How can we build sustainable safety culture: Safety training vs safety education?

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Agenda:

Why safety matters?

What is a safety culture?

How to build a safety culture?

Is education and training the same?

Researchers’ opinion.
Why Safety Matters?

Sheri Sangji Case, UCLA 2009

5 Students, Teacher Injured in School Science Lab Fire, Fairfax, Virginia, 2015

Alonzo Yanes, Manhattan 2014

University of Hawaii lab explosion 2016
What is a Safety Culture?

Safety culture is defined as the enduring value and prioritization of worker and public safety by each member of each group and in every level of an organization.

Von Thaden and Gibbons (2008)

Safety culture … forms the environment within which individual safety attitudes develop and persist and safety behaviors are promoted.


It’s not a policy, program or procedure.
Safety culture is sustainable when safety is a part of daily activity management; infused in every action, every interaction, every decision and every behavior.

For most academic labs safety is seen as a compliance issue.
Focus of Safety Culture

- Fatality
- Serious Injury
- Minor Injury
- Near Miss
- At-Risk Work Practices

Total Safety Culture

https://www.osha.gov/dte/grant_materials/fy10/sh-20859-10/safetyculture.ppt
How to Create Safety Culture?
Component of Safety Culture

Environment
- Equipment, Tools, Machines, Housekeeping, Heat/Cold, Engineering

Person
- Knowledge, Skills, Abilities, Intelligence, Motives, Attitude, Personality

Education

Training

Behavior
- Putting on PPE, Lifting properly, Following procedures,
- Locking out power, Cleaning up a spill,
- Sweeping floor, Coaching co-workers

Should we educate our future researcher or should we train them?

https://www.osha.gov/dte/grant_materials/fy10/sh-20859-10/safetyculture.ppt
Education and Training

- **Training** implies the act of imparting a special skill or behavior to a person, which is commonly offered to employees of operational level.
  
  Have short term goal

- **Education**: process of systematic learning something that develops a sense of judgment and reasoning. It is offered to all employees equally, irrespective of their grades or level in the corporate ladder.
  
  Have long term goal

- The difference is in teaching style and the purpose
Laboratory Safety Trainings

- Right-to-know
- Chemical Hygiene Plan
- Toxic Chemical Safety
- Compressed Gas safety
- Corrosive Chemical safety
- Hazardous waste management
- Biological Safety
- Radiation Safety
- Laser Safety
- X-ray Safety
- Bloodborne pathogen
- Proper PPE
Limitations of Training

- Trainings are helpful for the people with previous knowledge whereas Education build that previous knowledge
- Narrowly focused
- Instructor Variable?

How to write Standard Operating Procedures
Understanding difference between procedures

Limitations of Training

Narrowly focused
Instructor Variable?
Example:

Corrosives

Acids
- Acetic acid
- Sulfuric acid
- Hydrofluoric acid

Bases
- Sodium Hydroxide
- Ammonia
- Sodium carbonate
Why Trainings have Limited Success?

- Trainings lacks reinforcement and accountability in most cases
- Failure to follow-up on core concepts or deliberate practice
- Organizational structure
- Fast track learning, too much content in short time, human have hard time learning that way
Philosophy of Learning

- Peoples learns best when they are ready to learn
- People learn more easily when what they are learning can be related to something they already know
- People learns best in step by step manner
- People learn by doing
- The more often people use what they are learning (reinforcement), the better and longer they will remember and understand it
- Success in learning tends to stimulate additional learning
The primary purposes of safety education are:
- Building a foundation of lab safety by teaching related concept and procedures
- To teach students about the chemical, physical and health hazards they might encounter in the laboratory
- Risk assessment, and to protect students, staff, and property
- Safety training is an essential part of lab safety education
Researchers’ Opinion

- Did you receive any formal education or training before starting lab research?
- Are you happy with the level of training you receive during lab research?
Would you recommend safety education (lab safety credit course) supported with the hands on experience before starting lab research for students in your group?
“If you give a man a fish, you feed him for a day, and if you teach a man to fish, you feed him for life.”

Daniel Burrus added “don’t just teach him how to catch a fish. Educate him about the art and science of fishing.”

A strategic combination of both education and training is needed to develop a safety culture!
SAFETY FIRST!

Discussion Questions