the *Sámi* people on whose traditional lands HUMAK operates - and the other Indigenous peoples whose lands we use for our outdoor pursuits. We would also like to thank all the participants of the two-month long project.

REFERENCES

- Ajzen, I., and Driver, B. L.: Application of the theory of planned behavior to leisure choice. *Journal of Leisure Research*, 24, 207, 1992.
- Burke, N.J., Joseph, G., Pasick, R.J., and Barker, J.C.: Theorizing social context: rethinking behavioral theory, in: *Health Educ Behav*, <https://doi.org/10.1177/1090198109335338>, 2009.
- Crawford, D.W. and Godbey, G.: Reconceptualizing barriers to family leisure, in: *Leisure Sciences*, 9, 119–127. doi: 10.1080/01490408709512151, 1987.
- Hinds, P.S., Chaves, D.E. and Cypess, S.M.: Context as a source of meaning and understanding, in: *Qualitative Health Research*, 2, 61–74. doi:10.1177/104973239200200105, 1992.
- Hollan, J., Hutchins, E., and Kirsh, D. (2000). Distributed cognition, in: *ACM Transactions on Computer-Human Interaction*, 7, 174–196. <https://doi.org/10.1145/353485.353487>, 2000.
- Holland, W.H., Powell, R., Thomsen, J., Monz, C.: A Systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities, in: *Journal of Outdoor Recreation, Education, and Leadership*, 10, 197–225 <https://doi.org/10.18666/JOREL-2018-V10-I3-8382>, 2018.
- Humagain, P., Singleton P.A.: Exploring tourists' motivations, constraints, and negotiations regarding outdoor recreation trips during COVID-19 through a focus group study, in: *Journal of Outdoor Recreation and Tourism*, doi: 10.1016/j.jort.2021.2021, 2021.
- Jean, R., Naka, K., Christian, C. S., Gyawali, B. R., Bowman, T., and Hopkinson, S.: Identifying primary drivers of participants from various socioeconomic backgrounds to choose national forest lands in the Southeastern region of the US as a travel destination for recreation, in: *Land* 11, 1301, <https://doi.org/10.3390/land11081301>, 2022.
- Landrø, M., Pfuhl, G., Engeset, R., Jackson, M., & Hetland, A.: Avalanche decision-making frameworks: Classification and description of underlying factors, in: *Cold Regions Science and Technology*, 169, 102903, <https://doi.org/10.1016/j.coldregions.2019.102903>, 2020.
- Langford, R.: How do recreationists manage avalanche risk when travelling in the winter backcountry? Centering the stories of recreationists to identify, characterize, and contextualize avalanche risk management decision-making, Master's thesis, Simon Fraser University, School of Resource and Environmental Management. Burnaby, B.C., 2023.
- Lee, R. M., and Yoo, H. C.: Structure and Measurement of Ethnic Identity for Asian American College Students, in: *Journal of Counseling Psychology*, 51, 263–269. <https://doi.org/10.1037/0022-0167.51.2.263>, 2014.
- Lyu, S. O., and Oh, C. O.: Recreationists' constraints negotiation process for continual leisure engagement, in: *Leisure Sciences*, 36, 479–497, 10.1080/01490400.2014.920702, 2014.
- Maguire, L.M.D and Percival, J.: Sensemaking in the snow. Exploring the cognitive work in avalanche forecasting in a Canadian ski operation. *Proceedings of the International Snow Science Workshop*, Innsbruck, Austria, 2018
- Mannberg, A., Hendrikx, J., Johnson, J., and Hetland, A.: Powder fever and its impact on decision-making in avalanche terrain, in: *International Journal of Environmental Research and Public Health*, 18, 9496. <https://doi.org/10.3390/ijerph18189496>, 2021.
- Manfredo, M. J., Driver, B. L., and Tarrant, M. A.: Measuring leisure motivation: A meta-analysis of the recreation experience preference scales, in: *Journal of Leisure Research*, 28, 188–213. <https://doi.org/10.1080/00222216.1996.11949770>, 1996.
- Nyaupane G.P., Morais, D.B., and Graefe, A.R.: Nature tourism constraints: A cross-activity comparison, in: *Annals of Tourism Research*, 3, 540–555, 2004
- St. Clair, A., Finn, H., and Haegeli, P.: Where the rubber of the RISP model meets the road: Contextualizing risk

information seeking and processing with an avalanche bulletin user typology, in: *International Journal of Disaster Risk Reduction*, 66, 102626.
<https://doi.org/10.1016/j.ijdr.2021.102626>, 2021.

The Scottish Government (2021). Understanding the drivers of participation in outdoor recreation in Scotland.
<https://www.gov.scot/publications/understanding-drivers-participation-outdoor-recreation-scotland/documents/>
Last access: 23 August, 2023.

Thomsen, J. M., Powell, R. B., & Monz, C.: A Systematic Review of the Physical and Mental Health Benefits of Wildland Recreation, in: *Journal of Park and Recreation Administration*, 36, 123–148,
<https://doi.org/10.18666/JPRA-2018-V36-I1-8095>, 2018.