

FROM WHAT WE THINK TO WHAT WE SAY: THE P.E.A.C.H.E.S. MNEMONIC FOR COMMUNICATION-CENTRIC DECISION MAKING

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ABSTRACT: In the past, research on decision making in avalanche terrain has focused heavily on the psychological heuristic traps that are often a component of avalanche accidents. While understanding these internal shortcuts is foundational, translating that psychological awareness into consistent group action can be challenging. This research frames group decision making not only as a psychological process, but as a visible product of group interaction and verbal communication. Using an inductive qualitative approach, this study sought to identify the critical topics that should be discussed in order to make a decision in avalanche terrain. Twenty Five avalanche education professionals were interviewed and asked to define what they considered to be core components of effective group conversations at decision points. The responses were grouped by themes, given descriptive titles, combined with best practices in small group communication, and organized into a new mnemonic: P.E.A.C.H.E.S. (Pressure, Expectations, Arguments, Consequences, Heuristics, Everyone speaks, and Strategy). The approach to this study shifts away from the psychological paradigm toward a communication-centric framework. By focusing on the external process of conversation rather than the internal process of the individual, P.E.A.C.H.E.S. provides a practical, real-time tool for groups to structure their communication, mitigate heuristic traps, ensure critical ideas are voiced, and developed a strategy before entering high-consequence terrain.

KEYWORDS: Communication, Decision-Making, Heuristics

1. BACKGROUND

Effective communication in avalanche terrain is one of the core components of safety. This axiom applies to guides, patrollers, various avalanche safety professionals, as well as recreationalists alike. While straightforward in theory, employing what would be considered effective communication in avalanche terrain can be extremely difficult to execute. Groups may have to navigate different risk tolerances, motivations, personality conflicts, fall into heuristic traps, and may be operating while subjected to external pressures such as opening terrain, completing a rescue, or avoiding impending storms. These factors either individually or combined can impact a group's ability to effectively communicate and make optimal decisions in avalanche terrain. Indeed, researchers including Fredston and Fesler (1994) identified poor communication as being a major contributor to avalanche accidents and Atkins (2000) writes "The problem is seldom a lack of information regarding terrain, weather, and snowpack. The problem is how that information is processed." From this perspective, it stands to reason that

improvements in group communication should improve decision-making in avalanche terrain.

This study investigated group dynamics and decision-making by employing an interpersonal communication lens. As a field of study, interpersonal communication focuses on the interaction that occurs between individuals or groups and how that interaction constructs the group's social reality. From this perspective, a group's decision is the product of their communication practices. Specifically, group conversations are the way in which teams jointly process information about the weather, terrain, and snowpack. However, this process may be far from perfect as member preferences, personalities, and heuristics have an impact on the dialogue and can serve to introduce or reinforce some of the various human factors common in avalanche accidents. Reframing group dynamics and information processing as communication interactions suggests that structuring and refining group communication behaviors can improve backcountry decision-making.

2. RESEARCH QUESTION

In order to identify the key components of effective group conversations in avalanche terrain, the study posed the following research question:

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RQ 1: What are the most important topics a group needs to discuss before entering avalanche terrain?

3. METHODOLOGY

This research project employed a multi-step qualitative approach to developing a communication process to improve safety in avalanche terrain. The process involved data collection, interviews, integration of best practices, and final structuring.

The project began with the researcher gathering naturalistic data by either listening to or participating in group discussions while teams were deciding to enter avalanche terrain. Developing a running list of topics was the initial step.

Once the researcher had developed a preliminary list of topics, he then asked subject matter experts such as mountain guides, avalanche educators, and search and rescue personnel what specific items must be talked about before making a decision. The resulting answers were recorded and the initial observations and interview answers were sorted into themes. This thematic analysis continued until theoretical saturation- the point at which no new ideas began to emerge- was reached and included approximately 25 interviews.

After themes were identified, the researcher integrated best practices from group decision-making science such as actively encouraging counter-arguments and creating dedicated spaces to everyone to voice their perspective. Techniques such as these are effective at improving group dynamics and minimizing the impact of heuristics on conversations. Indeed, research from Curseau, Jansen, and Chappin (2013) shows that the use of decision-making rules in group discussions results in higher levels of group cognitive competencies and lessens a group's susceptibility to heuristic-based decision-making.

The final step was taking the themes and group decision-making processes and organizing them into a single cohesive framework that followed a natural chronological sequence. The mnemonic PEACHES was the result. It stands for Pressure, Expectations, Arguments, Consequences, Heuristics, Everyone, Strategy.

4. IMPLIMENTATION

To employ this mnemonic a group should begin with the first letter (P) and discuss any

information in that category that the group deems relevant. Once the group feels that information has been satisfactorily discussed they should move on to the next letter. If a group skips a letter and begins talking about topics outside of that part of the mnemonic, they should return to where they deviated from the process. Movement through the model should only occur once a step is complete and a group may decide to revisit an earlier step if useful. A group may also decide not to enter the terrain at any step of the model.

4.1 P - Pressure

In this opening phase, the team explicitly identifies and attempts to address any internal or external factors that might compromise sound judgment or cause the group to make a rushed decision. These factors could include cold temperatures, wind exposure, fading light, an active rescue response, physical exhaustion, hard deadlines or other influencers that can instill a sense of urgency. Naming these forces early empowers the group to actively mitigate their impact before making choices. Some examples of how this may be phrased are: "Where are we on our timeline?" or "I'm freezing...let's step out of the wind to talk."

4.2 E - Expectations

Here, the team checks field conditions against their pre-trip assumptions. Does the current snowpack, weather, and terrain realities line up with official forecasts or the group member's mental models? Uncovering discrepancies between expected and real-world conditions helps the team focus on unexpected variables and avoids being caught off-guard. Some examples of how this may be phrased are: "We have significantly more snow than predicted...does this alter our plan?" or "Wow, it is much more windy than I thought it would be."

4.3 A - Arguments and Alternatives

This step uses a structured debate to evaluate avalanche likelihood. Team members offer evidence such as forecasts, red-flags, snow test results, local knowledge, etc. It is important to note here that this model does not provide a prescriptive list of relevant information as that is for the team to decide. However, this part of the process involves three distinct steps which must be completed: In order, the group must present evidence that an avalanche is unlikely, present evidence that an avalanche is likely, and discuss alternative routes.

Completing all three steps in this section is important as the structure provided creates communication opportunities that minimize heuristic traps and help a group manage conflict or overly influential members. By having a time that is dedicated to each argument, group members can participate and raise concerns without being seen as being overly cautious or a “party pooper.” Making the presentation of divergent perspectives and opinions expected as part of the process removes many of the social influences that otherwise impact group conversations.

Feedback from the real-world implementation of this model indicates that this step is one in which groups may choose an alternative plan. When employing the model numerous groups reported choosing an alternative path when it was difficult to identify factors that indicated that an avalanche was unlikely and very easy to identify factors that indicated an avalanche was likely. Put another way, a group may encounter overwhelming evidence in support of one argument while completing this step.

4.4 C - Consequences

The group now moves to evaluating the potential outcomes should a slide occur. How large could a slab be in this terrain? Are there terrain traps that could amplify the severity of a slide or burial? By the end of this phase, the team has hopefully established a shared picture of the true stakes involved. Some examples of these types of statements include: “If that persistent weak layer collapses, we’re looking at a massive slide,” or “If we stay fall line we would not hit any terrain traps, but there is a cliff band to the skier’s right of the trees.”

4.5 H - Heuristics

Here, the group identifies any heuristic traps that may be influencing their decision-making. Have factors like familiarity, social proof, ski tracks, or commitment to a plan changing how the group is functioning? If heuristic biases are detected they should be acknowledged and the group may want to return to any earlier steps if deemed necessary. An example of these types of statements is: “I feel like we might be rushing to try to beat that other group to the good skiing.”

4.6 E - Everyone Speaks

In this stage the group members take turns with everyone sharing their final thoughts and an explicit “go” or “no-go” vote. Similar to the Arguments step of the model, it is important that

this step is completed orderly so that everyone’s perspective can be shared and the group can minimize heuristic traps or the impact overzealous group members. During this step if consensus is not reached, it may be helpful to revisit the Arguments and Consequence steps.

4.7 S - Strategy

If the group has elected to move forward, they should identify a plan for moving through the terrain. Discussion points in this step may include spacing, safe zones, potential trigger spots, and exit paths. Examples of this category of statements are: “Let’s ski one at a time down to those trees” or “I will set a handrail and do not go to the right of my tracks.”

5. PRACTICAL CONSIDERATIONS

During the first few trials of the model groups can expect it to seem choppy as they commit the mnemonic to memory. As individuals and group become more familiar with the model the process will become smoother and more efficient with many groups reporting completion in under five minutes. Groups also report completing the model initially but then skipping steps when using the model repeatedly throughout the day. For example, if a group has been out skiing, completed the model once and is now switching aspects, they may choose to complete the Expectations, Arguments, Consequences, and Strategy steps rather than repeat the entire sequence. It is also recommended to write out the model on an item like a water bottle as having a physical reminder can both serve to remind groups to complete the process and adhere to the steps. This is particularly useful in groups with overzealous members or when operating in a team without established decision-making norms.

6. CONCLUSION

Sound decision-making in backcountry terrain relies on structured, intentional communication. In discussing the challenges faced by avalanche educators Mccammon (2004) stated “The challenge is to encode knowledge into simple, easily-applied decision tools that can compete with the heuristic traps described here. Luckily, such tools don’t need to be perfect to save lives. They just need to be more accurate than the social cues that most avalanche victims apparently rely on.” The PEACHES framework presented in this paper offers a practical script for these critical discussions and helps teams process information, avoid being surprised by conditions, weigh alternatives, minimize the

impact of heuristic traps, ensure every voice is heard, and develop a plan before stepping into exposed terrain. By systematically targeting the human factors that drive group errors, this protocol reinforces best practices for team communication and decision-making. While risk can never be entirely erased, structured conversations have the potential to improve group communication and decision-making in high-consequence avalanche terrain.

7. FURTHER INFORMATION

Videos further explaining the model and demonstrating its use can be found by following the QR code below:



Figure 1: QR code link to videos

8. ACKNOWLEDGEMENTS

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