

Communicating Safety

The Silver Bullet



Using Supervisor Communication to Reduce Accidents

Dr TJ Larkin & Sandar Larkin

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Supervisor Communication is the Silver Bullet

Goal

The goal cannot be writing safety policies and procedures.

The goal must be using safety communication to reduce accidents.

Communication that Reduces Frontline Accidents



Who?

Supervisor talking with frontline employee

How?

Informal, casual, face to face

About what?

Safety procedures involving a task the employee is just about to do

These are the conversations that reduce frontline accidents.

Supervisor-oriented communication makes it easier for supervisors to have these conversations.

Supervisor-oriented communication

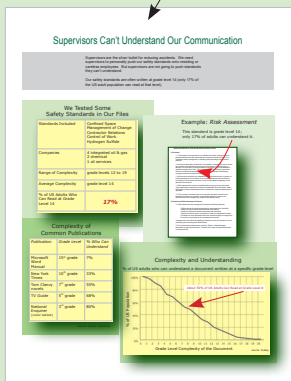
communication supervisors can understand

graphical approach

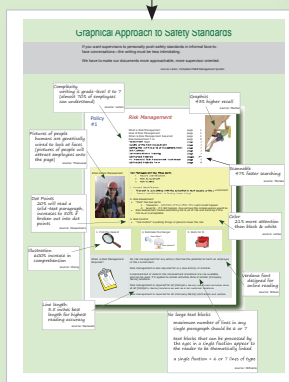
fear appeals

drawings

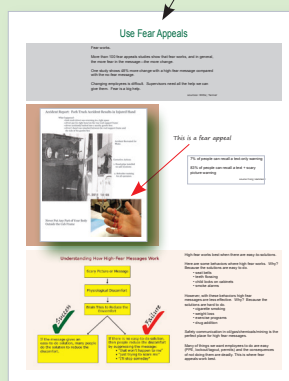
speculate



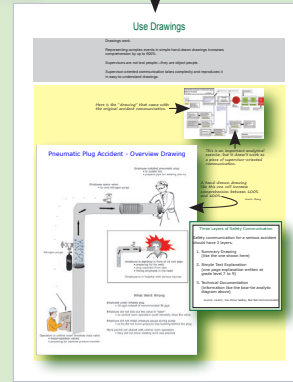
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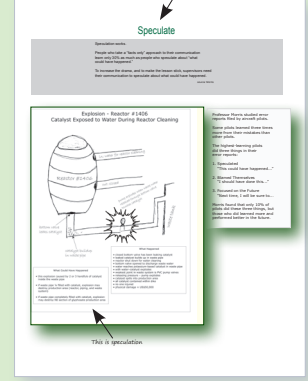
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Supervisor Communication Reduces Accidents



This is what we want:

- supervisor to employee
- casual, face-to-face conversation
- discussing safety procedures for an upcoming task

Research



Supervisor communication explains 42% of accidents in chemical plants ($r = -0.65$).

source: Sicco van As



When employees are asked what caused them to improve their job performance, 70% mention informal conversations with their supervisors; 2% mention a corporate document.

source: Clamptt



47% of employees will follow a "print only" safety warning; compliance increases to 74% if a "supervisor" reinforces the printed warning in a conversation.

source: Wogalter



A face-to-face conversation with a trusted person delivers 13 times more behavior change than a mediated message (print or electronic).

source: Sultan

Example



Supervisor:

"When starting up the furnace, don't put fuel gas to the main burner fuel line until AFTER the pilot is lit.

If fuel gas leaks from the main line into the furnace - this can happen when you light the pilot.

I need you to follow every step in the startup procedure - no short cuts."



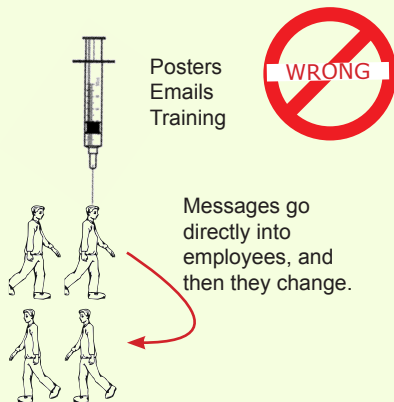
Understanding How Words Change Behavior

It is wrong to think messages can be injected directly into employees and they will change (hypodermic needle theory). Mediated messages (print or electronic) inform but do not change employees.

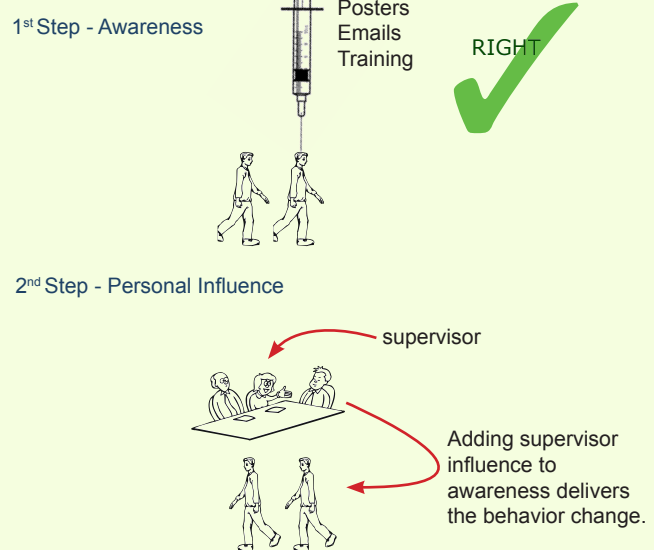
Instead, words change employees in a two-step process: mediated messages create awareness and then a conversation with a trusted source delivers the behavior change.

source: Lazarsfeld

Hypodermic Needle Theory



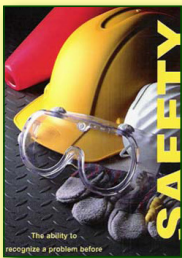
2-Step Flow Theory



Stressing "safety" as a value...

Only 9% of executives think these value campaigns produce any measurable behavior change.

source: Jensen



Posters, logos, buttons, coffee mugs, pens, bulletin boards.....

These communication campaigns typically produce around 2% behavior change.

source: Barnett



Classroom safety training...

The correlation between hours of safety training and incidents/accidents is often very low ($r = -0.08$).

source: Evans

So, should we stop doing:

- safety as a corporate value
- safety posters
- safety training

No!

Instead, understand what these things can and cannot do: they create awareness not behavior change.

Awareness is an important first step toward behavior change, but does not by itself deliver change.

The leading expert on communication and behavior change, Professor Everett Rogers, estimated that less than 3% of people will change a behavior based on awareness alone.

Awareness needs a second step: the supervisor's personal involvement.

It is the combination of awareness and supervisor involvement that changes employees.

source: Rogers

Supervisors Can't Understand Our Communication

Supervisor communication is the silver bullet for reducing accidents. We need supervisors to personally push our safety standards onto resisting or careless employees. But supervisors are not going to push standards they can't understand.

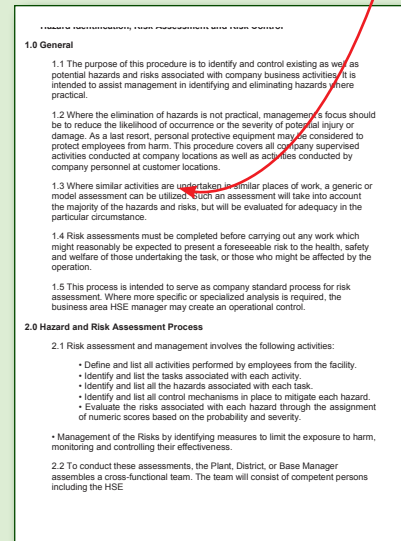
Our safety standards are often written at grade level 14 (only 17% of the US adult population can read at that level).

Only 17% of Supervisors Understand Our Safety Standards

Standards Included	Confined Space Management of Change Contractor Relations Control of Work Hydrogen Sulfide
Companies	4 integrated oil & gas 2 chemical 1 oil services
Range of Complexity	grade levels 12 to 19
Average Complexity	grade level 14
% of US Adults Who Can Read at Grade Level 14	17%

Example: Risk Assessment

This document is grade level 14. Only 17% of supervisors can understand it.



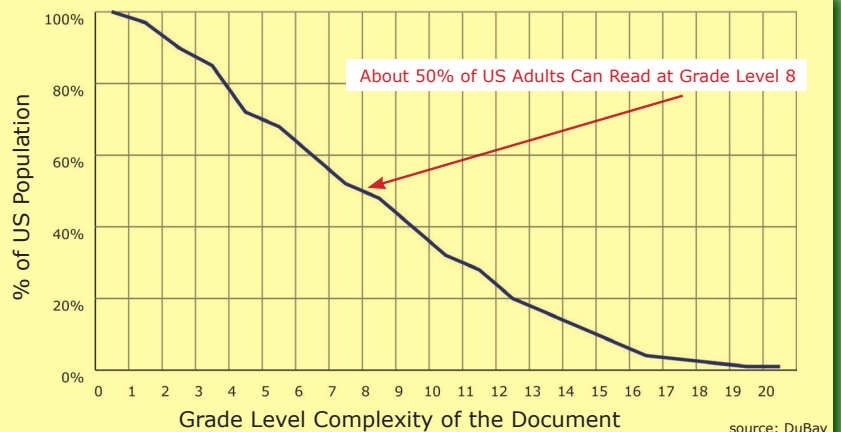
Complexity of Common Publications

Publication	Grade Level	% Who Can Understand
Microsoft Word Manual	15 th grade	7%
New York Times	10 th grade	33%
Tom Clancy novels	7 th grade	55%
TV Guide	5 th grade	68%
National Enquirer (rumor tabloid)	3 rd grade	80%

sources: DuBay; Montondon

Average US Adult Reads at Grade Level 8

% of US adults who can understand a document written at a specific grade level

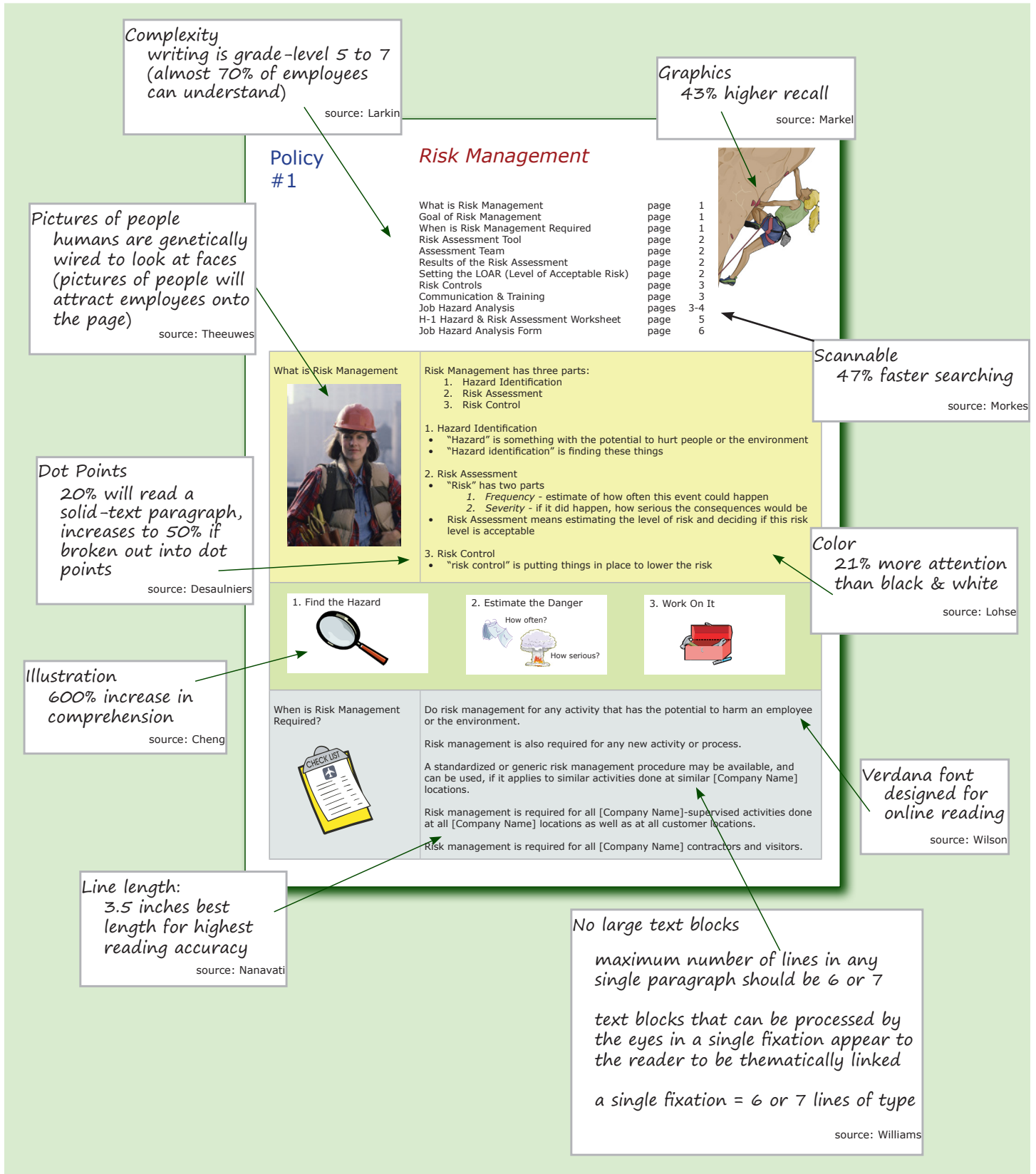


Graphical Approach to Safety Standards

If you want supervisors to personally push safety standards in informal face-to-face conversations—the writing must be less intimidating.

We have to make our documents more approachable, more supervisor oriented.

source: Larkin, *Complete HS&E Management System*



Fear Appeals

Fear works.

More than 100 fear appeals studies show that fear works, and in general, the more fear in the message—the more change in the reader.

Fear appeals are used successfully by companies in life insurance, home security, fire prevention, car safety features, anti-drunk driving.

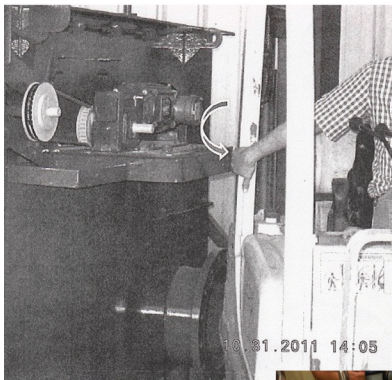
Why? Because they work. One study shows 48% more change with a high-fear message compared with the no-fear message.

sources: Witte; Tanner

Accident Report: Fork Truck Accident Results in Injured Hand

What happened:

- fork truck driver was reversing in a tight space
- driver put his right hand on the rear roof support frame
- driver accidentally backed into a nearby gumbo box
- driver's hand was smashed between the roof-support frame and the side of the gumbo box



Accident Recreated for Photo

Corrective Actions

1. Hand grips installed on safe locations
2. Refresher training for all operators

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Never Put Any Part of Your Body Outside the Cab Frame



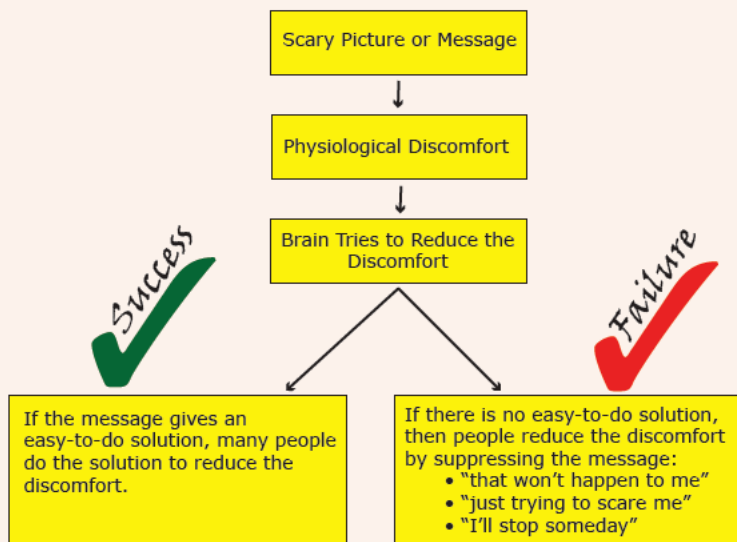
This is a fear appeal

28% of people thought about the danger when the warning was only text (sentences)

48% of people thought about the danger when the warning included a scary picture

source: Thrasher

Understanding How High-Fear Messages Work



High-fear works best when there are easy-to-do solutions.

Here are some behaviors where high fear works. Why? Because the solutions are easy to do.

- seat belts
- teeth flossing
- child locks on cabinets
- smoke alarms

However, with these behaviors high fear messages are less effective. Why? Because the solutions are hard to do.

- cigarette smoking
- weight loss
- exercise programs
- drug addiction

Safety communication in oil/gas/chemicals/mining is the perfect place for high fear messages.

Many things we want employees to do are easy (PPE, lockout/tagout, JHA) and the consequences of not doing them are deadly. This is where fear appeals work best.

Drawings

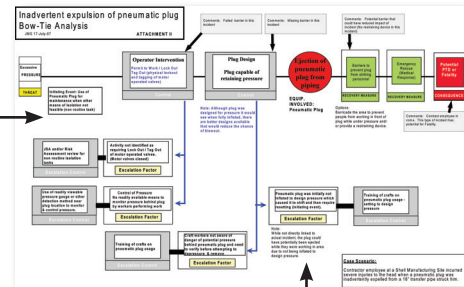
Drawings work.

Representing complex events in simple hand-drawn drawings increases comprehension by up to 600%.

Frontline supervisors are not text people—they are picture people.

Supervisor-oriented communication takes complex events and tells the story in easy-to-understand drawings.

Here is the “drawing” that came with the original accident communication.

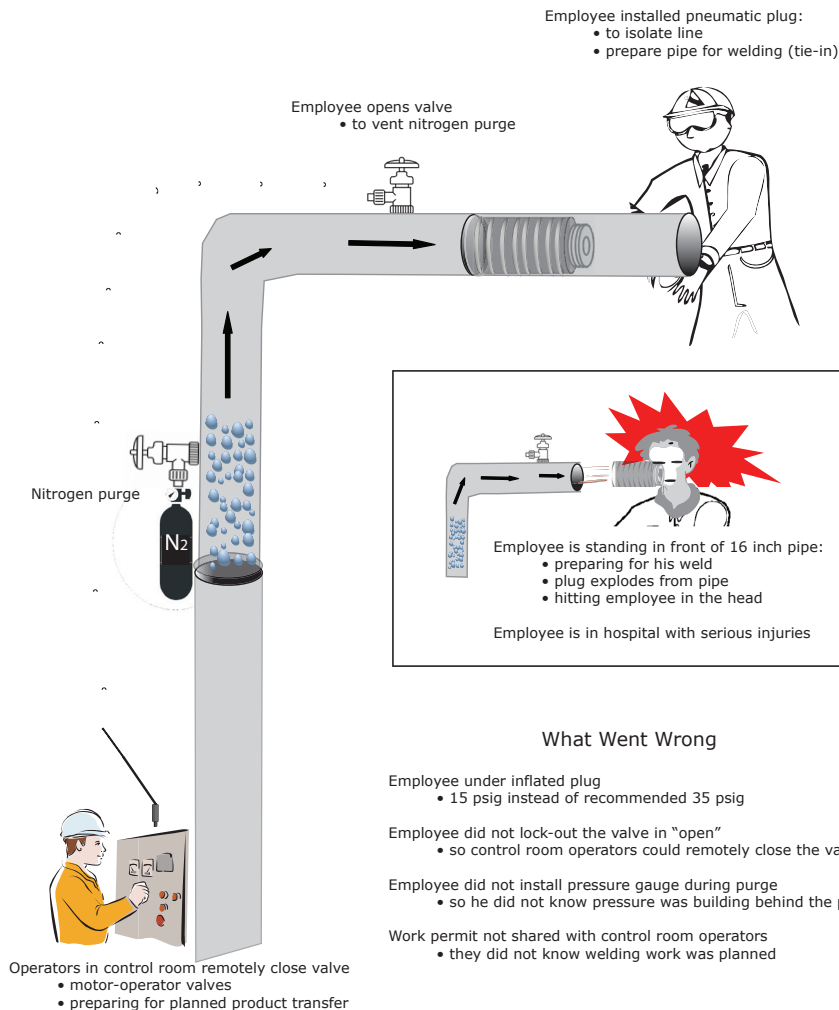


This is an important analytical exercise, but it doesn't work as a piece of supervisor-oriented communication.

A hand-drawn drawing like this one will increase comprehension between 100% and 600%.

source: Cheng

Pneumatic Plug Accident - Overview Drawing



Three Layers of Safety Communication

Safety communication for a serious accident should have 3 layers.

1. Summary Drawing
(like the one shown here)
2. Simple Text Explanation
(one page explanation written at grade level 7 to 9)
3. Technical Documentation
(information like the bow-tie diagram above)

source: Larkin; *You Know Safety, But Not Communication*

Speculate

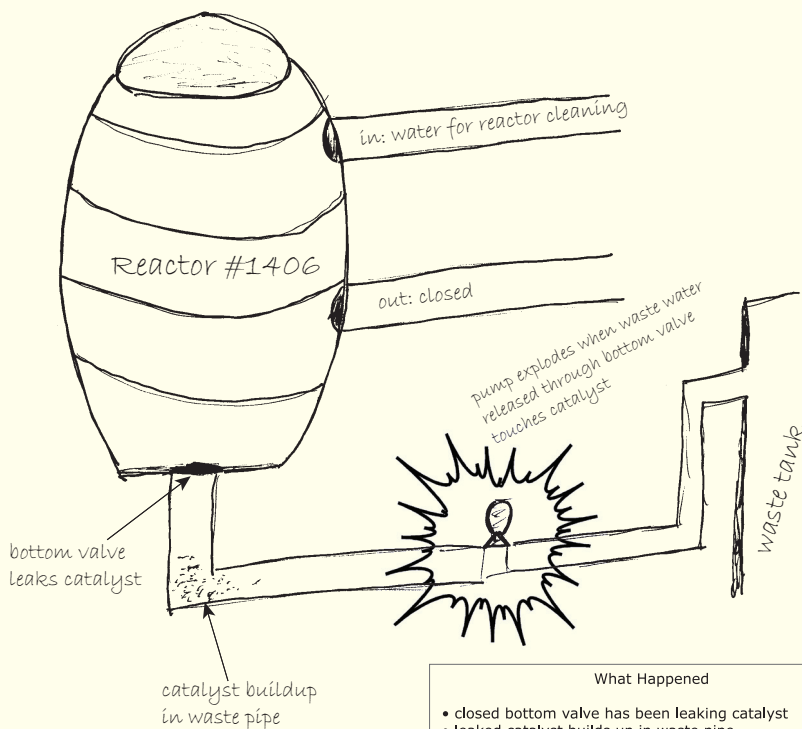
Speculation works.

People who take a "facts only" approach to their communication learn only 30% as much as people who speculate about "what could have happened."

To increase the drama, and to make the lesson stick, supervisors need their communication to speculate about what could have happened.

source: Morris

Explosion - Reactor #1406 Catalyst Exposed to Water During Reactor Cleaning



What Could Have Happened

- this explosion caused by 2 or 3 handfuls of catalyst inside the waste pipe
- if waste pipe ¼ filled with catalyst, explosion may destroy production area (reactor, piping, and waste system)
- if waste pipe completely filled with catalyst, explosion may destroy NE section of glyphosate production area

What Happened

- closed bottom valve has been leaking catalyst
- leaked catalyst builds up in waste pipe
- reactor shut down for water cleaning
- bottom valve opened to discharge waste water
- water reaches potassium-based catalyst in waste pipe
- with water-catalyst explodes
- weakest point in waste system is PVC pump valves
- releasing pressure – pump explodes
- catalyst spills into production area
- all catalyst contained within dike
- no one injured
- physical damage ≈ US\$50,000

Professor Morris studied error reports filed by aircraft pilots.

Some pilots learned three times more from their mistakes than other pilots.

The highest-learning pilots did three things in their error reports:

1. Speculated
"This could have happened..."
2. Blamed Themselves
"I should have done this..."
3. Focused on the Future
"Next time, I will be sure to..."

Morris found that only 10% of pilots did these three things, but those who did learned more and performed better in the future.

This is speculation

Talking to Legal

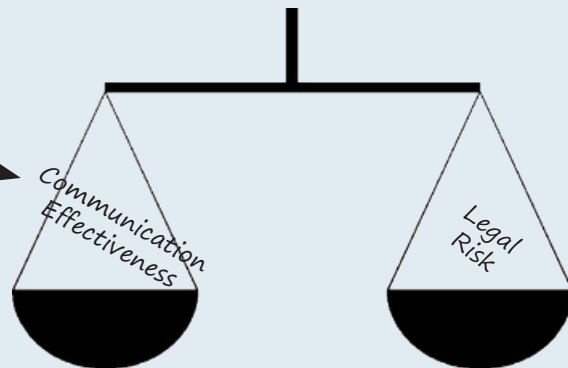
Legal departments often forbid all the communication techniques recommended in this report: simple writing, graphical displays, fear appeals, speculation, and drawings.

Legal departments argue this communication may weaken the company's defense in a possible court case.

Someone senior within the company must weigh these risks. Is the company willing to accept more accidents in return for a possibly better legal defense?

70 years of research and more than 4,000 studies show the communication techniques in this report cause significantly more behavior change (sometimes 13 times more behavior change) than communication without these techniques.

source: Rogers; Sultan



What do you want: fewer accidents or better legal defense?

Talking to Auditors



Auditors are changing the question:

From: Do you have a policy for 'management of change'?

To: Show me your structure for implementing this 'management of change' policy?

Answer the auditors with:

Our structure for implementation is Supervisor-Oriented Communication.

We know if we win supervisors' support, the policies will be adopted by the frontline workforce.

So our safety professionals and all our policies target frontline supervisors as the top communication priority.



Working With the Larkins

<i>Contract</i>	<i>Time</i>	<i>Description</i>
Presentation	1 to 3 hours	<p>Communicating Safety</p> <p>What's wrong with safety communication and how to fix it.</p> <p>TJ analyzes:</p> <ul style="list-style-type: none"> • toolbox meetings • standards, policies, procedures • accident investigations <p>TJ shows how "supervisor oriented" safety communication can reduce accidents.</p>
Workshop	<p>6 to 8 hours</p> <p>Can be all in one day, or split over two days.</p>	<p>You may choose any combination of work.</p> <p>For example:</p> <ul style="list-style-type: none"> • ballroom-type presentation for large employee group • meeting/discussion with senior leadership team • hands-on workshop with your HS&E professionals • detailed analysis of your specific safety communication • several meetings with relevant managers in HR, HS&E, Operations, etc.
Writing Safety Communication	minimum 2 weeks	<p>You have safety information that needs to be written.</p> <p>You may choose:</p> <ol style="list-style-type: none"> 1. TJ and Your Team Do The Writing Together <ul style="list-style-type: none"> • usually done at your location • helps transfer TJ's skills to your people 2. TJ Writes Alone <ul style="list-style-type: none"> • usually done at our office

Larkin Communication Consulting



Dr TJ Larkin and Sandar Larkin began
Larkin Communication Consulting in 1985.

The Larkins help large companies
communicate with employees.



Two specialties:

<i>Communicating Major Change</i>	<i>Communicating Safety</i>
mergers outsourcing benefit changes restructuring new technology	HS&E policies procedures standards toolbox topics accident investigations

Larkin's publications include:

Book	<i>Communicating Change</i> , McGraw-Hill, New York, 1994.
Harvard Business Review	"Reaching and Changing Frontline Employees," <i>Harvard Business Review</i> , May-June, 1996, p. 95-104.

TJ's background:

Ph.D. Communication (Michigan State University)
Masters Sociology (Trinity College, University of Oxford)

Sandar's background:

Before starting Larkin Communication Consulting in 1985, Sandar
worked for the Long Term Credit Bank of Japan.

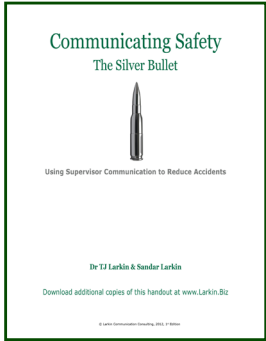
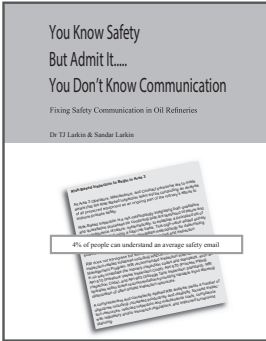
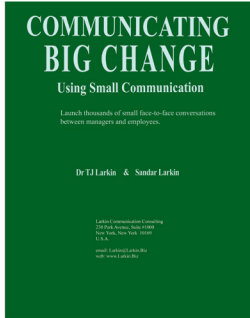
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 <p>Communicating Safety The Silver Bullet</p> <p>Using Supervisor Communication to Reduce Accidents</p> <p>Dr TJ Larkin & Sandra Larkin</p> <p>Download additional copies of this handout at www.Larkin.Biz</p>	<p>Communicating Safety The Silver Bullet</p> <p>Using Supervisor Communication to Reduce Accidents</p> <p>14 pages</p> <p>available in English and Portuguese</p>	<p>Supervisor communication is the best way to reduce accidents.</p> <p>Only 17% of supervisors can understand our safety policies and procedures.</p> <p>Supervisors need safety communication with:</p> <ul style="list-style-type: none"> • grade level 8 complexity • graphical approach to safety standards • fear appeals • drawings • speculation
 <p>You Know Safety But Admit It... You Don't Know Communication</p> <p>Fixing Safety Communication in Oil Refineries</p> <p>Dr TJ Larkin & Sandra Larkin</p> <p>4% of people can understand an average safety email</p>	<p>You Know Safety But Admit It... You Don't Know Communication</p> <p>Fixing Safety Communication in Oil Refineries</p> <p>19 pages</p> <p>available in English, Portuguese, and Spanish</p>	<p>Average safety manager:</p> <ul style="list-style-type: none"> • receives 50 safety emails a day • written at grade level 16 • understood by only 4% of population <p>This information overload lowers comprehension and increases accidents.</p> <p>Fix this overload by layering the safety communication:</p> <p>1st layer: hand-drawn diagram 2nd layer: one-page simple text 3rd layer: additional technical information</p>
 <p>COMMUNICATING BIG CHANGE</p> <p>Using Small Communication</p> <p>Launch thousands of small face-to-face conversations between managers and employees.</p> <p>Dr TJ Larkin & Sandra Larkin</p>	<p>Communicating Big Change Using Small Communication</p> <p>72 pages</p>	<p>Best way to communicate:</p> <ul style="list-style-type: none"> • any big change • to employees • in large companies <p>Communicate using these 3 principles:</p> <ol style="list-style-type: none"> 1. Target frontline supervisors 2. Rely on face-to-face communication 3. Communicate future scenarios (how the company will look after the change)

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