

## **Bag of Tricks – Presentation Design**

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### **Introduction**

When I first arrived at my current place of employment, I used whatever I could lay my hands on for safety training. I found several CDs at the site with a bunch of presentations on them, and went to town. Don't misunderstand me--purchased training presentations can be a good starting point. But once I got past the initial rush, I began to create my own site-specific training.

In my PPE training for example, I used a football equipment analogy to get the employees to "buy into" my plan to change and upgrade their PPE. So I showed them a visual history of football helmets. Much like football helmets had changed over the years, our PPE would also be changing. I had to overcome the "if is not broken, don't fix it" syndrome. (Not that that doesn't happen anywhere else, of course.)

Now, besides being site-specific, another benefit was realized. The employees knew I was putting in the time to create the training and this made the training have a greater value to them. After all, perception is often reality when it comes to effective training.

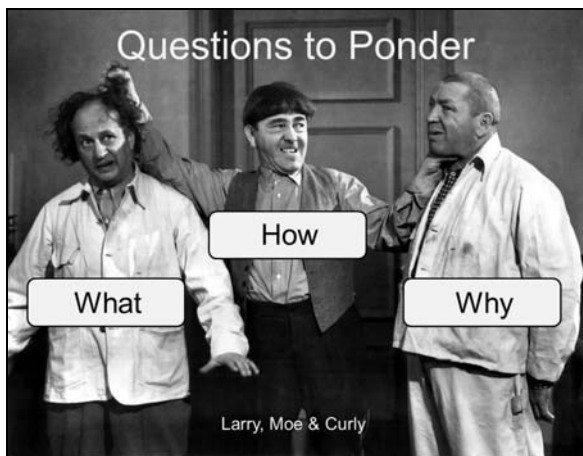
Of course, I'm not the first person to realize that good training can be made better with a well-designed presentation. There are lots of books on the subject, so I'll only mention three of them here.

*Presentation Zen* by Garr Reynolds is a decent book, and worth checking out, but I think I can sum it up with the following – "Use Pictures". Images are remembered longer by people. There are several examples of before and after slides in this book.

*Beyond Bullet Points* by Cliff Atkinson is another book on the subject and is a decent read. It's big message is – "Tell a Story, Have a Plot". Think of the presentation as a mini-movie, with a beginning, middle and end. One of the interesting ideas from this book is the use of hidden slides for organizing a presentation when in "view all slides" mode.

Then you have *Slide:ology* by Nancy Duarte, this is a pretty good book with lots of insight into slide design. It covers Fonts, Colors, Placements, Space, Arrangement, Backgrounds, Text Use and Images. It also gets into some fundamental animation, motion and multimedia methods. I've gone back and have re-read this one a few times.

## Fundamental Considerations for Any Presentation



**So what is needed for any presentation? - Speaker, Audience, Room and Deck. Hmm, maybe we can ask these guys?**

We should all be as good a speaker as John F Kennedy. But, alas, most of us are not. Certainly, I'm at best an average speaker, so I want something behind me that is going to help. I've seen good speakers--Steve Jobs comes to mind--and I strive to be as good or as effective as he is.

It helps to know the size of your audience, a few people, a few hundred, or a few million. Under 40 to 50 people, you can have good audience interaction. But above 200 or so, you move from being an educator to entertainer. Your presentation will need to adjust accordingly. Is the audience your employees at the plant, your CEO, or your peers? Everyone will have different expectations.

The room is everything from the projector being used, to the physical size of the room, and how the seating is arranged. From the presentation design perspective, will Green look Green on the screen is a question I ask. That is to say – “Will colors in my presentation show as I intend?”

Those in the “seminar” business tend to call the collection of slides that they use – their “Deck”. The Deck by itself is not the presentation, but is an important part and warrants due consideration with proper design. The author of *Slide:ology* is the same person who helped Al Gore's *Inconvenient Truth* go from being a somewhat boring to a great presentation. Shucks, it even became a movie and earned an Academy Award for Best Documentary Feature in 2006.

There are five basic paths or “ways” to give a presentation – Live, Web Pages, Webinars, ePresentations, and eLearning. Each has its' own set of pros and cons.

Live – this is what most of us do. The audience gets the full benefit of the speaker – hand gestures, facial expressions, and the ability for the speaker to answer questions as they are asked.

Presentations can be saved out as Web Pages (HTMLs). If you have an internal web site, this can be uploaded to it. But you as the speaker will not be there, so having good notes on each slide is important.

A Webinar is basically a Web version of presentation with someone talking behind the slides as they are being shown. The design of slides becomes much more important as people cannot see the speaker. So the slides need to carry more of the load and be more interesting.

An e-presentation, is a PPT that has had narration added it, custom animation applied and been converted to a YouTube like format. It basically plays like a movie. In this format, keeping what is on the screen moving is important. (We are a TV generation after all.)

And finally there is e-learning, which is basically an e-presentation with some level of interactivity build into it. Once considered the second coming of training, I now see this as just another tool in the toolbox.

Safety presentations tend to fall into one of three main types – Topic, Task and Story.

A Topic type presentation is the primary kind that most of us are dealing with at work. Many of these are rooted in one regulatory requirement or another. These include most of the OSHA, EPA and DOT training topics. You are basically trying to pass on information about something. (And hoping they'll remember it all!)

Typical training of this type includes Confined Space, Hot Work, Hazard Communication, Fall Protection, Machine Guarding, Industrial Hygiene, LOTO, Hazardous Waste, Heat Stress, Bloodborne Pathogens, Back Safety, Drug and Alcohol Programs, and Physical Properties of Chemicals.

Presentations of the Task type will also have some level of hands-on activity associated with it. This type of presentation will be rooted in some direct aspect of the employee's job. In the case of Respiratory Protection, you have the fit test, positive and negative flow tests, and a piece of PPE that they use in the plant. For forklift safety for example, employees will be asked to do an inspection of a forklift and to conduct defined tasks with the forklift to show they are capable of handling one. Electrical Safety, NFPA-70E, Arc Flash, and Safe Use of Portable Power Tools are all job-specific training. Operational Training is often of this type – the classic “show me” presentation.

Another type of a Task-based presentation is when it used as a Visual SOP. For example, I have a presentation on how to do a proper Plant Restart after a power failure (a not uncommon occurrence in my neck of the woods). In several slides, I show the the proper valve settings for all pieces of equipment, allowing employees to visually verify the correct arrangement. A copy of this presentation is in the control room and shipping office at my plant – just in case. (After all, with no power, there will be no computers or internet – hard copy to the rescue).

A Story type is one that draws upon life experiences, personal beliefs or interests. Since I grew up in Buffalo, NY, I know Cold, Snow and Winter well. Perhaps better than I would have liked to have known it. But in either case, I give a Cold Stress class one year and a Winter Safety on the next based on my experience.

Many off-the-job safety presentations will be like a story. Examples include Fire or Electrical Safety in the Home, Bugs and Bunnies (Insects, etc.) Halloween Safety and Mower Safety. In effect, most of my off-the-job safety topics are my attempt to sell safety as a 24/7 idea.

To do this effectively, I have to relate work-based safety ideas to day-to-day activities associated with home and play.

TOPIC:

- Least Interesting
- Benefits from Plant-Specific Photos
- Important to change these up every time they are given

I have about 18 topics that the regulations say that I have to cover every year. So keeping these presentations fresh can become a job onto itself.

TASK:

- More interesting due to the hands-on component
- Harder to create due to specific imagery needed
- Site-Specific Images critical

I'm a decent photographer, but getting good enough lighting inside any plant building can be rough. But notwithstanding that, I've gathered a good collection of site-specific photos over the years for use in my plant-specific presentations.

STORY:

- Most interesting
- Lends itself to strong imagery
- More practice then normal needed

I find this often harder to present effectively due to the subject matter. I'll practice three to 5 times more for this type of presentation. Your timing of your talk with the slides becomes more critical.

Another thing that happens when you do a Story type, is that any lack of flow or choppiness in presentation will become more obvious.

Ok, so what? Well, it's a matter of perspective, eh. In a given year, I'll give 25 to three5 training presentations at my site. About 50% of them are Topic, 25% Task and 25% Story.

Realizing that there are three kinds of presentations can help as one builds one type or the other. The resources used will change, and the flow and structure of presentation will be different. But my general goal is make all presentations seem like a Story. I go this route, as this tends to be more enjoyable to the audience. The more they like it, the better they'll remember it. And to further complicate things, it is not usual for a presentation to be a blend of all three types. Well, you didn't think it would all be easy, right? Goals are good, eh. (I did mention that I grew up in Buffalo, NY, so just a bit of Canadian influence there).

## **Do's and Don'ts for Presentations**



**Borrowing from a famous late night routine, let's cover the top 10 things to remember about presentation design and delivery.**

**10** - People can read a slide faster than you can speak it. I talk fast, maybe 150 words a minute, but even the average reader is at 250 to 400 words a minute. This means your audience has read the slide before you have gotten part way through it. In fact the words and image on the slide should support, but not be the same as what you are saying. Or to put another way – Never read a slide to the audience!

**9** - The bigger the room, with more people, the larger the font with fewer words on the slide! I suggest a minimum 32-point for text, and 44-point for headers. For myself, I tend to use 48-point headers and 40-point text.

**8** - Remember that color wheel from your elementary days? Guess what, it's made a comeback! It is important that the right contrast be used and that colors complement each other. With the classic color wheel, any two colors opposite each other will have sufficient contrast, but that doesn't mean you want to put that combination on a slide. While Red and Green go together for Christmas and have great contrast, they do not belong on the same slide. In fact, avoid Red as a background or for lettering, as it generally associated with Danger. Of course, if you're doing a course on Hazard Recognition, then some Red may be involved.

**7** - In earlier days with overheads, we used black or very dark backgrounds with white or yellow lettering. Today, we have training rooms with digital projectors, and in these cases, a light or earth color for the background is preferred. Of course notwithstanding all that, if you have a corporate standard, well then you have a corporate standard, don't ya? I tend to use contrasts in the 4.5 to 1 range ([http://trace.wisc.edu/contrast-ratio-examples/ColorSets\\_6x6x6\\_OnWhite.htm](http://trace.wisc.edu/contrast-ratio-examples/ColorSets_6x6x6_OnWhite.htm)).

As you construct your slide try to keep text at least a ¼" to ½" from the edge of the slide, this will allow for the variations in computers, printers and projectors that you are likely to run into.

**6** - Animation in the right place at the right time in a presentation can work; just avoid any that come with Windows or anything that would get your kids to giggling. Anyone remember the flying toaster screen saver from early Windows. That was cute for about 30 seconds and then it got old real fast. Same is true for most cartoon-like animations, only faster.

**5** - Just because I can put the entire Declaration of Independence into a slide, doesn't mean I should. Powerpoint is not Word, it is not a book or magazine. Think of it as a billboard. The presentation is meant to be a visual representation of the idea or concept you are conveying to the audience via your spoken word.

**4** - When using images, one wants to be careful to use a high enough resolution picture. As you make a picture bigger, pixilation can start to be a problem. But good imagery can go a long way, but only if the imagery works with your presentation and what you are talking about. Always try to get the highest resolution image that you can. Generally the higher the resolution, the sharper the image.

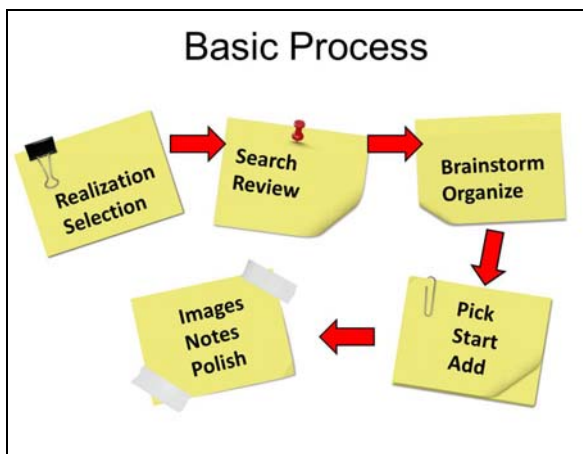
**3** - *Remember – Rules, Not Guidelines – I'm from NJ, don't make me come to your house and pull a Soprano on you. ☺*

**2** - Use Arial as opposed to Times New Roman. Times New Roman (Serif) has little feet, while Arial (San Serif) has none. Arial is more informal, while Times New Roman is formal. It works well for the NY Times, as they use 2 inch columns with really tiny type. It helps your eye to keep on the same line. On a slide with fonts so large, the feet become more of a visual distraction.

**1** - A well-constructed presentation will help an average speaker, but it takes a very good speaker to overcome a poorly designed one. Why put yourself in the hole at the start? Remember, presentations work dirt cheap. Slides are free, but you can always make more. Use more if needed to break down a complex slide.

**Miscellaneous** - Avoid all CAPS, it is harder to read, and is akin to shouting, just like in e-mails. A fair percentage of the male population in the Americas is red/green colorblind, about 7 to 10%. (Another good reason not do use red and green on the same slide.) And think about some kind of mental break or diversion every 10 or 15 minutes or so.

## Basic Process for Presentation Design



**Well, I'm a Chemical Engineer by degree so of course I have a PROCESS! ☺**

**Realization** – Oh no, a Training session is needed! To be fair, that’s what it was like when I first got to my plant. However, now I lay down the training schedule for the next year in December of the prior year, and put it up on our internal web site. When I set up my schedule, I take into account whether a new or existing presentation will be used to give myself time. No point in setting up a training session with three new presentations, when I can spread those out.

**Selection** – Pick a focus for the presentation. Sometimes the hardest thing to do is make a choice. If it is standard topic like Hot Work or Confined Space, it’s no big deal, but when you get to Off-Job Safety topics, the volume of possibilities can be a bit overwhelming. I tend not to dwell on this; I just pick something and run with it, like Winter Safety or Home Fire Safety.

**Search** – Beg and borrow as needed from the internet. For just about every topic there are lots and lots of presentations via searches through Google or Yahoo. Most states and universities have safety training available for download. Get it all, good ideas can come from almost anywhere. Only make sure you acknowledge the sources where appropriate.

**Review** – After you have search your files and the internet, and you’ve gotten everything you could lay your hands on, it is time to review your bounty. For example I found 14 or so presentations for Winter Safety. I open, review and close each of these in 30 seconds or so. I do this to basically prime my brain for the next step.

**Brainstorm** – Time to brainstorm, jot down ideas/concepts – with pen and paper. Yeah really, I actually use a pen and paper for this. Get into a comfortable chair and relax. Write down everything, no matter how silly it may seem to you.

**Organize** - Then we come to organizing the ideas into subgroups or an outline. I’ll use Excel or Word as needed, whichever is easier. For my Winter Safety Training, I ended up with four categories – Weather, Activities, Automobile, and The Holidays. This is also the point at which I begin to think about a plot per se. Basically, do I have a beginning, middle and end. “*Beginning – Why; Middle – The Meat; End – Summary, Why Again.*” This was taken from one of my son’s first-grade homework assignments, but I think it gets the point across.

**Pick** – Time to select a template (use existing presentation if a good one can be found). I used to use a group of five or six templates, but these days, I actively search for a template that may fit the nature of the presentation, such as one with a wintery background for Winter Safety. Just like searching the internet for presentations, you can search for templates. If I don’t find a template I like, I will default to my basic all-white background, no bullets, header-only template.

**Start** - Construct the presentation with one idea/concept per slide. I suggest that the title block reflect the main idea clearly. Keep in mind you can also combine later if you need to.

**Add** - info to each slide, different from notes or narration. Basically add whatever ideas or concepts as related to the topic header. You can always remove some of the text later.

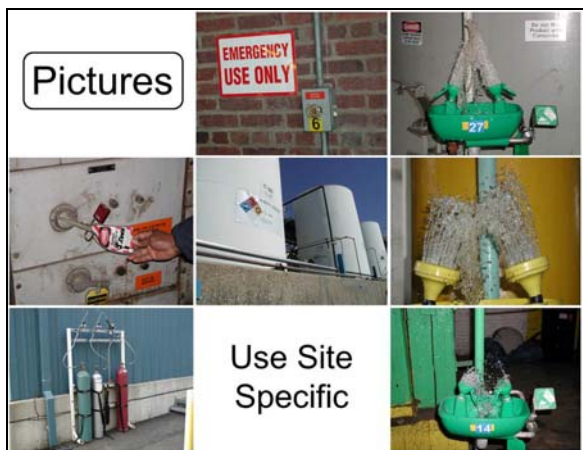
**Images** - Then add the images, use as appropriate. This is also the time at which, if I am thinking of making this a part of an e-presentation or e-learning system, that I give thought to multiple pictures or objects on a slide. Generally I seem to have better luck with getting images on Google

then Yahoo. Yahoo tends to give you a lot of Flickr images, but not all of those can be copied to your presentation.

*NOTE – Always, Always, Always – cut and paste the link for an image to the notes section of slide. Then you can construct a photo credit page if needed when the presentation is done.*

I really prefer to use a digital photo that I take at my site over internet pictures. It is easy to get site-specific photos for some topics, harder to do for others. But you have to be careful with the camera you use. I use a Cannon Olympus 33 Megapixels per picture that I brought in 2000, but replaced with that a Rebel EOS last year.

Today, you can get cameras for 50 to 200 dollars, with 8 to 12 megapixels per picture and lots more memory. However, my old camera still takes a far better picture due to the lens construction. The distinction becomes more apparent if your presentation is to be converted to a movie or Flash (i.e. YouTube). The better the picture at the start, the better it will convert later on if needed.



When I decide to use a picture, my pecking order is Site-Specific Photos over Web-Based Photos over Illustrations over Cartoons over Clip Art.

**Notes** - The notes can be used for narration and later reading by others. I know no one likes doing the notes. But what I discovered is that as I write down what I'd like to say, my slides change. I realize that some things are better for me to talk about, rather than to show and vice versa. Between the images added and notes written, you will discover the words on the slide should drop considerably.

**Polish** - Once the PPT is functionally done, set it aside for a week, and come back to it. Decide if the PPT flows properly, maybe put in a few slides with a question for the audience. Work in audience interaction in the presentation; almost any of that is a good thing.





**You can put in a picture with something that is wrong relative to the training you're giving and query the audience on it.**

Just the act of giving your presentation out loud will likely lead you to make subtle changes to it. And if all else fails, give your presentation to any chair you have in house. I often use my young son for this. He often asks every good questions. If you have other trainers that you know, ask if they would be willing to peer-review your work.

So you've done everything to the presentation that you wanted to, then it is time to "test" it. I shoot for 10 to 60 secs per slide.



**The Logitech Cordless Presenter (or others like it) is something I've come to really appreciate. No longer am I tied to the computer or podium when doing a presentation. What I really like on it is the timer, which vibrates when I reach 5 or 10 minutes to go.**

Now let's consider the three versions of the Einstein slides.

## Einstein's Equation

Energy and mass can be interconverted using Einstein's Equation.

$E = mc^2$  (Energy = Mass x Speed of Light Squared) comes from his 1905 paper on the electrodynamics of moving bodies which introduced the radical theory of special relativity.

When protons & neutrons are packed together to form a nucleus, some of the mass is converted to energy and released.

This amount of mass is equal to the force of attraction holding the nucleons together.

The bigger the nucleus, the more energy that can be released.

**Version 1** - This slide is a word document. If I were to print out it out, leave it on a table and go home, you would know 80-90% of what I had intended to say. Basically – the presenter was not needed.

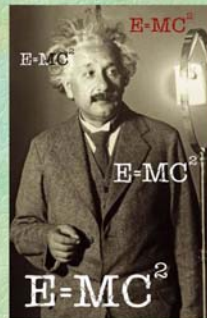
## Einstein's Equation

1905 – Special Relativity

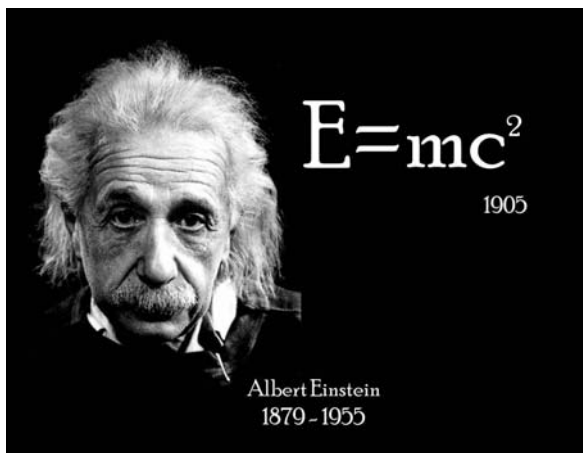
Energy <--> mass

Energy given off, when nucleus is affected

Amount of energy relates to size of atom



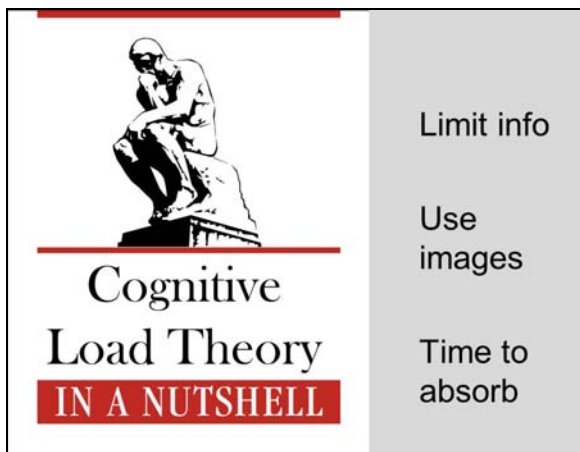
**Version 2** – This version of the slide is a classic Powerpoint. If I were print it out, leave it on a table and go home, you would know 50-60% of what I had intended to say. Basically – the presenter might be needed. Also consider the words on this typical slide. While less than Version 1, you have to ask yourself, are these words for the audience or crib notes for the presenter ?



**Version three** – This version of the slide is a presentation. If I were print it out, leave it on a table and go home, you would know 10-20% of what I had intended to say. Basically – the presenter is needed.

And that is a key point – the presentation is meant to provide a visual key / anchor to help facilitate your message getting into people's brain and staying there.

## Presentation Design Theory



**Why presentation design, do's and don'ts, and the process? Well this is why – Cognitive Load Theory developed by Professor Sweller in 1988. (Well, at least of one of the whys.)**

This is the theory behind why the amount and balance of text, color, contrasts, imagery, sound, movies and animation are important.

There are two sides to your brain – left side (math, facts, data) and the right side (music, art, emotions). During any presentation, you can hear me (right side) or you read the slide (left side). But if I try to make you do both – your brain goes into “panic” mode, and you miss part of the presentation.

This theory is pretty straightforward, if you want to be effective when doing training, keep in mind the human brain can only take in so much at a time.

You have stuff trying to get into your brain (working memory) and the stuff that has gotten into your brain (long-term memory). The barriers or “filters” on your mind are what I want to get through. If I can do that, I’m golden.

Every person has filters. These filters in effect determine what gets into your brain easily, and what has to really work to get in. Everyone has different filters, where you grew up, went to school, got a degree in, have kids, who you work with, etc all affect your filters. Now imagine you are giving a presentation to room full of people all with different filters – how does one get through to everyone? – effective use of images and cognitive load theory is how.

So Cognitive Load Theory as it applies to Presentation Design is suggesting us to limit the info per slide, use images, and give time for the audience to absorb the slide.

## Retention



**Who knew you were getting advance learning theory when you were 2 years old?**

Cone of Learning developed by Dale Eggar in 1969 tells us that in two weeks, your audience will forget 50% of your presentation. But you got to love the Confucius quote from about 2500 years - "I see and I forget; I hear and remember; I do and I understand." This quote seems to say basically the same thing. So what are some of the things that can be done to help improve retention?

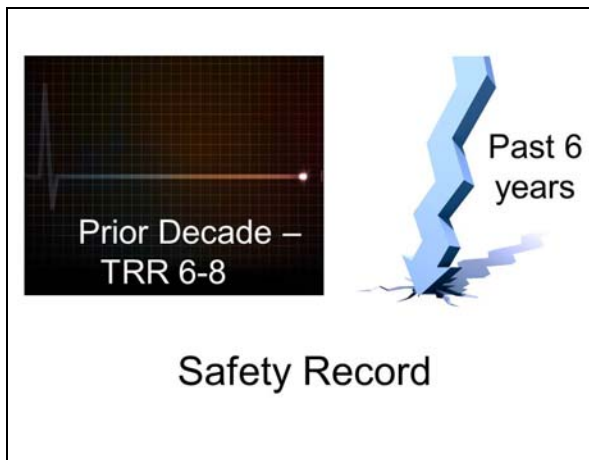
Proficiency tests after you have given training can be effective way to gauge whether they understood, or if there is a gap in your training. However, creating tests can be time consuming, or you may think the people you are training will revolt at the idea of a test. I created an access database and threw about 4000 questions into it across 60 categories to make my life easier. I pick a topic, then how many questions, and how many different versions I want, and click print. I sometimes give a test right after the training, or occasionally months later.

I found a good template for Jeopardy on the internet and adapted it to my needs. I did one after NFPA 70 E Arc Flash training with the employees. Basically split the room into 2 groups and alternated between one side and another. This version had double and final jeopardies in it. Of course, after doing it, I realized that I would have been better served to have given them the question and asked for the answer, rather than the other way around. Turns out not everyone watches Jeopardy.

Near-Miss/Unsafe Condition Reporting is another important element. I've used this to focus on a recently done training session like Lockout/Tag Out. I'll grab two or three employees, take some near miss cards and look specifically for near misses on Lockout/Tag Out. Also I'll make use of the Good/Positive check box whenever I see it being done right.

Contests can be fun. I did one for Hazard Recognition which used 5 photos with multiple hazards in them. Everyone got 5 minutes per photo to write down as many things as they could identify, with the best set of answers getting a certificate to a local restaurant.

## Why Presentation Design ?



**It has worked for me. After all, getting people home in the same general shape when they came to work is the goal. Good training is one of the big ways you can get there.**

In the end, a well-designed presentation will be remembered. Better retention on safety training leads to a safer workplace. Presentations will be more fun to sit through. Once you get in this mode of the presentation design, it ends up taking less time to get to a quality presentation. And of course, since you're the one creating it, it hardly costs anything, except your time.

If you have done it right, your audience will never appreciate the time you put into it. Oh you'll hear if it is bad, but not likely to get any compliments if it is good. Such is the life of safety professional.

Now, being from Buffalo, NY originally, I know many of the bands in Canada. One of the more famous is the Barenaked Ladies. They did a remake of a song back in 1992 called "Love in a Dangerous Time," which is really good if you haven't heard it. But I remember this song for a line that is in it, that in my mind uniquely states what training is all about. "Kick at the darkness, until it bleeds daylight." That's right; if you don't get through to them the first time, try something else.

So two questions for you – How many slides did I use? In general, the average answer for the number of slides is 50; that is about 1 per minute. And 50 is considered a big (long) presentation and therefore by default boring. But it doesn't have to be] that is the mindset we have to get past. I used way more than 50 for this session, and it didn't feel like that at all. In fact, I strongly suspect had I mentioned the actual number of slides at that start, most of the audience would have exited the room at that point.

And how many slides had bullet points on them, not counting the slide that actually had a picture of a bullet on it? Of course, I used no bullets. Just because Microsoft gives them to us in the Master Slide, doesn't mean you have to use them. I create a master slide, with no bullets, white background and only a title block. This is what I start with. Using bullets tends to cause you to put too much information on a given slide. So try to avoid bullets if you can.

**So keep in mind – we can save the world, one presentation at a time!**

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## **Links and other useful references**

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