

Decision Making and Human Factors in Emergency Situations

April 18 and 25, 2012



Seattle Mountaineers
Seattle Mountain Rescue



Kelly Bush, North Cascades Nat'l Park

Decision Making in Emergency Situations

Agenda, April 18 (7:00 to 9:30)

7:00 Introduction and context

7:10 Kelly Bush: perspectives on decision making

7:55 Break and form into table discussion groups

8:05 Scenario – Kaleetan

- Discussions and reporting by group

8:55 Pitfalls and tools

9:15 Take-home messages and Homework (!)

- Sharkfin Tower and questions to consider

9:30 Adjourn

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Agenda, April 25 (7:00 to 9:30)

7:00 Highlights from April 18 / Sharkfin Tower

7:10 Stuart Scenario

- Discussions and reporting by group

7:55 Break

8:05 Shasta/Denali Scenario

8:45 Seattle Mountain Rescue – Timmy Williams

9:15 Take-home messages

- What's your leadership style? (handout)

9:25 Feedback surveys

9:30 Adjourn



Decisionmaking

Introduction

Sources:

Risk Mgmt for Outdoor Leaders (NOLS)

Wisdom of Crowds (James Surowiecki)

No Shortcuts to the Top (Ed Viesturs)

Blink (Malcolm Gladwell)

How We Decide (Jonah Lehrer)

“I believe that most accidents and deaths on the high peaks are due to human error.”

“Ambition and desire overpowering common sense have killed many a ... climber.”

--Ed Viesturs

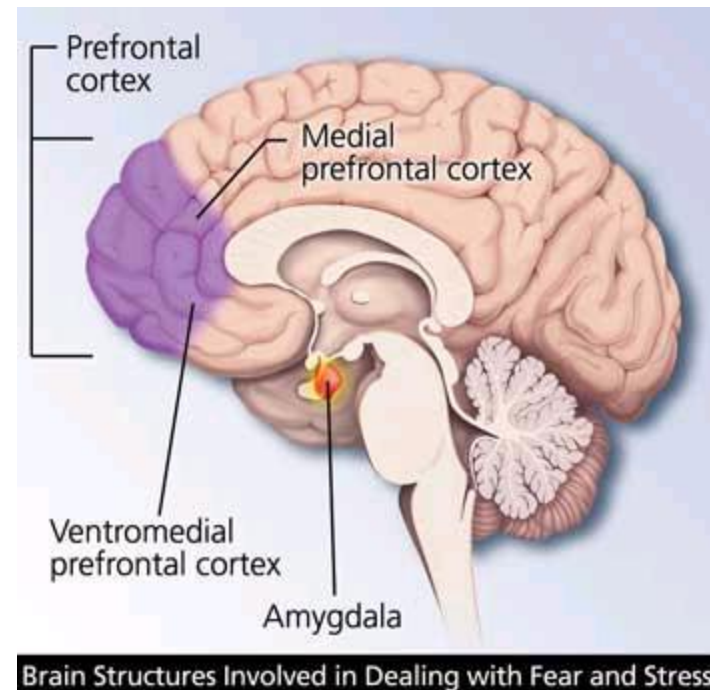


**“There’s only one problem with this assumption
of human rationality: it’s wrong.**

It’s not how the brain works.”

***“Whenever someone makes a
decision, the brain is awash in
feeling, driven by its inexplicable
passions.”***

Source: How We Decide



Fear of failure inhibits learning.

Mistakes are the building blocks of knowledge.

(this is why we're here tonight – congratulations on Step 1)

**“In human decisionmaking, losses loom larger
than gains.”**



Decisionmaking

Pitfalls and Tools

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We make decisions based on...

- Rules
 - Rock!
 - Falling!
 - Avoid steep snow slopes when avy hazard is high
 - *Mental shortcuts*
- Information (situation, group, personal)
- Experience
- Judgment

Nature of Expertise

- “... [T]he fundamental truth about expertise is that it is spectacularly narrow”
- Being good at skills that are earned (**skiing**) does not translate to forecasting an uncertain future (**avalanche terrain decisionmaking**).
- Expert halo trap

Expertise $\neq$ Accuracy

- *A large group of diverse individuals will come up with better and more robust forecasts and make more intelligent decisions than even the most skilled “decision maker.”*
- Examples
 - NASA on Apollo 13 and space shuttle Columbia
 - Guessing the weight of a cow at the fair
 - Locating a shipwreck
 - Markets (stock market)

Diversity

- A group made up of some “smart” agents and some “not-so-smart” agents almost always did better than a group of just “smart” agents.
- Huh?
- Intelligence alone is not enough. Intelligence cannot guarantee different perspectives.
- **Making a group more diverse makes it better at problem solving.**

Exploiting vs. exploring

- “The development of knowledge may depend on maintaining an influx of the naïve and the ignorant....”
- Homogeneous groups (exploit) become progressively less able to investigate alternatives (explore)
- Recruits are, on average, less knowledgeable than the individuals they replace.
- ***The gains come from their diversity.***

Deference based on rank

- In groups where members know each other, status tends to shape speaking patterns:
 - Higher-status people talk more and more often than lower-status people
 - No guarantee that the most-informed speaker will also be the most influential

Pilots and Navigators

- Pilots more likely to defend their solutions than navigators, even when pilots were wrong and navigators were right.
- Navigators deferred to pilots (even when they had never met before) because they assumed that *rank = right*.
- *Even when higher-status people don't know what they're talking about, they're more likely to speak.*

Talkativeness

- Major impact on small groups
- Talkative people are not necessarily more liked but they are listened to.
- The more someone talks, the more someone is talked to by others in the group.

Danger of starting with a conclusion

- Group deliberations are more successful when they have a clear agenda and when leaders take an active role in making sure that *everyone gets a chance to speak*.
- If you start with a conclusion, you will reinterpret new information to fit that conclusion.

Cliff Notes version...

- Rank is not right
- First is not right
- People who talk more have more influence
- People who talk more are not more right
- Earlier comments are more influential

Beware:

- Social proof: well, they did it
- Validating expected outcomes
- Assuming newer information is better
- Overconfident experts
- Expert halo:
 - If you're good at one skill, good at all skills

So what can you do??

Team building

- Personal trips already tend to have team mentality
- Listed trips: leader must build the team
 - Define expectations
 - Model good behavior
 - Conduct “briefings” – check in with each climber

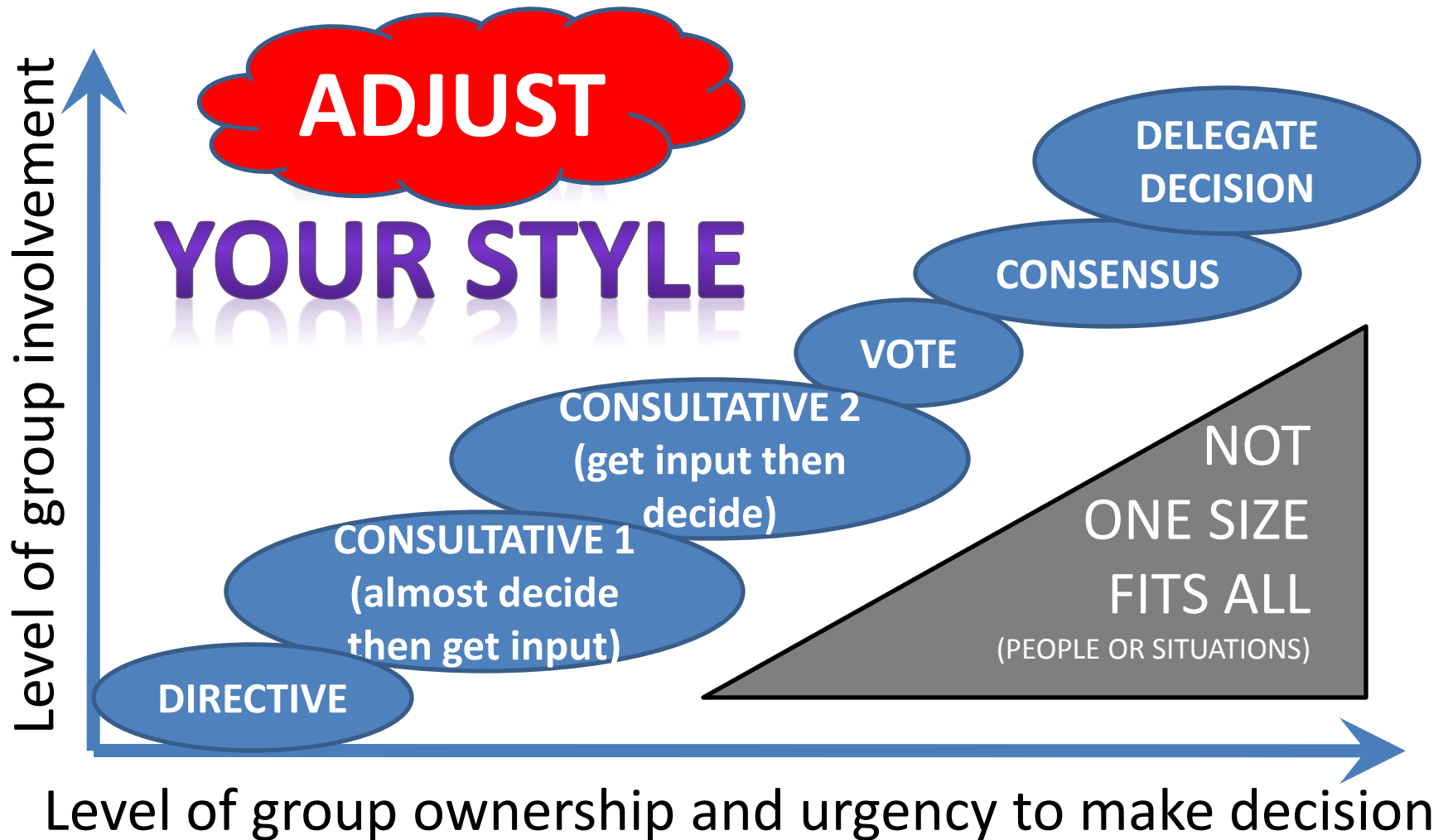
Create an atmosphere to question, advocate, speak up

- Consider differences in age, gender, training, and culture
- Watch deference to hierarchy
- *Silence ≠ agreement*

It's all in the wording...

Restraining	Encouraging
Everybody's ready, right?	Is there anyone who's not ready?
The river looks crossable, right?	What do you think?
I don't see any problems here, how about you?	Let's talk about this.

Decisionmaking styles



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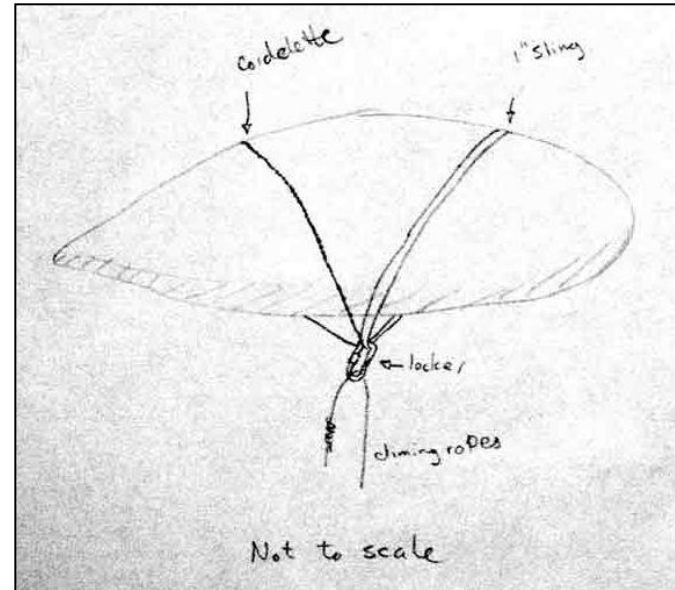
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Highlights and take-home messages from April 18

- Everyone contributes to decisionmaking
- Urgency leads to poor decisionmaking
- If time permits, better decisions are made with the entire group
- Have a plan of what to do
- A chain of bad decisions is BAD
- Authority conflicts are a problem

Sharkfin Tower accident



Begin calibrating your decisions

- Use your new decisionmaking tools
- Consider group dynamics
- Balance pre-frontal cortex and amygdala
- Make bets: how will it turn out?
- Evaluate afterwards: were you right?
- Keep adjusting, adapting, learning

Resolve conflicts

- Conflicts are OK and expected
- Unresolved conflicts are not OK
- Not fun, but necessary part of our organization
- Unresolved conflicts hinder communication and severely affect group dynamics (and personal enjoyment)

**“The day soldiers stop bringing you their problems
is the day you have stopped leading them.**

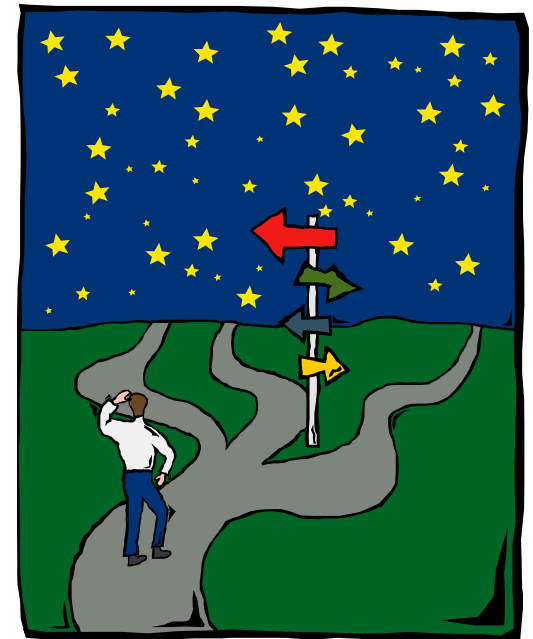
**They have either lost confidence that you can help
them or concluded that you do not care.**

Either case is a failure of leadership.”

--Colin Powell

Judgment

- Implies you don't have all the info
 - More complex than decisionmaking
 - Experience does not guarantee judgment
 - Develops after reflection
-
- *Think about and explain why and how decisions are made.*



Calibrating judgments

- If your judgments are well calibrated, then you have a sense of how likely it is that your judgment is correct.
- Experts, like normal people, routinely overestimate the likelihood that they are right.

**“A leader with limited knowledge
and superior judgment
is better than one with
vast knowledge and little judgment.”**

--Paul Petzoldt

Decisionmaking styles

