



ASSP Philadelphia Technical Meeting

November 15, 2022

Virtual audience: Presentation will start
approx. 11:45

First Things First ...

- Emergency exits, restrooms
- “Pay at Door” to Treasurer
- Sign in
- Introductions
 - Officers, new members, first meeting
 - Online audience/chat

Chapter Updates/Opportunities

Jobs: ASSP Philly Website <https://phila.assp.org/>

Upcoming Meetings:

December 8 – Holiday Social, Yards 6 – 9 PM

January 13? – Joint mtg Mid Atl Const Safety Council

Feb ? – Joint mtg American IH Association

April 27? – Half-day Professional Dev Conference

Mentoring Program

Today's Educational Session

Topic: Acceptable Risk: The X-Factor in Injury Prevention

Presenter: Michael Pacana, CSP, CHMM
Senior Risk Control Consultant
Delaware Valley Trusts



Acceptable Risk: The X-Factor In Injury Prevention

Presented by:

Michael J Pacana, CSP, CHMM, CPSI
Senior Risk Control Consultant



DELAWARE VALLEY TRUSTS

Managed Risk. Collective Rewards.



Learning Outcomes

- Defining “Safety” and “Acceptable Risk”
- Human performance, personal attitudes and behaviors
- Influencing personal levels of acceptable risk
- Building operational defenses to help prevent injuries and incidents
- Utilizing performance levels to help choose the proper response to an incident



What Is Safe?

**BEFORE I DO
ANYTHING**

**I ASK MYSELF
“WOULD AN IDIOT DO THAT?”
AND IF THE ANSWER IS YES,
I DO NOT DO THAT THING**

HOWARD WILSON





What Is Safe?

“...a condition of relative freedom from danger.”

Safety

“The control of recognized hazards to attain an *acceptable* level of risk.”

NSC, 2015 Accident Prevention Manual



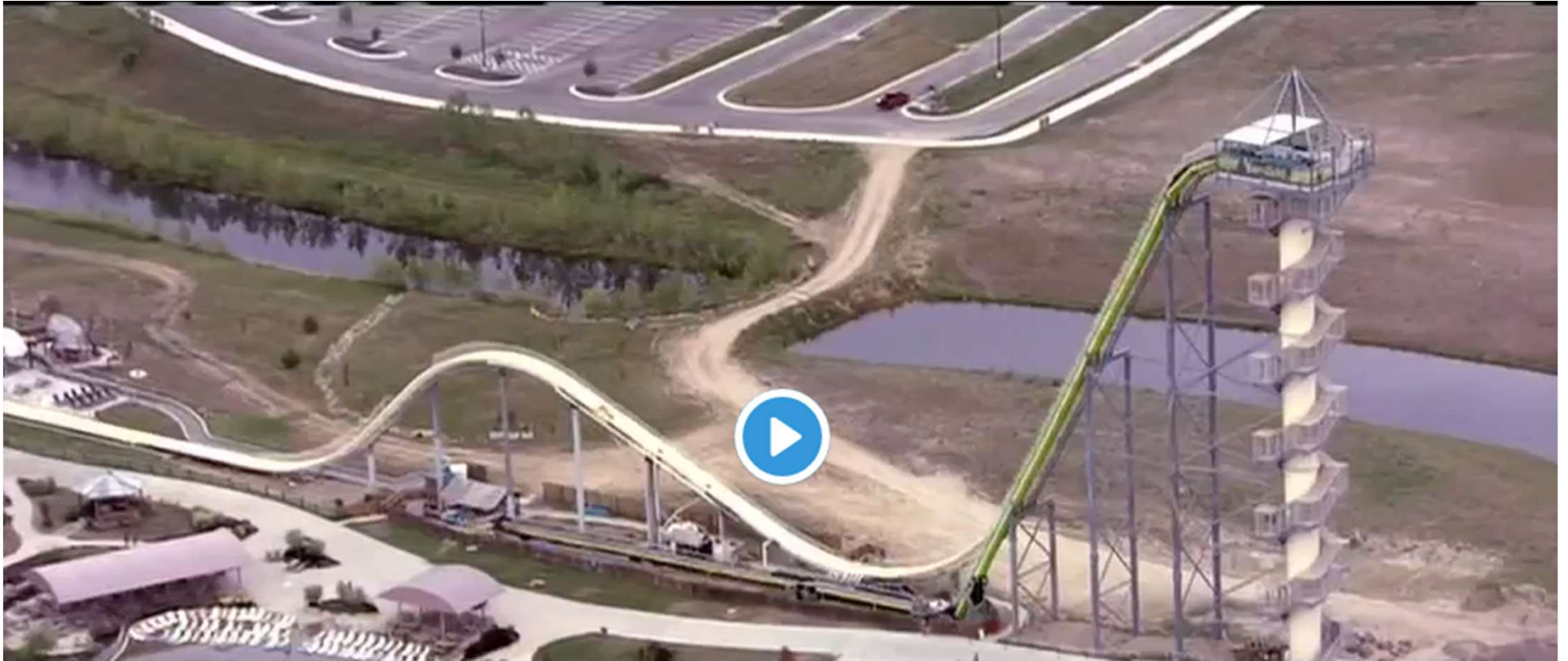
Acceptable Risk

“A risk level achieved after risk reduction methods have been applied. It is a risk level that is accepted for a given task (hazardous situation) or hazard.”

ANSI B11.0 - 2020

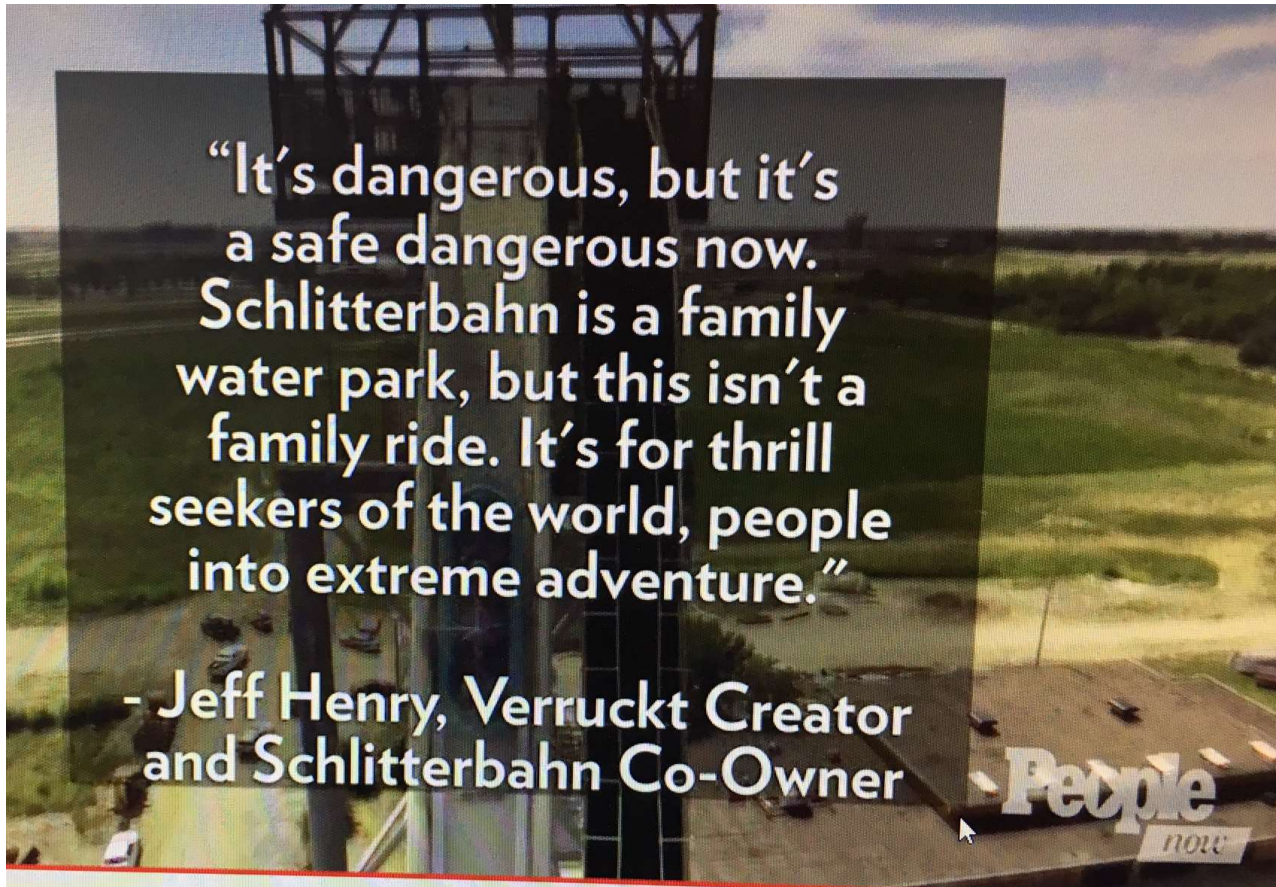


Acceptable Risk???





Acceptable Risk Level???





Preventing Injuries

Personal Levels of Risk by Category

- Low Risk- 30% of population
- Medium Risk- 50% of population
- High Risk- 20% of population

For any injury, high risk people

- **2X** more likely to be injured than medium risk people
- **4X** more likely to be injured than low risk people

For serious injury, high risk people

- **5X** more likely to be injured than medium risk people
- **11X** more likely to be injured than low risk people



People Are As **Safe** As
They “Think” They Need To Be,
Without Being Overly
Safe...

In Order To Get Their **Job**
Done.

(Conklin/Edwards)



Can the level of Acceptable Risk change in someone?



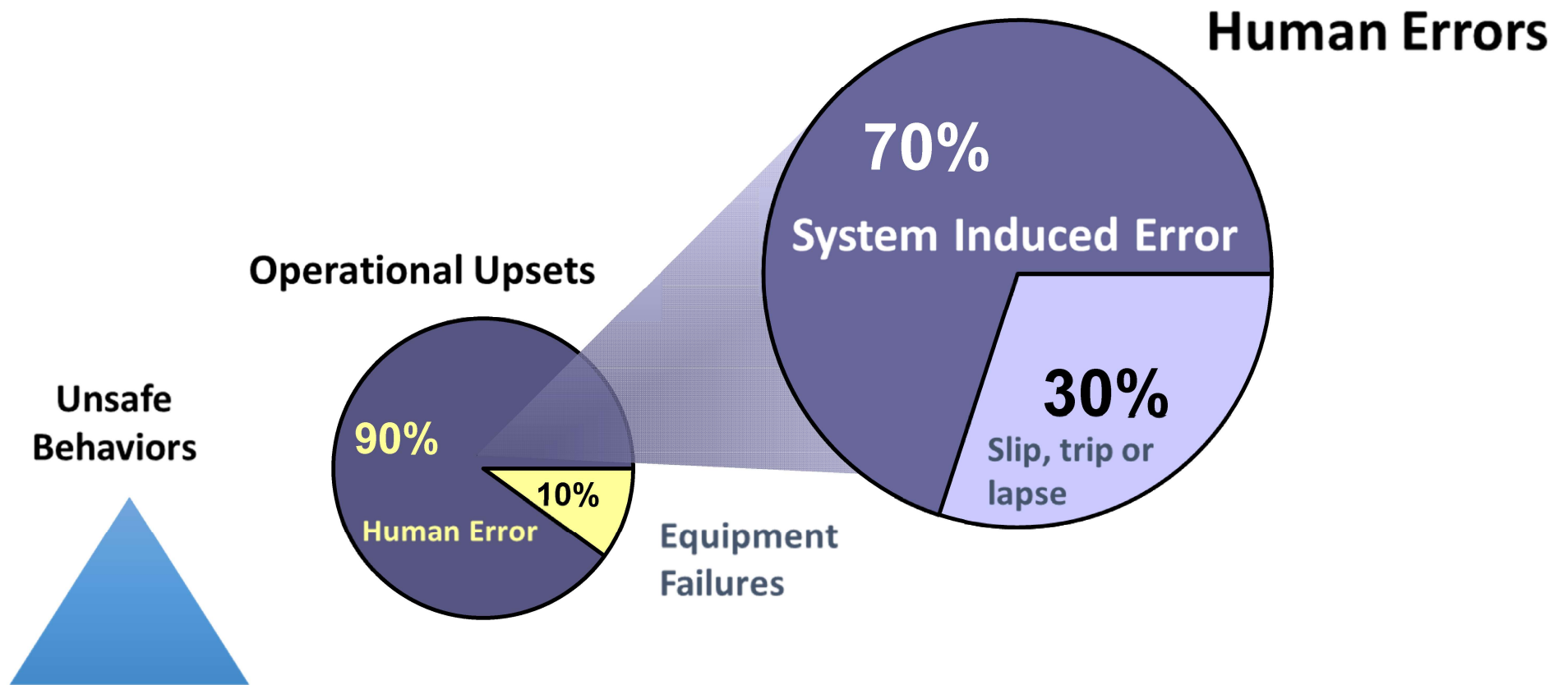
That Moment in Time

Q - What happens before almost every incident/injury?

A – Normal work activity



Origins of Human Performance



Food For Thought

“ Don't Blame People for problems created by the system. ”

W. Edwards Deming



The Principles of Human Performance

1. People make errors
2. Error-likely situations are predictable
3. Individual behaviors are influenced
4. Operational upsets can be avoided
5. Our response to failure matters



Our **Goal** . . .

. . . is to become **less surprised** by human error and failure . . .

. . . and instead, become a **lot more interested in and a lot better at operational learning!**



SAFETY REDEFINED...

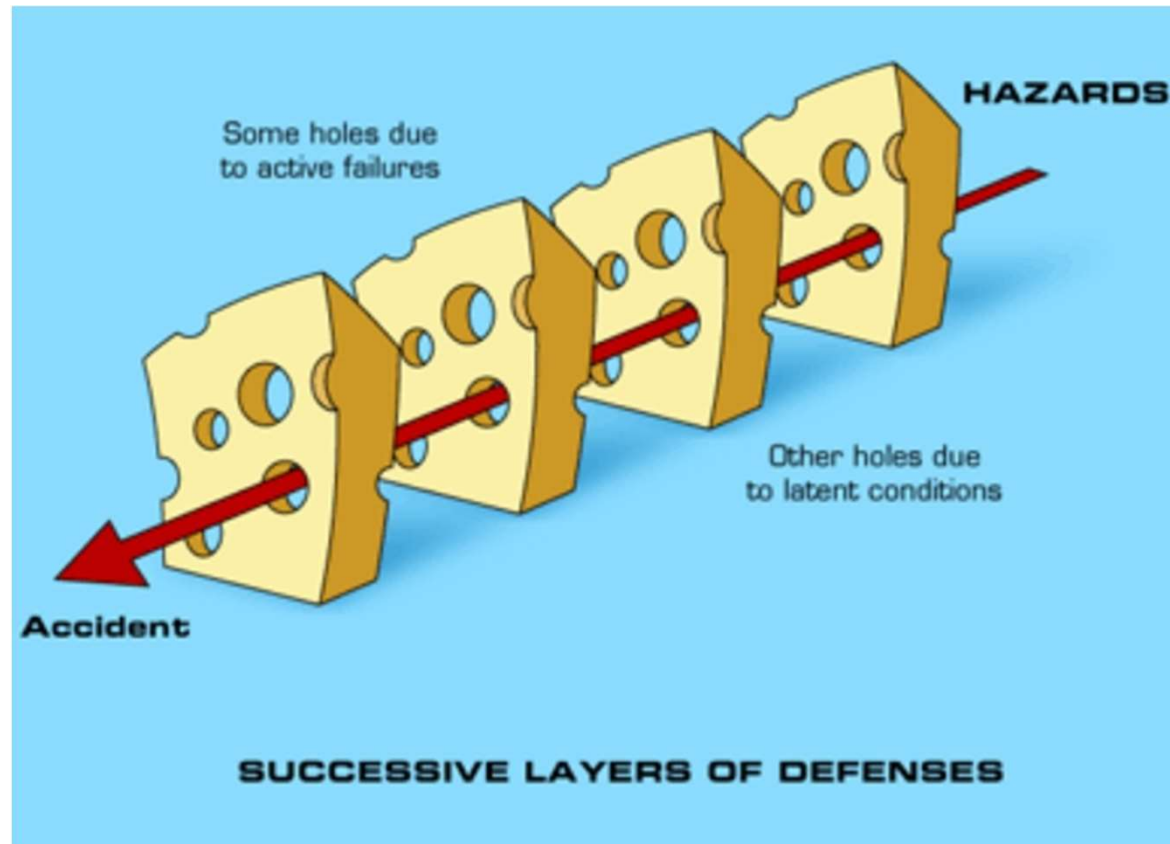
Safety is not the absence of incidents

Safety is the presence of defenses in our processes, procedures, and methods.

**Our goal must be to keep failure
from being repetitive.**

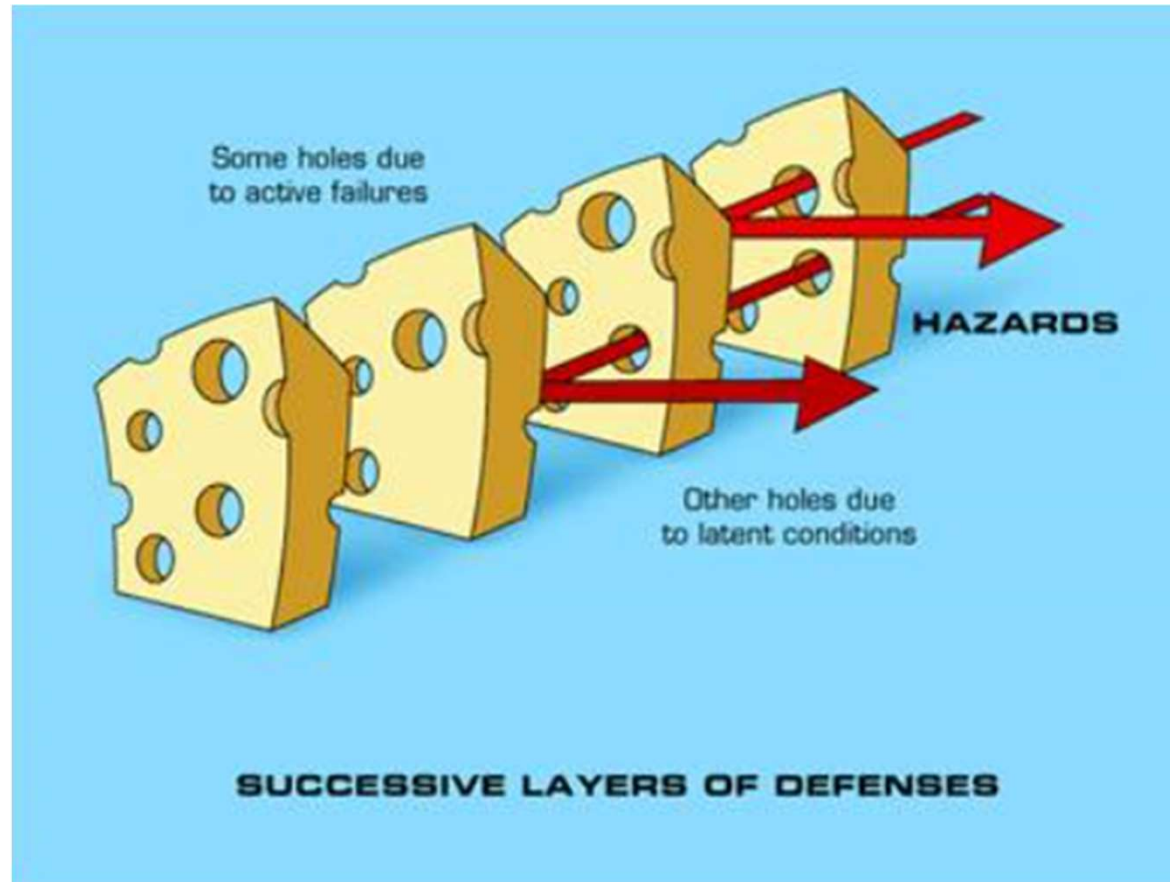


Contributors to an Event





Contributors to an Event





Defenses

- Types of Defenses
- Strength of Defenses
- Layers of Defense
- Sustainability of Defenses



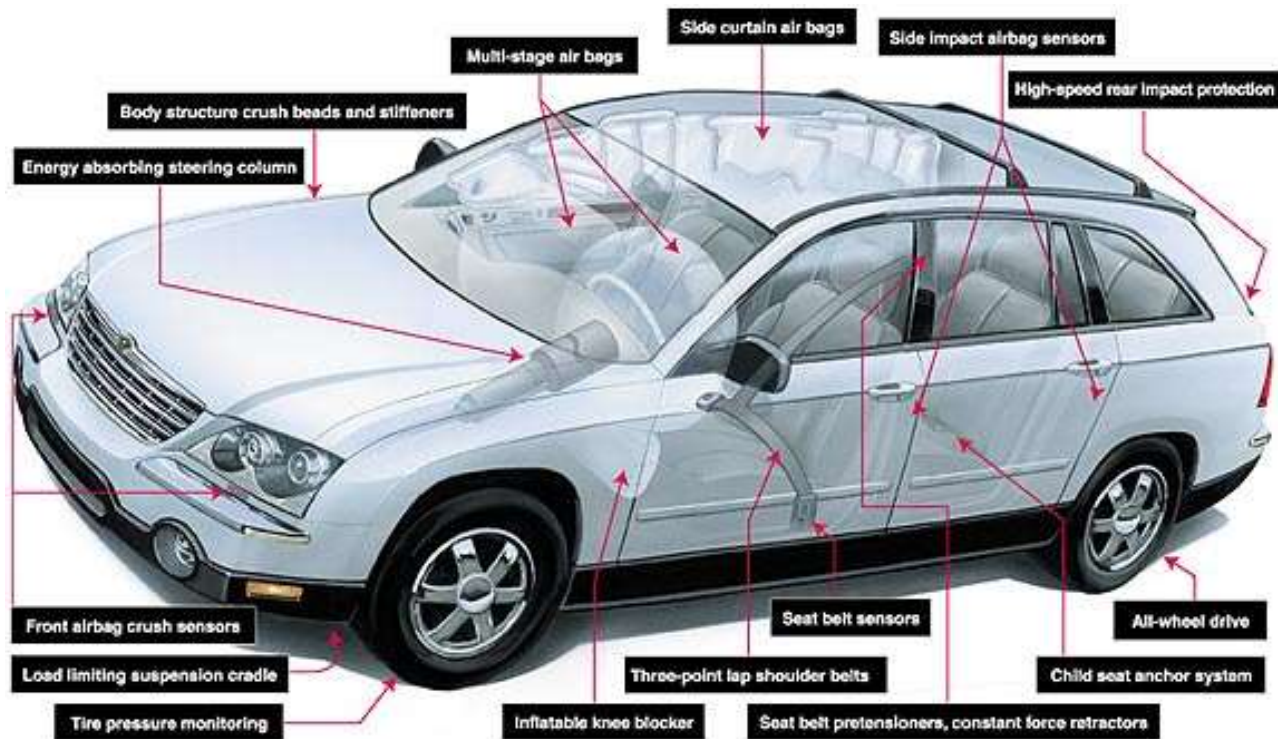


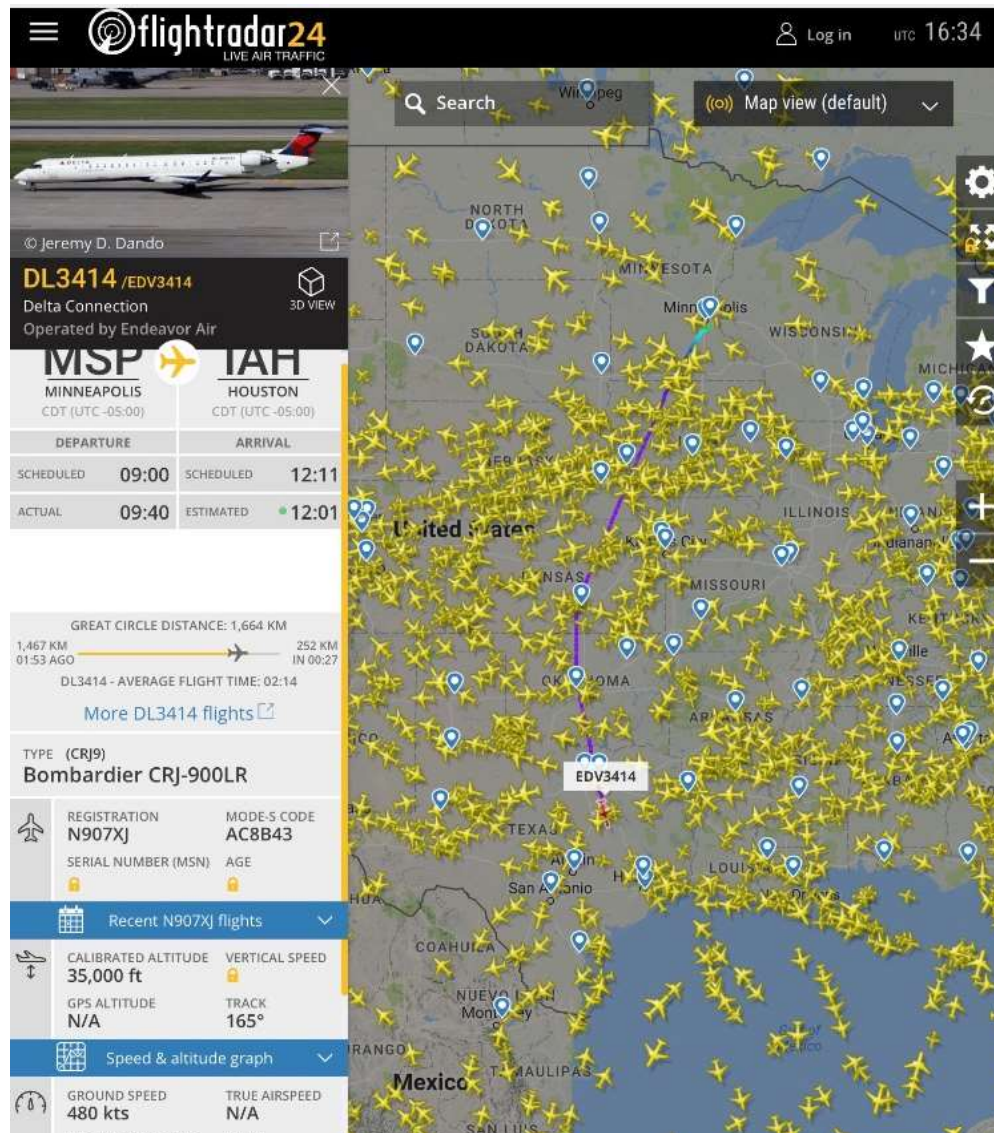
Error Tolerant Engineering

- Seeks to reduce the consequences of errors to a point where the consequences do not cause significant harm.
- This is best accomplished by including mechanisms for absorbing harmful energy.



Modern Automobile







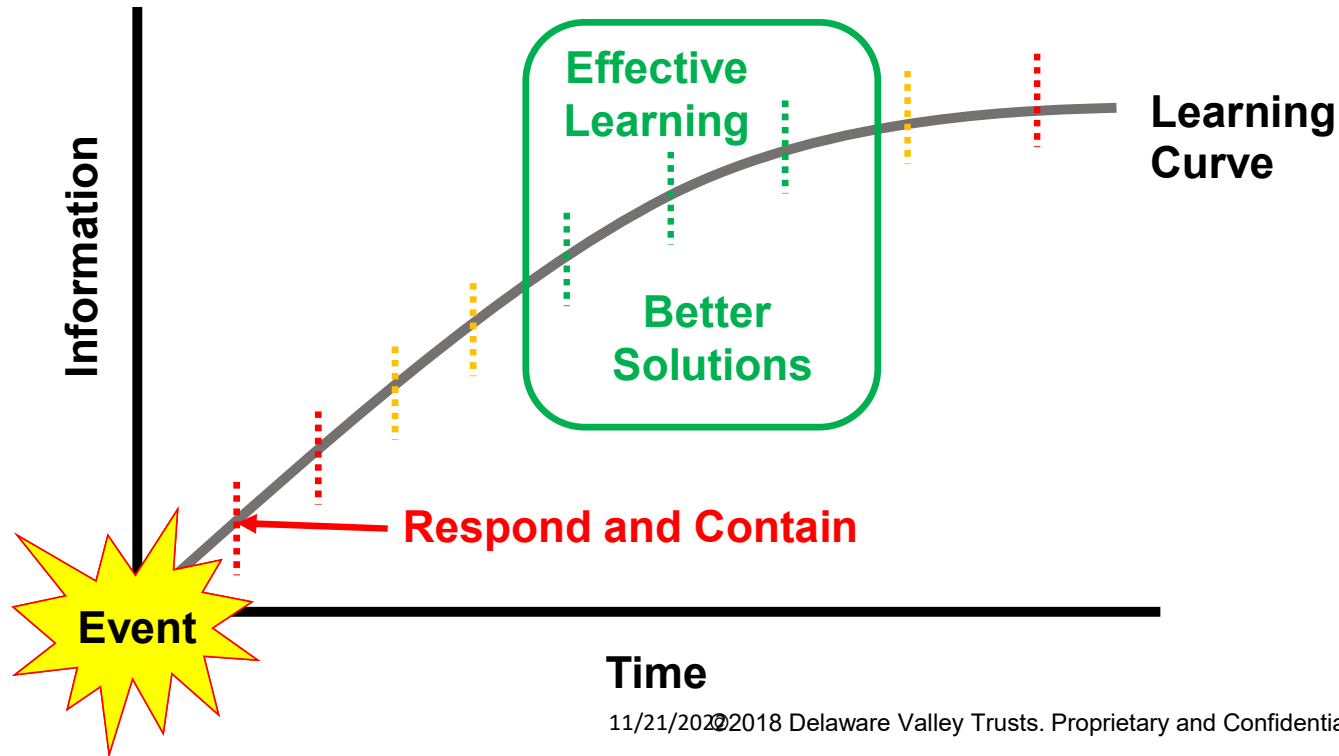
Hierarchy of Controls- Layers

- Elimination
- Substitution
- Engineering Controls
- Administrative Controls
- PPE



The **Pressure to Fix . . .**

. . . Outweighs the Desire to Learn!

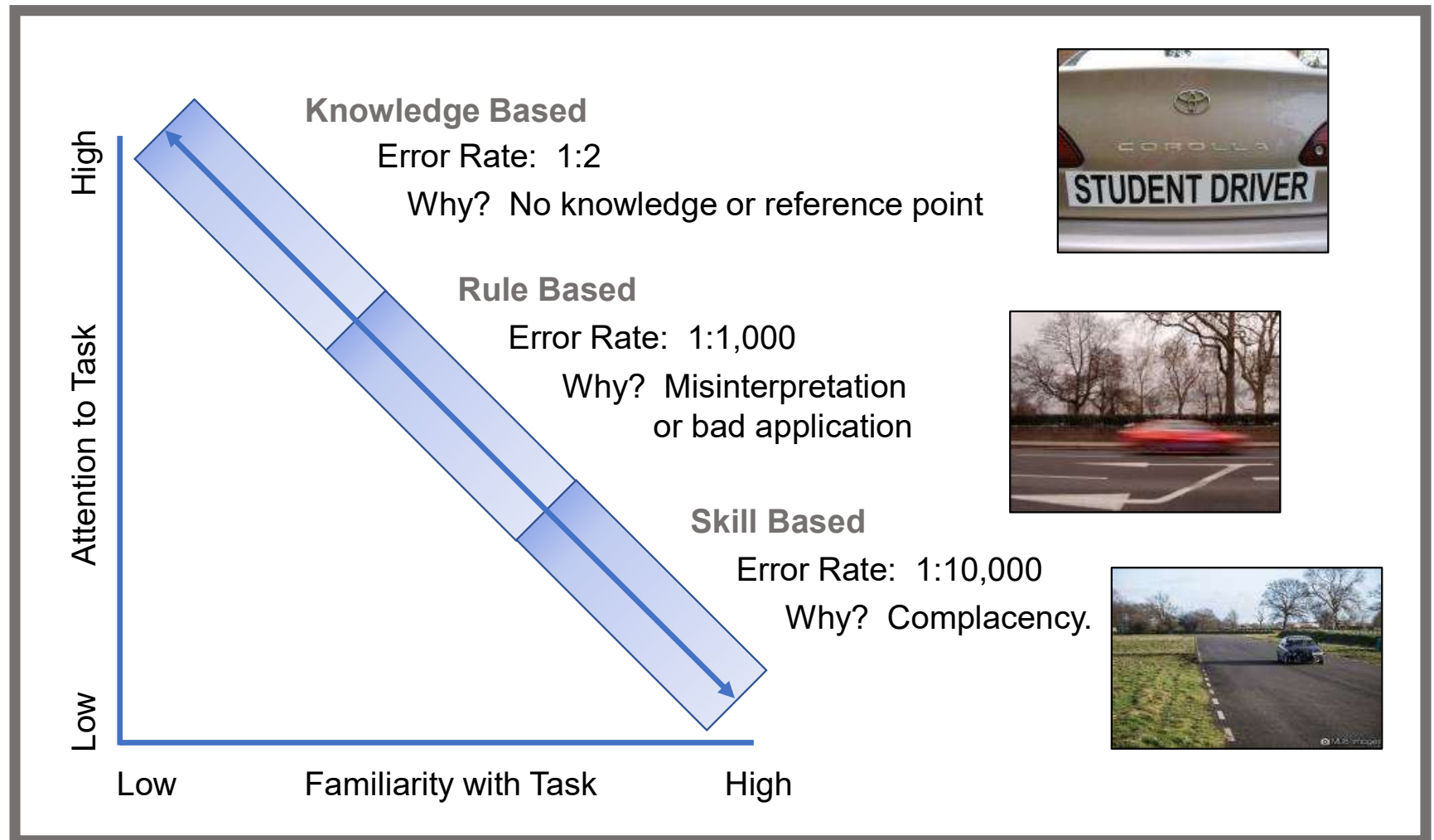


“Mistakes arise directly from the way the mind handles information, not through stupidity or carelessness.”

— Edward de Bono

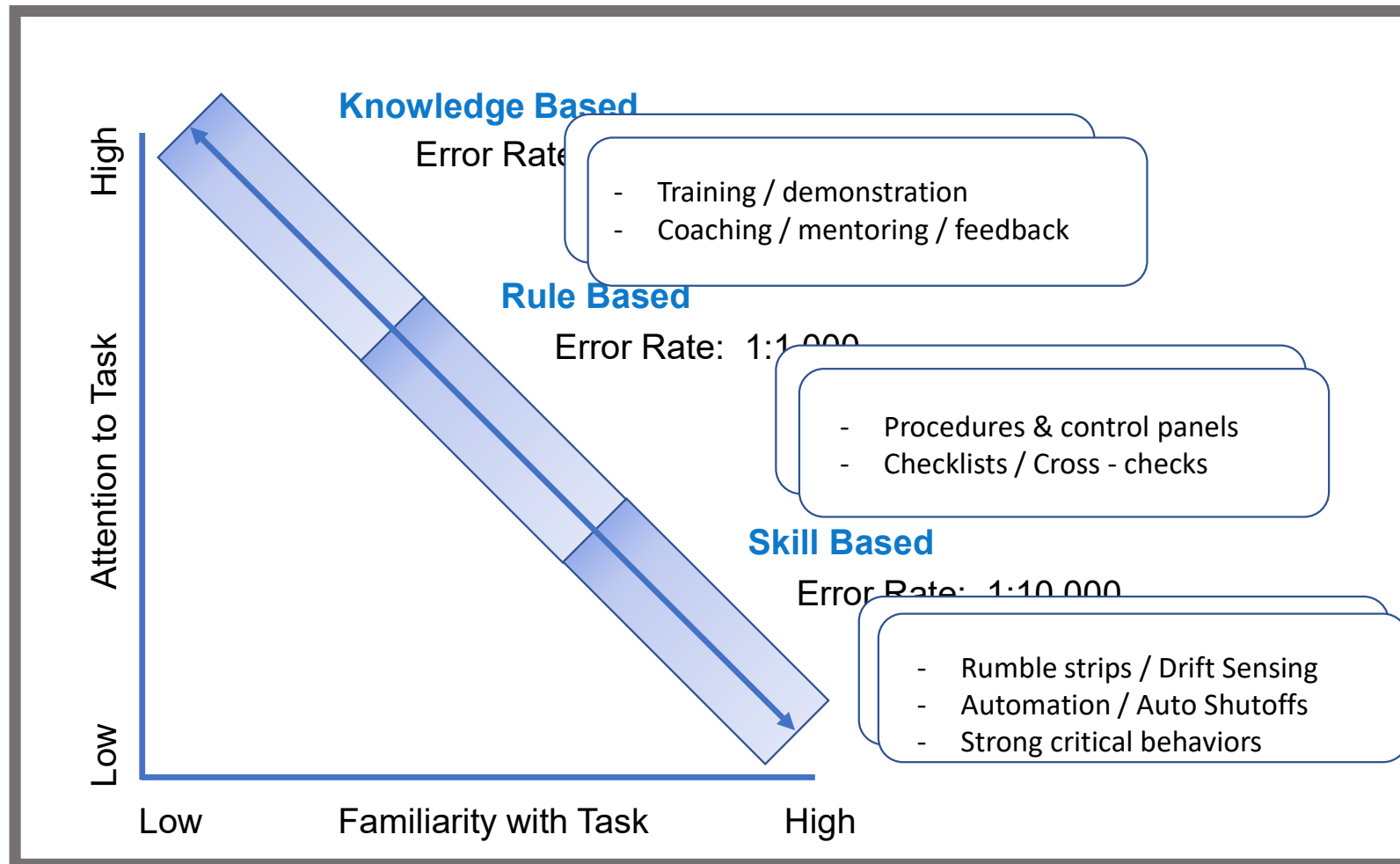


Performance Modes – Error Rates



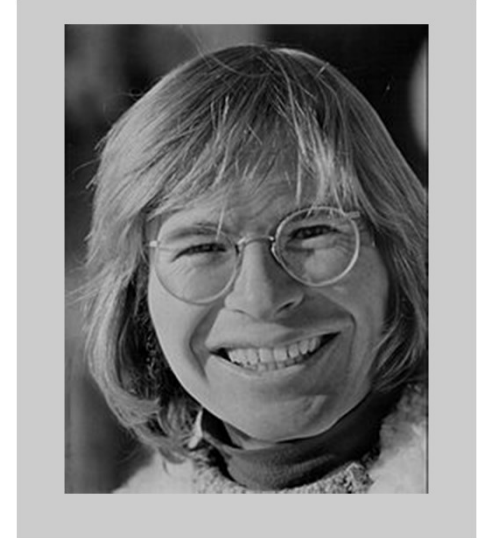


Performance Modes – Error Rates





Oct 12, 1997 at 5:18 PM
John Denver dies in plane
crash



Images from Wikipedia.org

Failed to fill up tanks before flight
Did not put plane on auto-pilot
Hit right rudder pedal by accident
Pilot Error!



Performance Mode

20 years experience

2400 hours

www.angelfire.com



Single / Multi / Aerobatic Bi-Planes / Lear Jet
Had flown it once for 30 minutes prior day

Quick one hour flight

Buzz neighbor's house.





Human Factors Concerns



Switch location / labeling

Operation (up=off / down = right / right = left)

Fuel gauge marking

Fuel consumption rate



How We See Events

Old View

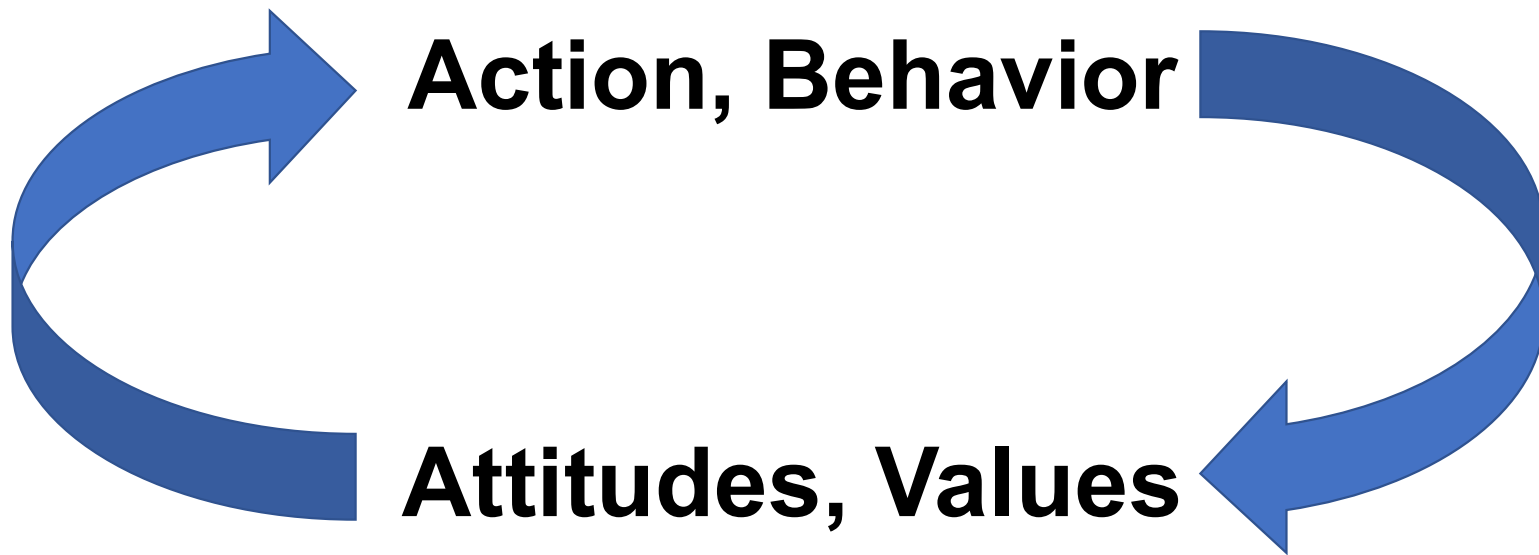
- Human error is a cause of accidents
- To explain failure, investigations must seek failures
- These investigations must find inaccurate assessments and bad decisions

Emerging View

- Human error is a symptom of trouble deeper inside a system
- To explain failure, do not try to find out where people went wrong
- Instead, **find out how peoples' actions and assessments made sense at the time given the circumstances that surrounded them.**



Shifting Behaviors





Shifting Behaviors - When does a message become important to adults?

- **Need to know how the topic applies to them now or their immediate challenges**
- Need to be able to apply their experience to their new learning
- Need to learn things that will make them more effective and successful
- Need to be in a flexible training environment with 2-way dialog



Shifting Behaviors

Tip 1- Help make safety a
value by making it
personal!

Make it FUN!!!



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Shifting Behaviors

Tip 2- To break the Error Pattern, Self-Trigger on your state of mind (rushing, fatigued, frustrated)

- Ask for examples from their personal experiences when they may have been injured when rushing, tired, or frustrated
- Ask if they ever saw someone else get injured or almost injured as a result of rushing, fatigue, or frustration
- ***Make it personal- everyone has a story!!!***



When does a message become important to adults?

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Shifting Behaviors

Tip 3- To break the Error Pattern, analyze close calls and small errors (*Near-Hits*)

- Did the exposure on the job change at any time?
- Did it go up or down?
- If it went up, when did it go up?
- What actions could have been taken when the exposure went up?



Shifting Behaviors

Things Change

THIS IS A PICTURE THAT SOMEONE TOOK WHO WORKS ON AN OIL RIG. HE WAS GOING TO TAKE A PICTURE OF THE LIGHTNING

This is what he saw.....

**Lariat Sandridge Energy South of Ft Stockton , TX
Taken Thursday night, April 2, 2009.**



11/21/2022

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Shifting Behaviors

Things Change

- Unexpected actions or events
- Upset conditions
- Unfamiliarity with new process and/or hazards



Shifting Behaviors

Tip #4- When things are different or conditions change- STOP!

- ✓ **S-** Stop and take time out
- ✓ **T-** Think about the best and safest way to proceed
- ✓ **O-** Organize material and thoughts
- ✓ **P-** Proceed with work



Shifting Behaviors

Things Stay The Same

❖ **Complacency**

- perception that the level of risk decreases over time the more we perform that task with successful results
 - ✓ Faster
 - ✓ Convenient
 - ✓ Did not get hurt



Shifting Behaviors

Tip #5- Develop good habits (critical behaviors) and observe to help fight complacency

- Look at others for the patterns that increase the risk of injury



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- Need to learn things that will make them more effective and successful
- **Need to be in a flexible training environment with 2-way dialog**



Self-Motivation: When will employees show it?

Tip #6- People need to feel competent before they become involved and feel empowered.

When they believe-

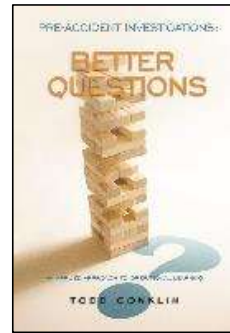
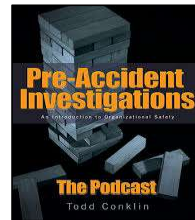
- Self-efficacy- I can do it!
- Response-efficacy- It will work to achieve the goal!
- Outcome Expectancy- The outcome is worth the effort.



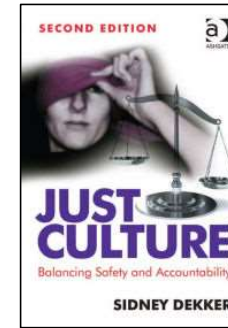
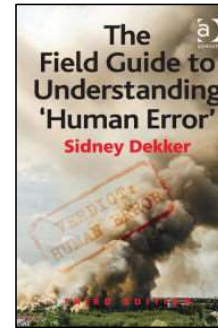
Empowerment Plus-

- Good self-esteem
- Part of a team
- Feel listened to (Why Am I Important?)
- Feel they can do it (What Do I Need To Do?)
- Feel they can make a difference (How Can I Make A Positive Difference?)

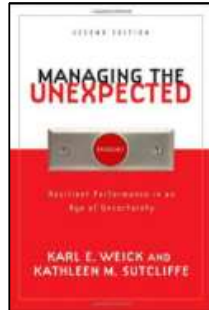
Recommendations . . .



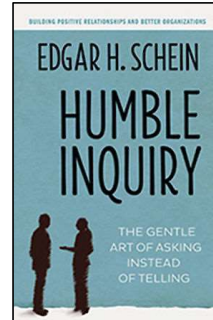
**Pre-Accident Investigation & Better Questions
(Todd Conklin, PhD)**



**Field Guide & Just Culture
(Sidney Dekker, PhD)**



**"Managing The
Unexpected"
(Weick & Sutcliffe)**



**Humble Inquiry
(Edgar Schein, PhD)**



**Freakonomics
Podcast
"The three hardest words
in the English language"**



**Advanced Degree - ASEM
(Martha Bidez, PhD)**

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Thank you.



