BUILDING AND EVALUATING DECISION-MAKING SKILLS

WRMC
2020
PROBLEM:
IN THE OUTDOOR INDUSTRY, WE FACE

Ill-structured problems
Complex dynamic environments
Poor feedback loops
High stakes
WICKED LEARNING ENVIRONMENT
KIND LEARNING ENVIRONMENT
CHESS VS. POKER
MARGIN
WHAT'S THE CULTURE AT YOUR ORGANIZATION?
THE TOOLS TO ADDRESS THAT CHALLENGE INCLUDE:

VOCABULARY/LANGUAGE

CULTURE

SYSTEMS for IMPLEMENTATION
VOCABULARY/LANGUAGE
BUILDING VOCABULARY AROUND RISK AND DECISION-MAKING
A FEW DEFINITIONS

HAZARD = AN AGENT THAT HAS THE POTENTIAL TO CAUSE HARM

RISK = MEASURES THE LIKELIHOOD OF HARM FROM A HAZARD
North American Public Avalanche Danger Scale

Avalanche danger is determined by the likelihood, size and distribution of avalanches.

<table>
<thead>
<tr>
<th>Danger Level</th>
<th>Travel Advice</th>
<th>Likelihood of Avalanches</th>
<th>Avalanche Size &amp; Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Extreme</td>
<td>Avoid all avalanche terrain.</td>
<td>Natural and human-triggered avalanches certain.</td>
<td>Large to very large avalanches in many areas.</td>
</tr>
<tr>
<td>4 High</td>
<td>Very dangerous avalanche conditions. Travel in avalanche terrain not recommended.</td>
<td>Natural avalanches likely; human-triggered avalanches very likely.</td>
<td>Large avalanches in many areas; or very large avalanches in specific areas.</td>
</tr>
<tr>
<td>3 Considerable</td>
<td>Dangerous avalanche conditions. Careful snowpack evaluation, cautious route finding and conservative decision-making essential.</td>
<td>Natural avalanches possible; human-triggered avalanches likely.</td>
<td>Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.</td>
</tr>
<tr>
<td>2 Moderate</td>
<td>Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.</td>
<td>Natural avalanches unlikely; human-triggered avalanches possible.</td>
<td>Small avalanches in specific areas; or large avalanches in isolated areas.</td>
</tr>
<tr>
<td>1 Low</td>
<td>Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.</td>
<td>Natural and human-triggered avalanches unlikely.</td>
<td>Small avalanches in isolated areas or extreme terrain.</td>
</tr>
</tbody>
</table>

Safe backcountry travel requires training and experience.

You Control Your Own Risk by choosing where, when and how you travel.
RISK – PROBABILITY OF LOSS (OR GAIN)
AVALANCHE PROBLEMS

- Storm Snow
- Wind Slab
- Persistent Slabs
- Loose Snow
- Deep Slabs
- Low Danger
- Wet Avalanches

0°C
Fig. 1 Structure of an avalanche problem. Each problem is defined by its type, location, likelihood and size.
RISK – PROBABILITY OF LOSS (OR GAIN)

Likelihood

Consequence

Vulnerability

Exposure
LIKELIHOOD/PROBABILITY

0%

UNCERTAIN

100%
CONSEQUENCE - THE IMPACT OF SOMETHING HAPPENING
EXPOSURE
## Today's Avalanche Problems

### Wind Slab

<table>
<thead>
<tr>
<th>Type</th>
<th>Aspect/Elevation</th>
<th>Likelihood</th>
<th>Characteristics</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Slab</td>
<td></td>
<td>Certain</td>
<td>Historic</td>
<td>Steady</td>
</tr>
</tbody>
</table>

**View problem definition**
Communicating Risk

PROBABILITY

Sensitivity & Spatial Distribution

Very Likely
Likely
Possible
Unlikely

Very Unlikely

SIZE OF AVALANCHE

Low
Considerable
High
Extreme
RISK – PROBABILITY OF LOSS (OR GAIN)

Likelihood

Consequence

Vulnerability

Exposure
WHAT DOES THIS LOOK LIKE IN YOUR PROGRAM?

<table>
<thead>
<tr>
<th>High Risk</th>
<th>Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low frequency</td>
<td>Low Frequency</td>
</tr>
<tr>
<td>High Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>High Frequency</td>
<td>Low Frequency</td>
</tr>
</tbody>
</table>
HIGH RISK, LOW FREQUENCY

Discretionary time

Non-discretionary time
HIGH RISK, LOW FREQUENCY

Discretionary time

Non-discretionary time
ADDITIONAL LANGUAGE

SLOW IS SMOOTH, SMOOTH IS FAST

OR AS GORDON GRAHAM SAYS, “SLOW DOWN”
BUILD A SAFETY CULTURE
BUILD A CULTURE OF DISSENT AND ONE IN WHICH EVERY VOICE MATTERS
CULTURE SURROUNDING DECISION-MAKING

- CLEAR EXPECTATIONS
- SAFE ENVIRONMENT TO TRY THINGS ON
- DISSENT IS ENCOURAGED
- SITUATIONAL AWARENESS IS A TEAM SPORT
TRAIN COMMUNICATION
CREW RESOURCE MANAGEMENT

WORKPLACE CHALLENGES

• Hierarchy / Personalities
• Fatigue / Morale

BENEFITS FOR THE WORKPLACE

• Situational Awareness / Self Awareness
• Problem Solving / Decision-Making
• Teamwork / Leadership
• Communication
CREW RESOURCE MANAGEMENT

5 STEP ASSERTIVE STATEMENT PROCESS

• Attention Getter
• State: I have a concern
• State the problem as you see it
• Give a solution
• Ask for buy-in

• Focus on what is right, not who is right!
Hey Sarah, Hold up
The slope you’re about to ski cut looks wind loaded and firm.
I don’t think that ski cutting is appropriate today. It might break farther back than you are now.
Let’s back off and put a shot below this pillow where the slab might be thinner
Are you seeing something else here?
CAN YOU BUILD THIS INTO STAFF TRAINING?

• THROUGH INCIDENTS AND NEAR-MISSES
  – Ask staff to reflect on near misses and incidents.
  – Ask staff to reflect on communication surrounding those incidents.
  – Would CRM techniques have helped?

• THROUGH A ROUND ROBIN OF SCENARIOS
ACCIDENT REVIEWS – 
A STORY WITHOUT THE OUTCOME
COMMUNICATING THE DAILY STRATEGIC MINDSET
ADJUST HOW SUCCESS IS MEASURED

WHICH DAY = BAD DECISIONS?
DECISION-MAKING QUALITY VS. OUTCOME QUALITY
SYSTEMS FOR IMPLEMENTATION OF A RISK MANAGEMENT CULTURE
WERE WE GOOD OR WERE WE LUCKY?
DEBRIEF QUESTIONS

Identify Avalanche Terrain

- Terrain Consistent w/ Pre-Trip Plan?
- Signs of Instability?
- Likelihood / Size of Avalanche(s)?
- Consequences?
- No Go / Go?
- Concerns / Human Factors?
  *If in doubt → simpler terrain*
- Plan
  - Spacing / Safe Zones / Escape Routes

Post-Trip Discussion

- Any bad decisions today?
- Did you manage terrain well? Improvements?
- Did conditions match forecast?
- Concerns for future tours?
- Observations for avalanche center?

This checklist is to be used as a reference tool only and is no substitute for skill, experience, judgement, and proper education. American Avalanche Institute is not responsible for any injury, accident, or death as a result of this tool.
After Action Review: AAR
Active discussion centered around 4 questions:

What did we **intend** to accomplish/ strategy?

What did we do? How did we **execute** relative to our strategy?

Why did it happen that way? Difference between strategy and execution?

What will we do to **adapt** our strategy/ refine our execution/ repeat our success?
CRISIS RESPONSE PLAN

RUN THROUGH AT STAFF TRAINING

VARY ROLES THAT INDIVIDUALS AND GROUPS PLAY

MAKE TIME FOR BRAINSTORMING AND FEEDBACK

MAKE CHANGES

TEST AGAIN
DESIGN THINKING

Empathize

Define

Ideate

Prototype

Test
RISK MANAGEMENT PLAN

What part of this plan needs to be tested? Trained? Changed?

How can you employ design thinking as you build a culture around risk management and decision-making?
MORNING AND EVENING FORMS

### Morning Hazard and Risk Assessment

<table>
<thead>
<tr>
<th>Location</th>
<th>Time</th>
<th>Sky/ Precip</th>
<th>Temperature</th>
<th>Wind</th>
<th>Snow/Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location 2</td>
<td></td>
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<tr>
<td>Location 3</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Location 4</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

#### Recent Avalanche Activity Summary

- L.E.A.S.T. = Location, Elevation, Aspect, Slope angle, Time and date
- Type - Trigger - Size - Bed Surface - Depth

#### Weather Forecast 12 - 24 Hours

- Temp, Sky Cover, Precipitation (type/total), Winds, Freezing Level, Confidence
BUILDING DECISION-MAKING SKILLS

VOCABULARY

CULTURE

SYSTEMS for IMPLEMENTATION
BUILDING DECISION-MAKING SKILLS

A CULTURE OF RISK MANAGEMENT

VOCABULARY

CULTURE

SYSTEMS for IMPLEMENTATION