Developing Safety Culture Education at a PUI Campus

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My Campus Safety History

• I worked in environmental chemistry labs at **Cornell** and **UVM** for 5 years, then started the lab safety program at **UVM** in 1985

• In 2011, I went back to **Cornell** to work lab ventilation and then as Chemical Hygiene Officer for 3 years

• In 2014, I moved to **Keene State College** to be the Chemical Hygiene Officer and now am the Environmental Safety Manager

• At UVM, we worked with BC and UMass Boston on the Lab-XL project, which led to RCRA’s Subpart K
Lessons Learned from Lab-XL

- Each institution is unique
- Connecting to the mission is necessary to motivate organizational change
- Flexibility goes a long way in laboratory settings
Whence this Presentation?

**NH INBRE**
- INBRE is a NIH program managed by Dartmouth to support research as small campuses in NH
- Keene State is the largest participant in terms of students conducting funded research (30+)
- Funded research includes chemistry, biology, psychology and exercise science
- Last March, KSC stopped receiving checks from INBRE because our students hadn’t completed the Dartmouth on-line lab safety training.
- Does the Dartmouth lab safety training make sense for KSC student?
The Cultural Side of Training

1. Safety is everyone's responsibility. It operates at an institutional level *(service)*

2. Good science is safe science *(research)*

3. Safety training and education are essential elements of research and education *(teaching)*

4. An improved culture of safety is necessary *(continuous improvement)*

5. Diverse methods and flexible approaches are necessary *(institutionally-driven)*
The Good News: Lab Safety aligns with the Educational Process

Safe Lab Practices involve 4 elements:

- **Situational Awareness** (Lessons Learned)
- **Cultural Awareness** (modeling behavior)
- **Education and Training** (developing local Risk Assessments)
- **Common Sense** (using Wiki-wisdom and GHS)

**Bloom's Taxonomy**

- Creating
- Evaluating / Analyzing
- Understanding / Applying
- Remembering
The Safe Lab Education Process

- Conversation
- Literature and Experience
- Formal Content
- Street Knowledge (informal experience)

Learning Source

(Evolving) Habits

Cultural Awareness (modeling behavior)

Education and Training (developing local Risk Assessments)

Common Sense (using GHS and Wiki-wisdom)

Learning Techniques

Creative Reflections (Lessons Learned)

Observation

Retention

Instinct
A Creative Opportunity: Lessons Learned and Safety Moments

• To enhance safety awareness of lab workers
• To help lateral thinking to develop “what if” scenarios
• To provide stories that add interest to safety training efforts
• To help lab workers prioritize their safety concerns.

Experts organize knowledge and approach problems differently from novices

Meaningful learning

Relevant prior knowledge on which to anchor new knowledge
New knowledge must be relevant to the other knowledge
Learner must perceive this and choose to learn meaningfully

A Community Safety Culture Example: Electrical Safety

- Hazard Awareness training pays off
- Communicate to protect others
- The 911 Call can help walk you through the emergency

This May Shock You Puget Sound Electric
https://www.youtube.com/watch?v=fLVzvMTgGDY
When it comes to safety, Nobody is perfect
The Ongoing Challenge: “Street Safety Culture”

Cool under cabin pressure.

PREPARATION
Pass It On.

‘Any good story has to have a villain’: Sully crash investigators unhappy over their 'unfair' portrayal in Tom Hanks movie

- Sully the move is inspired by Captain Chesley ‘Sully’ Sullenberger’s so-called Miracle on the Hudson water landing in January 2009
- The maneuver, after the aircraft struck a flock of geese knocking out its engines saved the lives of all 155 passengers and crew
- Film shows that as Sully, played by Tom Hanks, was praised as a national hero, the investigation threatened to destroy his reputation and career
- U.S. National Transportation Safety Board dispute their portrayal
- The real-life investigators say they actually praised Sully’s actions and went out of their way not to appear critical
- The NTSB report concluded that the pilot ‘provided the highest probability that the accident would be survivable’
- Sully, directed by Clint Eastwood and starring Hanks, Aaron Eckhart and Anna Gunn is in movie theaters tomorrow
References


• *To Hive or to Hold? Producing Professional Authority through Scut Work*, Ruthanne Huising, *Administrative Science Quarterly* 2015, Vol. 60(2)263–299

• *How People Learn: Brain, Mind, Experience, and School*, National Academy of Sciences