Safety Culture Assessment: What are we Trying to Achieve?

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• What is safety culture?
  – Theory and research
• Are perception surveys useful?
  – Assumptions
  – Evidence
  – Challenges
• Is safety culture a valuable concept?
Culture: Theory and Research
• Safety culture is understood as a component of organisational culture

• Schein (1985) is commonly referenced
Schein’s Model

Artefacts
Espoused Values
Basic Assumptions
How is culture built?
How Is Culture Built?

- A definable group with a shared history
- Experience and solve challenges
- Solutions work well enough to be considered valid
- Taught to new members as the correct way to perceive, think, and feel *in relation to the problem*
- Become basic assumptions
- Informs future behaviour
Key Defining Features

• Abstract construct (not a concrete phenomenon)
• Relatively stable and enduring
• Multiple dimensionality
• Shared group norms
• Socially constructed
• Provides meaning about observed things
• “The product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management.”

• The way we do things around here

• **Why** we do things the way we do them around here
Safety Culture Research

- Perception surveys
- Normative sets of factors
- Many, many questionnaires
- Many, many factors
- Factor structures difficult to replicate
- A few factors are common to most studies
Criticisms

• “We have been too focused on a traditional research paradigm... that has produced very reliable results about very unimportant things.

• ...we have lost touch with some of the important phenomena that occur in organizations... simply because they were too difficult to study by the traditional methods available.”

— Schein (1993)
• “As applied by safety researchers, the culture concept is deprived of much of its depth and subtlety, and is morphed into a grab bag of behavioural and other visible characteristics, without reference to the meaning these characteristics might actually have, and often infused with normative overtones.”

— Guldenmund, 2010
Perception Surveys
Why Perception Surveys?

• We want a leading indicator
  – To intervene before something goes wrong
  – To prevent major events
• We like to benchmark and measure change
  – Between-groups comparisons
  – Trends
• Easy to analyse
• Lots of nice graphs
• Relatively cheap
• Relatively minimal time “off-tools”
Problems with Perceptions

- Perceptions are subjective
  - Difficult to interpret meaningfully
- Perceptions are volatile
- Self-report issues
  - Honesty
  - Selective Memory
- Construct Validity
  - Mono-method bias
  - What are we actually measuring?
- Predictive Validity
Core Assumption

• **Safety Culture has a causal impact on safety performance**
  – Safety culture can be reliably measured with perception surveys
  – Therefore, perception surveys provide a leading indicator of safety performance

• **Is this assumption accurate?**
• Can safety culture be reliably measured with perception surveys?
• How does a culture develop?

• Are all organisations likely to hold the same basic assumptions?

• Are basic assumptions likely to impact organisational outcomes in uniform ways?
Do perception surveys measure safety culture?

Artefacts

Espoused Values

Basic Assumptions
• What cultural issues are identified after major incidents?
  – High level decision-making
  – Top-level leadership practices
  – Initiatives, priorities and targets
  – Allocation of resources
  – Routine violations

• Unlikely to be detected by perception surveys
Core Assumption Part 2

• Safety culture is **not** reliably measured with perception surveys

• But...

• Do perception surveys provide a leading indicator of safety performance?
What has research found?

- Weak to moderate **correlations** between perception survey scores and injury frequency rates (e.g. TRIFR)

- Used to demonstrate tool validity
Common Interpretation

Safety Perceptions

Safety Behaviours

Injury Rate
Another possibility...

- Safety Behaviours
- Injury Rate
- Safety Perceptions
...and another!

Safety Perceptions

Variable ‘X’

Injury Rate
Can we have poor safety outcomes and a low TRIFR?

- Longford Gas Plant 1998
- Texas City Refinery 2005
- Deepwater Horizon 2010
• Perception survey scores correlate with occupational injury rates

• HOWEVER...

• Low TRIFR ≠ Safe operations

• Do perception surveys predict major incidents?
Case Study

- Snorre Alpha, Norway
  - Antonsen, 2009

- Positive perception survey results
- Gas blowout 12 months later
- No lives lost – luck not design

- No significant changes to the organisation or facility over that 12 months
## Contradictory Findings

### Perception Survey results
- Safety a priority
- Rigorous risk assessments
- High levels of compliance
- Good safety communication
- Incidents reported
- Learning and change from incidents

### Incident investigation findings
- Production targets prioritised
- Lack of risk assessments and poor understanding
- Non-compliance was normal
- Poor communication climate
- Not all incidents reported
- Limited use of own and others’ incident information
Key Question

• Are perception surveys the best way to spend limited safety resources?
• Perception surveys do not predict major events
  – some correlation with occupational injuries
• There are other lead indicators for occupational injury
  – accuracy
  – cost-effectiveness
  – time-efficiency
Safety Culture is a Valuable Concept
• Don’t try to ‘measure’ culture

• OUTCOMES:
  – understand the meaning of observable things
  – uncover basic assumptions
  – develop effective improvement strategies
  – identify potential change barriers

• NOT:
  – as a benchmarking exercise
  – as a replacement for other technical and systems processes
• Triangulate your methodology!
• Use qualitative methods
  – Interviews
  – Observations
  – Focus Groups
  – Action Research
But we want to benchmark!

- Use existing measurable data
  - Reporting rates
  - Inspection findings
  - Workplace observations
  - Audit findings
  - Quality Assurance
  - Incidents
  - Near misses
  - Outcomes and lessons learnt

- Changing themes

- Follow-up on previous findings
What about Perception Surveys?

• Are the questions the right ones?
• How was the survey developed and validated?
  – Industry
  – Company
  – Links to safety outcomes
• Use data to drive qualitative inquiry
  – Open-ended questions
  – Interviews
  – Focus groups
• Remember the limitations of perception data
Final Thoughts

• The ultimate goal is to keep people safe

• Safety resources are not unlimited

• Target the tools and strategies that are most likely to lead to improved safety outcomes

• Take an evidence-based approach
Thank you!
Questions?