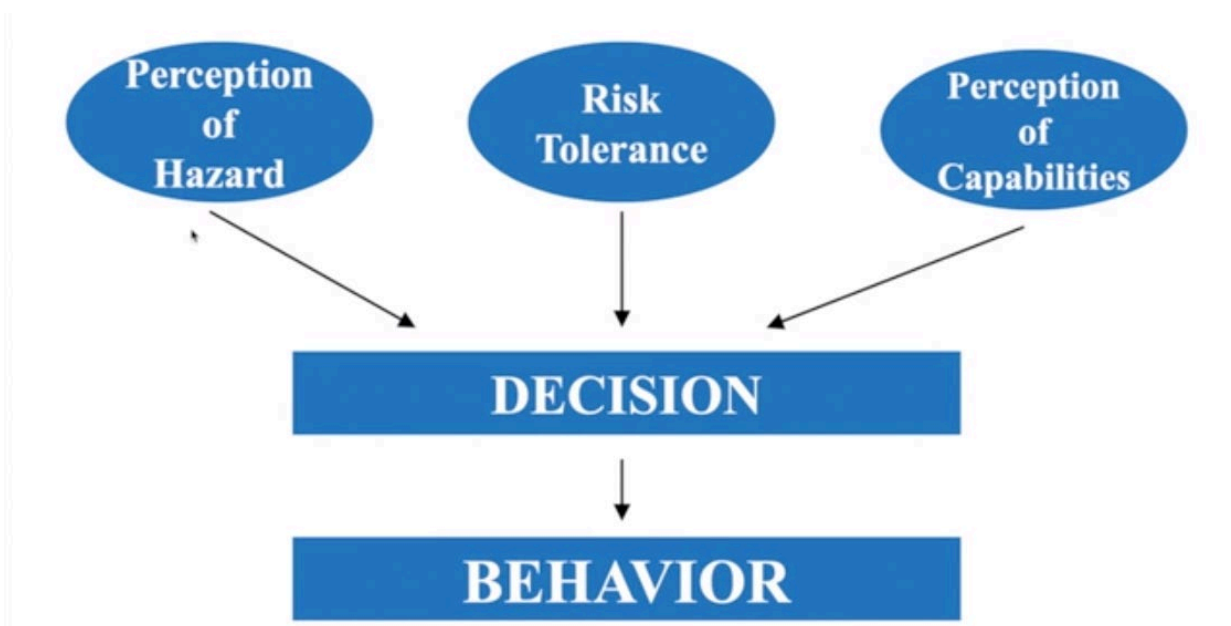


HUMAN FACTORS



Factors that Influence Decision-Making:



Heuristic Traps in backcountry travel:

Based on research by Ian McCammon, PhD.

There are dozens of biases that may affect our decision-making when traveling in backcountry avalanche terrain. We use simple rules (AKA heuristics) to overcome the complexity of real-world situations (whether it be driving during rush hour in cities, negotiating supermarkets the size of small towns, or making decisions about snow stability). Heuristics work most of the time, but most of the time is not enough in high consequence environments. Our first defense is awareness of these heuristic “traps”. The second step is acknowledging which traps you may be most susceptible to, and the third is choosing partners who don’t accentuate your frailties.

The best research on how these biases affect our decision-making in avalanche terrain is by Ian McCammon. If you search for “Ian McCammon heuristic traps” a number of papers will come up if you are looking for more information.

A brief summary of each of these heuristics follows. Italicized examples are taken from an online tutorial put together by Black Diamond and Powder Magazine.

Familiarity

When a situation, or terrain, is familiar, we tend to treat it passively, as all previous encounters have ended positively. The trap is when conditions have changed, but outwardly they appear the same. This trap seems to affect experienced people more than novices, but all are susceptible to it. The bottom line solution is humility. Realizing that in the big picture you haven’t seen this terrain in the conditions that it takes to slide is a good first step.
I’ve skied this line dozens of times, and it’s always held.

Acceptance

Humans are social creatures. We typically seek to be viewed positively by others, whether it be by people we respect or people we want to be our friends. This is often gender-driven and may manifest itself by actions that are inappropriately bold. This trap can be seen in all groups, but is most common in groups with some avalanche training. There aren’t easy

solutions here, other than realizing that if things go wrong the acceptance you are seeking isn’t going to be there.
I’m not going to be the one to chicken out/ruin the day, or I need to please my sponsors.

Commitment

Simply put, we are often committed to a goal. The trap is when conditions are inappropriate for the goal that we have chosen (summit, line, traverse...). One solution is choosing appropriate goals at the start of the day, so that you are not confronted with disappointment when you have traveled far and worked hard.
We’ve come this far we might as well go the whole way.

Expert Halo

This can take many forms, but its most common manifestation is when someone has more experience, or better fitness, and people tend to defer to that person’s opinions and decisions. The problems are

two-fold. One: that person may not be a true expert (beware of anyone that calls himself an expert!). The second problem is that one person's collective experience and expertise is seldom better than the group's as a whole. Solution: Acknowledge that everyone is fallible and if you have misgivings, it is imperative that you voice them.

The guide, teacher, or the local guy must know what he's doing.

Tracks

An analog for the Scarcity heuristic. This is a very common heuristic around ski areas and popular backcountry areas - AKA Powder Fever. When there is a perceived limited quantity, we are wired to charge ahead and get it before it's too late. This is very common on powder days, especially after weeks of bad skiing and riding.

Solution: Realize that with a bit more effort there are always places to find good snow. Don't let that rush for first tracks, or any tracks, put you in a place with no escape routes. Good pre-trip planning can help alleviate this pressure as well.

Let's get the goods before someone else does.

Clearly there are more human factors than just the FACETS to deal with, but these are frequently involved in avalanche accidents. If you have a bad gut feeling FACETS are one way to see if human factors are part of it. If you have had previous accidents or near-misses, look at them and see if there are any commonalities between them. If you are most prone to Acceptance and Expert Halo you should reconsider the people you commonly travel with. If you are prone to Familiarity, Commitment, and Tracks then you should choose partners who are comfortable calling you out on your decisions. In all cases, pre-trip planning can help alleviate problems during the tour.

Social Consensus

The belief that because other people are doing it must be safe... or right. Just the presence of other groups can make you feel like you're making a good decision.

Consider how you feel as the first person breaking trail into a remote destination vs. how you feel following a well-traveled bootpack. The trap comes when you choose more challenging terrain in the near vicinity OR when the natural variability within the snowpack allows you to trigger the same slope that others have skied without incident. The solution involves making your own decision and not letting the presence of others make the decision for you.

Those other guys, or my buddies, are ripping it- clearly, it's safe.

LEVEL 2 WORKBOOK

Other contributing factors to errors and accidents:

12 Common Error Pre-Conditions

- Lack of communication
- Distraction
- Lack of resources
- Stress
- Complacency
- Lack of teamwork
- Pressure
- Lack of awareness
- Lack of knowledge
- Fatigue
- Lack of assertiveness

BIASES THAT MIGHT CONTRIBUTE TO ERRORS:

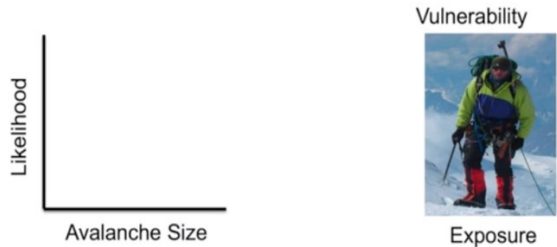
Confirmation bias = look for information that supports your hypothesis. Ignore information that disagrees with your hypothesis.
 Recency bias = favor recent events over historic ones. Recency bias gives greater importance to the most recent event.

SEVEN DRAGONS	+	-
Arrogance	Confidence	Superiority
Self-deprecation	Humility	Lack of Voice
Impatience	Efficient/Focused	Cut Corners
Martyrdom	Hard Worker	Resentment
Greed	Desire/Passion	Selfish
Self-Destruction	Powder/Adrenaline Drive	Reckless/Unsafe
Stubbornness	Perseverance	Tunnel Vision

LEVEL 2 WORKBOOK

Tools for recognizing and managing the Human Factor:

- Understand the Risk Equation
- RISK – Probability of loss (or gain)



RISK EQUATION

Hazard – describes a source of potential harm

Risk – the probability of loss (or gain)

Probability/Likelihood – the chance of something happening

Consequence – the impact of the risk

Vulnerability - susceptibility to the impacts of the hazard

Exposure – this is the gas pedal of risk. Do you have to go all in?

- Use the backcountry checklist
- Use terrain as a line of defense – if you have a question, terrain is the answer.
- Build in Margin
- Build good habits and don't break them
- Choose your partners wisely
- Pre-mortem test - 'What would my mom read in the paper if anything happened on this slope?'
- Acknowledge uncertainty
- Have several lines of defense in place – ie. The Swiss Cheese Model

