



Forskningsrådet

The Research Council of Norway

Powder Arousal and the its impact on decision making in avalanche terrain

 Nordisk konferanse om
snøskred og friluftsliv

Voss, 1. – 3 November, 2019

Jordy Hendriks¹, Andrea Mannberg^{2,3}, Jerry Johnson^{4,1}, Audun Hetland^{5,2}, Emily Lee⁶

1 Snow and Avalanche Lab, Department of Earth Sciences, Montana State University, MT, USA

2 Center for Avalanche Research and Education, Tromsø, Norway

3 School of Business and Economics, UiT the Arctic University of Norway, Tromsø, Norway

4 Political Sciences Department, Montana State University, MT, USA

5 Department of Psychology, UiT the Arctic University of Norway, Tromsø, Norway

6 Science & Natural History Filmmaking, Montana State University, Bozeman, MT, USA



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WHITE HEAT PROJECT



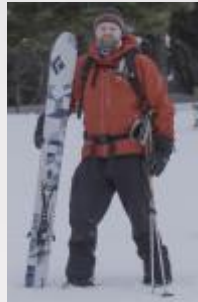
White Heat Project

- Collaboration between a group of researchers in UiT The Arctic University of Norway, in Tromsø, Montana State University, in Bozeman, USA, and Umeå University, in Umeå, Sweden.
- The home of the project is at the Centre for Avalanche Research and Education (CARE) at UiT. Project funded by the Norwegian Research Council.

The aim of White Heat is to generate new and usable knowledge on excessive risk-taking behavior in general, and on factors behind decision errors in avalanche terrain in particular.

White Heat Project

- Diverse team:
 - Andrea Mannberg, UiT. Behavioral economist – focused on decision making
 - Jordy Hendrikx, MSU. Snow Scientist – snow, terrain, risk
 - Audun Hetland, UiT. Psychologist – focused on risky decision making
 - Jerry Johnson, MSU. Political Scientist – public lands, risk and decision making



White Heat Project



www.whiteheatproject.com

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Who's at risk in the backcountry? Effects of individual characteristics on hypothetical terrain choices

Andrea Mannberg^{a,b,*}, Jordy Hendrikx^c, Markus Landro^{d,b}, Martin Ahrland Stefan^e

^a School of Business and Economics, Breivangsgaten 23, 9010 Tromsø, Norway
^b Centre for Avalanche Research and Education, UIT – The Arctic University of Norway, Postboks 6050 Langnes, Tromsø, Norway
^c Department of Earth Sciences, And Snow and Avalanche Laboratory, Montana State University, P.O. Box 1734 Bozeman, MT, USA
^d Norwegian Water and Energy Directorate, Postboks 5091, Majorstua 0301 Oslo, Norway
^e Ohlin Racing, Erik Vangbergs Gate 20, 9009 Tromsø, Norway

ARTICLE INFO

ABSTRACT

Handling Editor: Florian Kaiser.

We use data from an online survey in Norway to investigate how individual characteristics influence willingness to accept to ski relatively risky terrain. We find that individuals with past experience of avalanches and those with high perceived skill level are more likely to accept to ski relatively risky terrain. We also find that individuals with high perceived skill level are more likely to accept to ski relatively risky terrain. We also find that individuals with high perceived skill level are more likely to accept to ski relatively risky terrain.

Are you keeping up with Jeremy Jones?

by Andrea Mannberg, Jordy Hendrikx, Jerry Johnson

In economics, there is a growing body of research that suggests that many people have so-called "positional preferences". A positional individual derives utility from their consumption relative to that of others. Let's use an example. Suppose that you own a 5 year old car. It works reasonably well and takes you wherever you want to go. You are quite happy with it. Now suppose that you get a visit from your brother or son in law, who has recently bought a brand new and really nice car. How does your level of satisfaction react to this situation? If you feel a reduction in wellbeing, you are positional. If not, well, then you don't have positional preferences. Positional preferences are unfortunately problematic. The reason is that, as you try to climb to the top of the ladder of success, there is always someone left behind who will try to catch up with you. In risky activities such as investing or backcountry skiing, this kind of behavior has the potential to draw people into riskier situations. To see if this positionality carries from economics into backcountry travel and risk-taking behavior, we use results from an online survey distributed in North America (N = 745), to analyze if backcountry riders' level of contentment with their personal riding is affected by others' backcountry activities, i.e., if they are positional, and if positionality for backcountry experiences is associated with increased risk-taking behavior. Our findings suggest that many are positional, and that positional preferences for challenging terrain is correlated with relatively high risk exposure. The positionality effect is present regardless of level of avalanche training and suggests that current avalanche education does not change one's positionality related to risk taking behavior. Our results provide support for the hypothesis that social comparisons may overwhelm logic we learned in our avalanche class. It further suggests that avalanche courses should be adapted to deal with the "keeping up with the Joneses" (not necessarily Jeremy Jones), effect by incorporating some comprehension of personality type or at least introspection in the presentation of course material.

Positional preferences and risky terrain choices

Proceedings, International Snow Science Workshop, Innsbruck, Austria, 2018

ARE THEY EXPERTS? SELF-ASSESSED BACKCOUNTRY SKILLS AMONG BACKCOUNTRY SKIERS IN NORWAY AND NORTH AMERICA

Mannberg A.^{1,*}, Hendrikx J.², and Johnson J.^{3,2}

¹ School of Business and Economics, and Centre for Avalanche Research and Education, UIT – The Arctic University of Norway, Tromsø, Norway
² Snow and Avalanche Laboratory, Department of Earth Sciences, Montana State University, Bozeman, MT, USA
³ Department of Political Science, Montana State University, Bozeman, MT, USA

ABSTRACT: We analyze how backcountry skiers' perceived ability to manage avalanche terrain correlate with their experience and skills, among 1209 backcountry riders in Norway and if self-assessed backcountry skills are affected by past experience of terrain, and demographics. Our results suggest that self-assessed skill level and knowledge, which is encouraging. However, we also find that individuals with past experiences of avalanches and those with high perceived skill level are more likely to accept to ski relatively risky terrain. We also find that individuals with high perceived skill level are more likely to accept to ski relatively risky terrain.

Proceedings, International Snow Science Workshop, Innsbruck, Austria, 2018

PERCEPTION OF RISK AMONG NORWEGIAN BACKCOUNTRY RIDERS

Andrea Mannberg¹, Jordy Hendrikx², Markus Landro³, and Martin Stefan⁴

¹ School of Business and Economics, and Centre for Avalanche Research and Education, UIT – The Arctic University of Norway, Tromsø, Norway
² Snow and Avalanche Laboratory, Department of Earth Sciences, Montana State University, Bozeman, MT, USA
³ The Norwegian Water Resources and Energy Directorate, and Center for Avalanche Research and Education, UIT – The Arctic University of Norway, Tromsø, Norway
⁴ Ohlin Racing

ABSTRACT: We use a hypothetical choice scenario to analyze factors that affect the perceived risk of potentially risky backcountry terrain. Our results show that factors, which are expected to affect the objective level of risk (e.g., backcountry travel skills and experience), are correlated with the perceived level of risk. However, we also find suggestive evidence that social factors, which should not affect objective risk, do affect the perceived riskiness of a line. More specifically, our research points to the possibility that irrelevant, but ski related, information on social media affects perceived risk. Implications and limitations of our research are discussed.

KEYWORDS: Perceived risk, Terrain, Backcountry, Hypothetical Choice

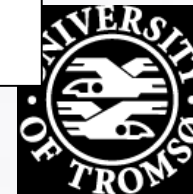
1. INTRODUCTION

The trend in yearly recreational avalanche fatalities in Europe has flattened out since the 1980s, in spite of a dramatic increase in recreational backcountry use (Teichel et al., 2016). This is very encouraging. However, avalanches continue to kill a relatively large number of people each year. In a majority of these fatal accidents, the victim or someone in the victim's party triggered the avalanche (Atkins 2000; McCammon 2000). The seminal work by McCammon (2002; 2004) show that a large share of avalanche victims had avalanche training, but large literature suggest that risk perception is only partly a function of the objective level of risk. Instead, it appears as if our estimates of risk to a relatively large extent depends on cognitive and emotional biases, such as availability bias (Tversky and Kahneman 1973; Slovic, et al., 1981; Kahneman 2003), optimism-bias (Slovic et al. 1981; Weinstein 1989), the affect heuristic (e.g., Slovic, et al., 2005), and on social factors (e.g., Benthin et al., 1993). The findings by McCammon (2002; 2004), Furman et al (2010) and Marengo et al (2017) support the notion that these biases also affect individuals who recreate in avalanche terrain.

over-confidence, backcountry, decision-making

their ability to assess risk, and their willingness to accept to ski relatively risky terrain. We also find that individuals with high perceived skill level are more likely to accept to ski relatively risky terrain. We also find that individuals with high perceived skill level are more likely to accept to ski relatively risky terrain.

in our level of control (e.g., Fischhoff, Slovic, and Lichtenstein, 1977; Christensen-Szalanski and Bushyhead, 1981; Svenson, 1981; Zenger, 1992; Clayton, 2005). Overconfidence appears to be more common among men, and mainly be a problem when the task at hand is difficult (Pulford and Colman, 1997). In many situations in life, we receive direct feedback on our performance, which in theory, allows us to update our self assessment of our ability. In practice, however, we tend to rationalize our errors and therefore fail to learn from our mistakes (Aronson, 1989). This problem is likely exacerbated in a wicked learning environment (Hogarth et al. 2015) such as avalanche terrain, i.e., where the feedback mechanism between poor decisions and bad outcomes is weak.



Powder Arousal

- Does skiing powder make you smile? Does it make you feel good?
- Do these feelings impact your decision making?
- Study attempts to replicate previous work on sexual arousal and its impact on judgement and decision making (Ariely and Lowenstein, 2006)
- Powder arousal project – Bozeman, Montana – Winter 2019:

Powder Arousal

- Preliminary results:
 - Participants were happier when in the field
 - Overall – for powder days - **results show no significant difference** in participants willingness to violate social norms of avalanche safety or increase risky decision making
 - This could be due to the strength of the stimuli, or the nature of the questions
 - More detailed examination of the data suggests that there might be a change in risk taking when we consider competition for powder.



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