THE INTERSECTION OF SCIENCE AND HUMAN BEHAVIOR IN TERRAIN MANAGEMENT: HOW SOCIAL MEDIA AND ARTIFICIAL INTELLIGENCE ARE CHANGING THE CULTURE

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ABSTRACT: Technology, specifically regarding social media and Artificial Intelligence (AI), is moving at a speed we as society are struggling to keep up with and control. Backcountry skiing and riding is not immune to this phenomenon. A large proportion of backcountry skiers and riders today have moved from basing their tour plan decisions solely from the weather and avalanche forecast, to now incorporating these technological tools into their decision making. While social media (Facebook and Instagram) initially drove this change, applications such as Strava - most notably via their heat map function – and integrating AI into these applications, are changing people's behavior accessing the backcountry and evaluating terrain. This intersection of science and human behavior is superseding institutional knowledge, giving a false sense of conditions and hazards, and inadvertently opens terrain during periods of higher hazard.

We have long observed the trickle-down effect of a slope opening in the field, attracting more skiers and riders based on tracks. However, backcountry users are now utilizing social media and heat maps to observe where others have traveled and are seemingly basing some decisions on such data points, regardless of the warnings of the local avalanche center and recent observations. The sheep mentality and social acceptance isn't new, and snow professionals regularly urge caution of this risk during periods of persistent weak layer avalanches. Utilizing a website that aggregates and intertwines Strava data with users' photos to create a snow condition report, I have been able to observe several examples of this.

By investigating specific dates surrounding sensitive, persistent weak layer avalanche problems, I have collected chronological links demonstrating a relationship between people trusting the open-source data despite recent avalanches and/or forecast which contradicted the stability. Examples such as heat maps that show skin tracks going up the face of avalanche paths rather than traveling on the typical ridgelines, or users choosing terrain in the bullseye of recent avalanche activity without incident, which is then subsequently shared through this tool and attracts more users.

While this is post-hoc analysis, there are several examples of backcountry user decision making that counter traditional warnings and forecasts, raising significant speculation about the role of such tools and their prevalence. Presenting this data and its inferences is purely to communicate the use of such technology and educate snow professionals on it, emphasizing the need to adapt to our audience. No shaming is intended in the analysis. This paper will begin to tackle the intersection of science and human behavior and address how AI generated data could influence human behavior in avalanche terrain. This is important for snow professionals and avalanche forecasters because we need to understand what our limitations are with our current tools and tactics in a changing technological environment and culture of backcountry users. As snow professionals we need to be aware and communicate to our audience before they get in trouble utilizing crowd sourced information during periods of higher hazard.

KEYWORDS: Artificial Intelligence, Avalanche Education, Avalanche Forecasting, Decision Making, Risk Communication, Terrain.

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1. INTRODUCTION

Ian McCammon's research of heuristics is well known in the snow science world. McCammon described in detail that "people are misled by unconscious heuristics, or rules of thumb, that guide most of our decisions in everyday life… But avalanches present a unique hazard that renders some of our heuristics irrelevant, and in some cases dangerously misleading. When a rule of thumb gives us a grossly inaccurate perception of a hazard, we fall into what is known as a heuristic trap," (McCammon, 2004). The six heuristic traps and social acronym FACETS include: Familiarity, Acceptance, Consistency, Expert Halo, Scarcity, and Social Facilitation. The acronym is an integral part of avalanche education curriculums, outreach within avalanche safety, and was the first significant step in research focusing on the human element in avalanche safety. Researchers looked beyond the physical properties on why an avalanche happened (such as snow pit results or the physics of stronger snow stressing weaker layers) and sought to examine why backcountry recreationists were getting caught or killed in avalanche accidents, (Atkins, 2000; Haegeli et al., 2010; Hendrikx and Johnson, 2016; Marengo, Monaci, and Miceli, 2017; Mannberg, Hendrikx, and Johnson, 2021; Procter et al., 2014; Saly et al., 2020; Zweifel and Haegeli, 2014).

When McCammon published his paper on heuristics, social media was in its infancy and artificial intelligence was not a mainstream technology, nor was it intertwined in algorithms tailored to individuals. Applications presenting routes and maps with the swipe of a finger were certainly not available.

Today, those heuristic traps still bear weight only to be magnified by the ubiquitous presence of social media and how people receive information by the emergence of Web 2.0 and artificial intelligence (AI). For example, social media applications like Instagram and Strava, when intertwined with AI features that either provide trip reports or individualized algorithms, can be so pervasive that some backcountry users are basing decisions on what others have done while potentially placing less emphasis on traditional tools including the avalanche forecast, observations, and weather. This shift can lead to less constructive thought, planning, and analysis of the snow stability when moving through the backcountry and create a culture that just copies and repeats what others have done, even during times of false stability.

Instagram, owned by Meta (Facebook) is a free social media platform in which users share photos, videos, stories, and Reels. It's an integral part of the outdoor industry's marketing platform in which brands, athletes, influencers, and consumers all interact and showcase their outdoor pursuits and products. Today Instagram reaches roughly 3 billion monthly active users globally. Strava, a fitness tracking and social networking application, records workouts, GPS maps and routes, while also providing a heat map of activity. This helps athletes discover trails and plan routes, while sharing and competing with each other. Per their website, Strava reports connecting over 150 million athletes across more than 185 countries (Strava, 2026).

When considering the rapid innovation of these technologies, the benefit includes advanced communications amongst backcountry users but may be detrimental when taken in isolation. On one side it's creating a culture of information sharing, real time news, etc. For avalanche professionals and the backcountry community it can offer a "more efficient, two-way communication, which has vastly increased the accuracy, geographic coverage and timeliness of avalanche hazard communications," notes Bruce Tremper (Tremper and Diegel, 2014). However, social media and AI may provide a false sense of security in stability, change how skiers and riders are accessing the backcountry and the information they're using to get there. Even without the context of avalanche safety, "the overreliance on AI can result in complacent behavior and reduce critical thinking, which is essential for decision-making" (Lardi, 2025).

In the 2022 paper, *Tracking decision-making of backcountry users using GPS tracks and participant surveys,* Hendrix, et al. (2022) explains the nuances in how a backcountry skier and rider traditionally has planned a tour:

"Ski touring groups rely on their own expertise and group skills to successfully navigate hazardous terrain. While sometimes complex, these small group decisions are typically "self-contained" in terms of responsibility and outcome. Ideally, the decision process is initiated at the planning stage where communication is open to all members; the goal(s) for the day are agreed on; and consideration of the weather, snowpack conditions, and avalanche hazard are assimilated into the group decision with respect to the day's tour… Many avalanche accidents are the result of decision-making flaws or bias somewhere in the decision process which leads to inappropriate terrain selection and unfortunate outcomes" (Hendrix, et al., 2022).

Antidotes to this process have also emerged from the research on the human element of decision making. For example, the American Avalanche Institute Checklist, which helps users develop a systematic approach to traveling in avalanche terrain that is repeatable and aimed to promote sustainable safe protocols. In thinking about decisions to travel in specific terrain features on any given day, it’s important to understand how the brain collects and stores information.

In a 2025 Forbes article, entitled *The Dangerous Impact of AI On Decision Making*, the author Lardi explains the neuroscience perspective and accumulation to threshold model which provides a simple way to explain how the human brain makes decisions. Lardi explains, “once a bucket is full (threshold reached), and enough information has been gathered, a decision is made… If you are deciding to cross a street, your brain collects information from the surrounding world to fill up the "wait" or "walk" buckets. When you observe the traffic light is red or there are no cars, your "walk" bucket fills up. On the other hand, if you see cars approaching or the light is green, your "wait" bucket fills instead. When there is enough evidence in the "walk" bucket, your brain sends a signal that it is safe to cross the street. In this process, access to accurate information, such as visual cues and credible data, has a strong influence on decisions. Referencing the previous example, on a foggy night, we receive fewer visual cues. It may not be clear if the traffic light is red or green. Hence, the bucket fills up less quickly and decision-making slows, or the likelihood of errors increases,” (Lardi, 2025).

Relating the threshold model to decision making in avalanche terrain, backcountry users can fill buckets of bull’s eye data, (e.g. recent avalanches, avalanche forecasts and the hazard rating, recent observations, snow pits, and weather) to aid in their decision making. The problem McCammon found is that our own human error of FACETS increases the errors in those decisions because of our own personal bias, (McCammon, 2004).

Fast forward to our current day and the threshold of information can be swayed not only by our bias within our touring group, but from the influence from social media and AI generated data. Isaak explains in *Social Media and Decision Making In Avalanche Terrain* that, “with the development of social media and related technology, other people…nearby has been simultaneously expanded to a potentially worldwide audience and shrunk to the size and portability of a smartphone. Decisions taken in remote environments are no longer taken in isolation. As a result of these changes, avalanche education must address the impact of technology and social media on decision making,” (Isaak, 2016). This is accentuated by the fact that as the next generation of backcountry recreationalists become the core user group they are “digital natives,” meaning they either grew up with or are confident in using these types of technologies.

If we were to revisit the buckets of information as it pertains to gathering data for a backcountry tour, it would be easy to reach a threshold of information if avalanche danger rating[1] was in the high or low range. Things become more uncertain when dealing with a low probability high consequence situation such as a persistent weak layer problem or when trending in and out of a storm, as a new load is being added to a snowpack. In those cases, it takes longer to fill that bucket of information. Furthermore a recreationalist now can then place information into those buckets that is less reliable, or with a false sense of stability such as a backcountry powder turn photo or video from Instagram that lures them into different terrain; a recent Strava route that rode a slope that has been producing slab avalanches at that same aspect and elevation yet encountered no danger; or a heat map of recent skin tracks that travel up avalanche paths rather than the traditional ridges and lower angle slopes.

The potential influence of Web 2.0 and AI is accentuated when considering published routes and maps, an example of this is Delta Lake in Grand Teton National Park, WY where in “2016, Delta Lake averaged 57 people per day. That number climbed to 308 people hiking to Delta Lake, on average, each day in the summer of 2025 — an increase of 440%” (Viveros, 2026) from a combination of Instagram, TikTok, and Chat GPT and Claude—an advanced conversational AI assistant. Chip Jenkins, superintendent of Grand Teton National Park notes, “we are seeing people showing up with whole itineraries planned by their friend Claude.”

If the most important routes, maps, heatmaps and photos were all to combine in a symphonic nature to show what backcountry users experienced each day that website could have the ability to lead users into different terrain be it more exposure, unstable snowpacks, etc. Stravastalker.com a website that focuses on the Tetons, WY and Wasatch Mountains, UT is essentially doing just that.

[1] The North American Public Avalanche Danger Scale (NAPADS) is a system that rates avalanche danger and provides general travel advice based on the likelihood, size, and distribution of expected avalanches. It consists of five levels, from least to highest amount of danger: 1 – Low, 2 – Moderate, 3 – Considerable, 4 – High, 5 – Extreme.

Stravastalker.com relies on Strava's "segment" feature. Strava users have the ability to make segments on their favorite routes, and when other people travel along those segments, they get added to a public leaderboard for that segment. For example, there's public segments everywhere in Jackson, and Salt Lake City. Founder Wyatt Sullivan used to search Strava leaderboards to see what routes had been done recently, but then "created a database of Strava segments that I am personally interested in, and wrote a simple iterative program that runs at 7:45pm every day. The program is a web scraper that iterates through all the segments, finds all public Strava activities that traveled on those segments, takes out activity descriptions and photos that the user posted, and posts them all on the stravastalker.com website. If there are any conditions information included in the "activity descriptions" from the Strava activities, I hooked up the OpenAI API (ChatGPT 5.5 model) to take those conditions snippets and report them back to the website as a concise, 1-2 sentence "conditions blurb". That blurb appears under each route on the site, if applicable. The blurb is as accurate as the activities themselves, so if someone sarcastically says, "blower pow" on a day where the conditions are horrible, the AI isn't smart enough to detect it as sarcasm, so it will incorrectly report favorable conditions." Sullivan notes that there have been days when he has considered taking the website down, fearing that it may lead some people to make poor decisions. "I know it is useful to many folks, and has (so far) not been used blindly as a source of truth, as far as I have seen… The goal with this project was to bring already public data to the forefront, enabling people to make better decisions about possible objectives when planning days in the Tetons/Wasatch, which is to be used as a supplement to the great information that BTAC (Bridger Teton Avalanche Center) and UAC (Utah Avalanche Center) already deliver."

Sullivan's capitalization of the public data on Strava is one example on how quickly new technologies can emerge. As avalanche forecasters, professionals, and educators, we need to be savvy to these types of tools so that our audiences are still critically thinking and not becoming complacent given they may just be following tracks and routes with a false sense of security.

2. METHODS

Utilizing the website Stravastalker.com, I investigated specific dates surrounding sensitive, persistent weak layer avalanche problems. Stravastalker.com is a website that fetches public Strava activities in Jackson, WY and Salt Lake City, UT, organizing them by routes, photos, and maps – displaying them in preference order with photo quantity, the site gives a synopsis of where people had been recreating and what they found.

I choose three separate time periods to investigate based on persistent weak layer avalanche problems in the region. A total of 1,302 Strava routes were collected.

December 19-20, 2025 – Tetons. During this time an accident occurred on December 20. No crown or snow profile was documented at the scene of the accident due to a warm and windy storm that arrived late on the 21. The time period featured a 12/10 facet rime crust combination that began behaving like a persistent weak layer problem.

February 11-23, 2026 – Tetons. During these dates an isolated and reactive surface hoar problem was being triggered regularly on the north side of the compass in the middle elevations near Teton Pass and on the West Side of Teton Pass.

February 11-23, 2026 - Central Wasatch Mountains, Salt Lake City, UT. The beginning of a very active period in the Wasatch when the "*January Dry Layer*" was buried and subsequently led to an active persistent weak layer problem that lasted through the remainder of the month and resulted in four avalanche fatalities in five days from February 18-22, 2026. Furthermore, an Avalanche Watch was issued Monday, 2/16/26 at 6:00 AM MST through 6:00 AM MST Wednesday, 2/18/26**.** Avalanche Warnings began Wednesday, 2/18/26 at 6:00 AM MST through Monday, February 23, 2026, at 6:00 AM MST.

Strava routes during this time period were collected along with the daily avalanche forecast, hazard rating, avalanche problem, location, size and likelihood, in addition to referencing recent observations and avalanche activity using the Bridger Teton Avalanche Center Forecast and the Utah Avalanche Center Forecast. I attempted to see if skiers and riders were traveling in bull's eye terrain, (e.g. the aspect and elevations in which recent avalanches were being reported and terrain which was being forecasted as the most unstable).

Persistent weak layer problems on the daily avalanche hazard problem list were the focus given their level of uncertainty when forecasting, and since they can also provide skiers with a false sense of security until the thin spot is triggered. This was ideal when viewing tracks of the public and seeing where skiers traveled during that timeframe. Within the data I included a couple forecasted storm slab and/or wind slab when listed as the primary problem of the day, as it represented the persistent weak layer problem when it was initially being loaded.

Data is confounded as it only represents routes viewed via Stravastalker.com which represents only a fraction of the recreationalists that traveled in that terrain. Stravastalker.com only contains public Strava data, excluding users who keep their data private.

Slopes that were ridden were classified on The Avalanche Terrain Exposure Scale (ATES) (Statham, et al., 2025) which classifies terrain into five categories based on slope angle, forest density, slope shade, terrain traps, avalanche frequency/magnitude, starting zone size and density, runout zone characteristics, interaction with avalanche paths, and route options for managing exposure.

Utilizing onX Backcountry Maps ATES scale overlay feature the terrain choices were classified accordingly. The categories are listed below. If terrain traveled was in two classification areas, (e.g. Simple and Challenging it received a score of 1.5).

- Non-avalanche (Class 0) Color White: No known exposure to avalanches. Very low angle or densely forested slopes located well away from avalanche paths, or designated trails/routes with no exposure to avalanches.
- Simple (Class 1) Color Green: Exposure to low angle or primarily forested terrain. Some forest openings may involve the runout zones of infrequent avalanches and terrain traps may exist. Many options to reduce or eliminate exposure.
- Challenging (Class 2) Color Blue: Exposure to well-defined avalanche paths, starting zones, terrain traps or overhead hazard. Options exist to reduce or eliminate exposure with careful route finding.
- Complex (Class 3) Color Black: Exposure to multiple overlapping avalanche paths or large expanses of steep, open terrain. Sustained exposure to overhead hazard. Many avalanche starting zones and terrain traps with minimal options to reduce exposure.
- Extreme (Class 4) Color Red: Exposure to very steep faces with cliffs, spines, couloirs, crevasses or sustained overhead hazard. No options to reduce exposure and even small avalanches can be fatal.

3. RESULTS

Table 1: Strava User Routes for Tetons and Wasatch Ranges during reactive PWL 25/26 Analysis of Terrain Complexity, Local Forecast, PWL Size/Likelihood

AETS Score	Avy Forecast	PWL Likelihood	PWL Size	Traveled in PWL Location	# Routes
1	High	Very Likely	D3	Yes	66
1	Con	Very Likely	D3	Yes	14
1	Mod	Possible	D2	Yes	4
1	Con	Possible	D2	Yes	2
1.5	Mod	Possible	D2	Yes	144
1.5	Con	Likely	D2.5	Yes	90
1.5	High	Very Likely	D3	Yes	69
1.5	Mod	Storm Slab - Possible	D2	Yes	36
1.5	Mod	Possible	D2.5	Yes	35
1.5	Con	Possible	D2.5	Yes	22
1.5	Con	Very Likely	D3	Yes	18
1.5	Con	Wind Slab no PWL* Likely	D2.5	Yes	16
1.5	Con	Possible	D2	Yes	10
1.5	Con	Wind Slab no PWL* Very Likely	D2..5	Yes	9
1.5	Con	Wind Slab no PWL* Likely	D2..5	Yes	5
2	Mod	Possible	D2	Yes	147
2	High	Very Likely	D3	Yes	71
2	Con	Likely	D2.5	Yes	33
2	Mod	Possible	D2.5	Yes	25
2	Con	Very Likely	D3	Yes	13
2	Con	Possible	D2.5	Yes	12
2	Con	Possible	D2	Yes	9
2	Con	Wind Slab no PWL* Likely	D2..5	Yes	6
2	Mod	Storm Slab - Possible	D2	Yes	4
2	Con	Wind Slab no PWL* Very Likely	D2..5	Yes	2
2	Con	Wind Slab no PWL* Likely	D2.5	Yes	1
2.5	Mod	Possible	D2	Yes	171
2.5	Mod	Storm Slab - Possible	D2	Yes	99

AETS Score	Avy Forecast	PWL Likelihood	PWL Size	Traveled in PWL Location	# Routes
2.5	Con	Wind Slab no PWL* Likely	D2..5	Yes	34
2.5	Con	Wind Slab no PWL* Very Likely	D2..5	Yes	22
2.5	Con	Likely	D2.5	Yes	21
2.5	High	Very Likely	D3	Yes	6
2.5	Con	Very Likely	D3	Yes	4
2.5	Mod	Possible	D2.5	Yes	4
2.5	Con	Possible	D2	Yes	3
3	Mod	Possible	D2	Yes	27
3	Con	Likely	D2.5	Yes	20
3	Mod	Possible	D2.5	Yes	3
3	Mod	Storm Slab - Possible	D2	Yes	3
3	Con	Possible	D2.5	Yes	1
3	Con	Very Likely	D3	Yes	1
3	Con	Wind Slab no PWL* Likely	D2..5	Yes	1
4	Mod	Possible	D2	Yes	15
4	Mod	Possible	D2.5	Yes	3
4	Con	Likely	D2.5	Yes	1

Terrain AETS Score: Simple = 1 | Simple and/some challenging = 1.5 | Challenging = 2 | Challenging and/some complex = 2.5 | Complex = 3 | Extreme or Complex/Extreme = 4

*Data for Tetons 12/19/25–12/20/25 and 2/11/26–2/23/26, and Wasatch 2/11/26–2/23/26.

Results demonstrate that when avalanche forecast rating was Considerable or High with a corresponding avalanche problem likelihood that was “likely” and “very likely” 87 routes travelled in terrain that was Challenging with some Complex features. Similarly, when the hazard rating was Considerable or High with a corresponding avalanche problem likelihood that was “likely” and “very likely” 24 routes travelled in Complex and Extreme terrain.

During the time frame of February 11-23, 2026, in the Tetons, WY a time in which an isolated and reactive surface hoar problem was being triggered regularly on the north side of the compass in the middle elevations near Teton Pass and on the West Side of Teton Pass there were 37 avalanches (27 D1, 9 D2, and 1 D3[2]). 24 of these avalanches were human triggered, 10 were reported as natural with 3 unknown. Of the total, 12 were reported as persistent weak layer avalanches, 10 wind slab, 2 storm slab, and 1 wet slab. Of note, some wind slabs were being inaccurately reported as such and could have been labeled persistent weak layer problems. Avalanche activity was steady throughout the week with the most notable being a D3 human triggered avalanche on February 21, 2026, where the 5th rider on the slope triggered a small slab, which then initiated a much larger avalanche—characterizing the unpredictability of the time period.

In the Wasatch Mountains of Utah during the same timeframe (February 11-23, 2026), 96 avalanches were reported. The lions share were located in the middle and upper elevations N and NE, with a few scattered NW and E aspects. 51 of the slides were labeled as persistent weak layer avalanches, 27 new snow, 12 wind slab, 1 wet slab, and 3 glide. Of the total, 74 were characterized by having a faceted weak layer. 54 of the avalanches were triggered by humans, 29 were reported as naturals, with 13 unknow. Reactivity during the time period was steady, however the 18 and 19 of February 2026 was the most active with 20-25 avalanches being reported each day. Sadly, there were four avalanche fatalities in five days from February 18-22, 2026.

4. DISCUSSION

By investigating specific dates surrounding sensitive, persistent weak layer avalanche problems, I have collected chronological links demonstrating a relationship between people seemingly trusting the open-source data despite recent avalanches and/or forecast which contradicted the stability.

Examples such as heat maps that show skin tracks going up the face of avalanche paths rather than traveling on the typical ridgelines, or users choosing terrain in the bullseye of recent avalanche activity without incident or even sometimes encountering avalanche activity, that is then shared through Strava

[2] The destructive potential of avalanches is a function of the mass, speed, and density of avalanche debris paired with the length and cross-section of the avalanche path. Observers rate the size of an avalanche based on its destructive potential: D1 avalanches are harmless, D2 avalanches can injure or kill people, D3 avalanches can destroy a house or car, D4 avalanches can destroy buildings or mature forests, and D5 avalanches can gouge the landscape.

and attracted more users in subsequent days. While the relevant data points are robust, it's still a small sample in a full season of decision making. However, there are correlations with some terrain features being "opened" and then the next day several more tracks appear in the Strava map feature, for example Cardiac Ridge, Mineral Fork, and Days Fork in Utah, all of which were in the bulls eye of the avalanche problem at the time with recent activity supporting the avalanche forecast, were zones that popped up more after someone had visited those drainages. Mt. Taylor in the Tetons is another example of this phenomenon. Similarly, during the surface hoar problem near Teton Pass in mid-February, many popular locations had regular traffic to those terrain features even while human triggered activity was being reported most days.

During this time in Utah, Challenging and Complex terrain were being ridden, some with avalanche activity and some without; Strava reports showed skiers traveling to that terrain. Without surveying the recreational users it's hard to discern if previous social media posts or published Strava routes specifically led them to that terrain, but it is suggestive. Furthermore, bolder terrain choices such as Kessler Slabs, Upper Mineral Fork, Days Fork – several well-known avalanche paths, White Lightening, among others within the Wasatch were being ridden.

Similarly, it's hard to determine if the Strava track leading to Bear Claw on December 19, 2025, influenced the decision to go there on December 20, 2025, leading to an avalanche accident. But if emphasis is given on social media positionality and reliance on where others have gone the day before, it cannot be ruled out.

In the book *Making Decisions in Avalanche Terrain – Human Factors in Theory and Practice,* authors Hendrikx and Johnson ask, "what, if any, impact does this new social media ecosystem have on decision making?" (Johnson et al., 2025) and reference their 2020 paper *Risky Positioning—Social Aspirations and Risk-Taking Behavior in Avalanche Terrain* (Johnson et al., 2020). The paper was based on data for hypothetical choices from an online survey. They found that "positional (positionality refers to where we are located in relation to our various social identities (e.g. gender, race, class, ethnicity, ability geographic location), riders are significantly more likely to boast about riding bold lines, more likely to associate steep riding with social respect, and more likely to say that they would accept to ride a potentially risky line."

Interestingly they also found that the positionality effect is present regardless of the level of avalanche training and the most important factor respondents cared about is that they outskied their friends and "these people were more easily convinced," (Johnson et al., 2025). This research sheds light on how applications like Strava's can increase vulnerability of backcountry travelers during periods of instability.

While this is post-hoc analysis, there are several examples of backcountry user decision making that counter traditional warnings and forecasts, raising significant speculation regarding these tools and their prevalence. Presenting this data and its inferences is purely to communicate the use of such technology and educate snow professionals on its use and implications; emphasizing the need to adapt to our audience. No shaming was intended in the analysis.

The above referenced data begins to look at potential patterns and changing cultures that are emerging. For example, during the February cycle there are several examples of groups entering challenging and complex terrain during heightened avalanche watches and warnings, with recent avalanches to validate those forecasts and warnings. However, a Strava report that said "*put the [Mineral Fork] skinner in and only saw 1 guy near the bottom on our way out. Best powder turns of the year…*" Resulted in more traffic to the same location the next day, a similar pattern seen in other terrain. The harrowing factor is that Mineral Fork ripped nearly wall to wall on the north side a few days later and on February 18, 2026, a line on Kessler Peak was skied as accidents began to ravage the community, with the user stating, "*vowed I wouldn't ski the slabs this year since it's a repeater yet here, I am, did 3 laps to suss it out first, still … judge away*."

When snow is stable, seeing tracks on a slope and reading observations typically leads to more tracks and opening up additional terrain. The problems lie when terrain is opened with a false sense of security through observations on social web applications, without a solid grasp of the current conditions, or when new map-based applications show different travel routes that lead users into more exposure when there are safer ascent options.

Regardless of our training and expertise, it takes a lot of experience, luck, self-control, among other things for us not fall victim to the positionality of our own heuristic traps. Everyone is susceptible to it. Regarding new Web 2.0 apps, social media, and AI we need to decipher how best to communicate avalanche hazard with times of uncertainty so a higher percentage of recreationalists don't rely on open source unvalidated snow assessments. We can't stop Strava, Instagram, AI and social media. The task is learning how to work with such technologies, understanding that they constantly evolve. Anthropologist Giles Crouch notes, "Digital technologies that are having the most significant impact on our global cultures and societies. The pace of change driven by these technologies has become so fast that in different ways we are asking if technology is moving too fast for humans to keep up" (Crouch, 2021).

These types of new technologies can seem overwhelming if we're dealing with non-native digital users. However, we can adapt to our audience before the culture changes too much and the avalanche forecast falls on glazed over eyes, that thinks the forecast center is trying to keep people off of steep slopes. *Does everyone remember Sex Education in school? Abstinence wasn't the answer… Better communication on tools to prevent teen pregnancy and sexual transmitted diseases were.*

This paper began to tackle the intersection of science and human behavior and address how AI generated data could influence human behavior in avalanche terrain. This is important for snow professionals and avalanche forecasters because we need to understand the limitations of our current tools and tactics in a changing technological environment and culture of backcountry users. As snow professionals we need to be aware and communicate to our audience before they get in trouble utilizing crowd sourced information during periods of higher hazard.

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REFERENCES

Atkins, D. Human factors in avalanche accidents. In: Proceedings, International Snow Science Workshop. Big Sky, MT, January, 2000. 46-51.

Crouch, G. 2021. Is Technology Moving too fast for Humanity? https://gilescrouch.medium.com/is-technology-moving-too-fast-for-humanity-aae4c78aecbb. Last access: 9 September, 2026.

Haegeli, P., Haider, W., Longland, M., and Beardmore, B., 2010. Amateur decision-making in avalanche terrain with and without a decision aid: a stated choice survey. Natural Hazards, 52(1), 185-209.

Hendrikx, J., and Johnson, J. Tracking snowmobilers to understand travel behavior in avalanche terrain. In: Proceedings, International Snow Science Workshop. Breckenridge, CO, October, 2016, 805-809.

Hendrikx, J., and Johnson, J. Understanding global crowd sourcing data to examine travel behavior in avalanche terrain. In: Proceedings, International Snow Science Workshop. Breckenridge, CO, October, 2016, 737-743.

Hendrikx, J., Johnson, J., and Mannberg, A., 2022. Tracking decision-making of backcountry users using GPS tracks and participant surveys. Applied Geography. 144. 102729.

Isaak, J., 2016. Social Media and Decision Making in Avalanche Terrain. In: Proceedings, International Snow Science Workshop, Breckenridge, Colorado, 2016. 230-234.

Johnson, J. and Hendrikx, J., 2025. Making Decisions in Avalanche Terrain: Human Factors in Theory and Practice. ISBN 9798218669393.

Johnson, J., and Hendrikx, J., 2021. Using citizen science to document terrain use and decision-making of backcountry users. Citizen Science: Theory and Practice, 6(1), 8-8.

Johnson, J., Mannberg, A., Hendrikx, J., Hetland, A., and Stephensen, M., 2020. Rethinking the heuristic traps paradigm in avalanche education: Past, present and future. Cogent Social Sciences, 6(1). https://doi.org/10.1080/23311886.2020.1807111.

Lardi, K. 2025. The dangerous impact of AI on decision-making. Forbes. https://www.forbes.com/councils/forbesbusinesscouncil/2025/01/30/the-dangerous-impact-of-ai-on-decision-making. Last access: 9 September, 2026.

Mannberg, A., Hendrikx, J., and Johnson, J., 2021. Risky positioning–social aspirations and risk-taking behavior in avalanche terrain. Leisure Studies, 40(4), 495-512.

Marengo, D., Monaci, M. G., and Miceli, R., 2017. Winter recreationists' self-reported likelihood of skiing backcountry slopes: Investigating the role of situational factors, personal experiences with avalanches and sensation-seeking. Journal of Environmental Psychology, 49, 78-85.

McCammon, I., 2004. Heuristic Traps in Recreational Avalanche Accidents: Evidence and Implications. Avalanche Review, Vol. 22, nos. 2 & 3.

Procter, E., Strapazzon, G., Dal Cappello, T., Castlunger, L., Staffler, H. P., and Brugger, H., 2014. Adherence of backcountry winter recreationists to avalanche prevention and safety practices in northern Italy. Scandinavian journal of medicine & science in sports, 24(5), 823-829.

Saly, D., Hendrikx, J., Birkeland, K. W., Challender, S., and Johnson, J., 2020. Using time lapse photography to document terrain preferences of backcountry skiers. Cold Regions Science and Technology, 172, 102994.

Statham, Grant & Campbell, Cam., 2025. The Avalanche Terrain Exposure Scale (ATES) v.2. Natural Hazards and Earth System Sciences. 25. 1113-1137. 10.5194/nhess-25-1113-2025.
Strava Business: https://business.strava.com/why-strava/audience, last access: 9 September 2026.

Sykes, J., Hendrikx, J., Johnson, J., and Birkeland, K. W., 2020. Combining GPS tracking and survey data to better understand travel behavior of out-of-bounds skiers. *Applied Geography*, *122*, 102261.

Tremper, B., and Diegel, P., 2014. The Wisdom of Crowds in Avalanche Forecasting. In: Proceedings, International Snow Science Workshop, Banff Canada, 2014.

Viveros, A. *At Delta Lake, AIi Mogging TikTok*. JH News and Guide. June 3, 2026. https://www.jhnewsandguide.com/news/environmental/ai-mogs-tiktok-for-visitors-to-teton-parks-iconic-delta-lake/article_883a1e19-fbbd-4a9d-bf1f-fd08dacbda31.html.

Zweifel, B., and Haegeli, P., 2014. A qualitative analysis of group formation, leadership and decision making in recreation groups traveling in avalanche terrain. Journal of Outdoor Recreation and Tourism, 5, 17-26.