

Ph.D. 101 Beyond

(a.k.a., How to Get Away with Ph.D.)

Chapter I.

Presentation Tips

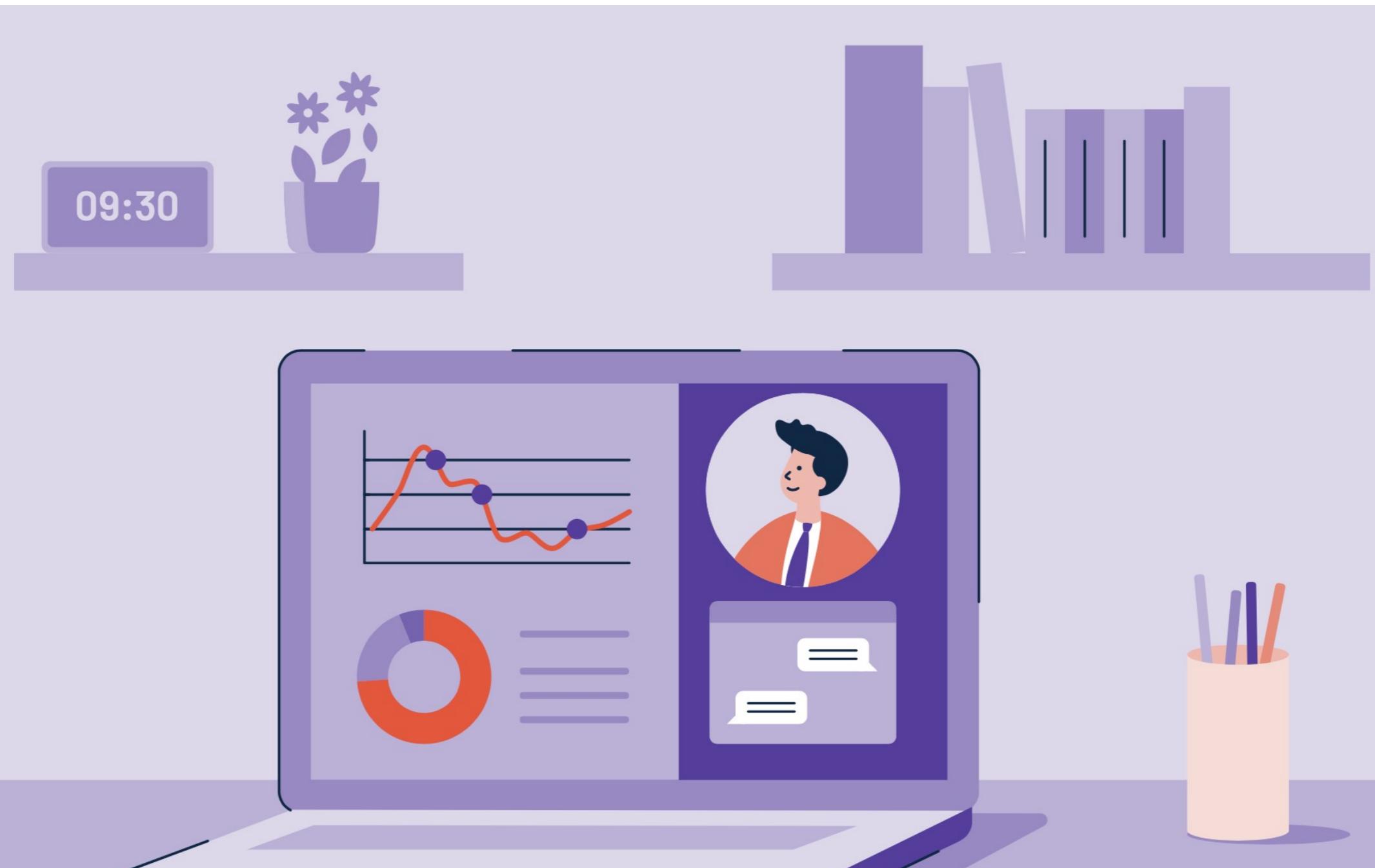
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Ph.D. 101, Presentation Tips

Presentation Tips, Why

That you like or not, *the form is part of the substance*. Quite often over the last years, I told you that doing research is not limited to conducting experiments and writing papers. The visibility of your work also depends on the way you present it.

As a matter of fact, the presentation is often the only moment you have to show what you have done. This is true not only at the level of the Ph.D., but also at higher levels.

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Inspired by a true story... Institut für Informatik - Zurich, 2019

I was invited to join the hiring committee of two Assistant Professors in Big Data Science, AI, and ML.

Getting a position in Zurich is extremely challenging and appealing. We got applications from all around the world and, among them, we received an application from an Associate Professor in England with 15 years of experience in research.

His profile was ranked at the top of the list after the prescreening. We only invited 4 researchers to the final interview.

Long story short: He was finally excluded since he fucked up both research presentation and teaching trial. Why? He gave for granted the presentation of his work, with horrible slides and lack of a clear storyline.



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From the committee's final report:

"While the applicant has large experience on big data management and use of artificial intelligence methods for [...], proved by significant and impactful articles in the field - including valuable awards and recognitions from the research community, the Hiring Committee unanimously consider the applicant's profile not in line with the top-notch standard required by the University of Zurich. Among the various considerations - available within the detailed report attached to this summary - the expected level of interaction and presentation skills were not considered sufficient for proceeding with a further consideration of the applicant's profile."

In the end, the Hiring Committee decided to opt for a younger researcher.

Switzerland is Switzerland, some of you might believe... this was an exception; for sure, experience matters more than a presentation.

Sure, your CV matters... but it is not really enough. Let me provide you with a couple more examples coming from someone you know personally —> me!

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Inspired by a true story... NWO Center - Utrecht, 2018

The Dutch Research Council (NWO) has a funding program called VENI-VIDI-VICI, i.e., typically, VENI allows young researcher to get an Assistant Professorship, VIDI enables to be Associate, VICI enables the full professorship.

In 2018, with my project - entitled “*STATICS: Socio-Technical AnalyTICs for improving the Management of Software Evolution Tasks*” - I successfully passed both the technical evaluations with full marks. NWO invited me on June 4, 2018, to its offices in Utrecht for the final interview.

I had 10 minutes to discuss my project, followed by 15 minutes of Q&A. While I knew that the committee was not necessarily composed of computer scientists, I neglected a key factor: most of the committee was composed of mathematicians, physicians, and theoretical computer scientists.

Long story short. I spent too much time on motivating my project, being not able to clarify what the committee was looking for: How can you make sure that empirical studies may lead to reliable conclusions? This point, combined with the lack of proofs/formulas of my project, led to failure.

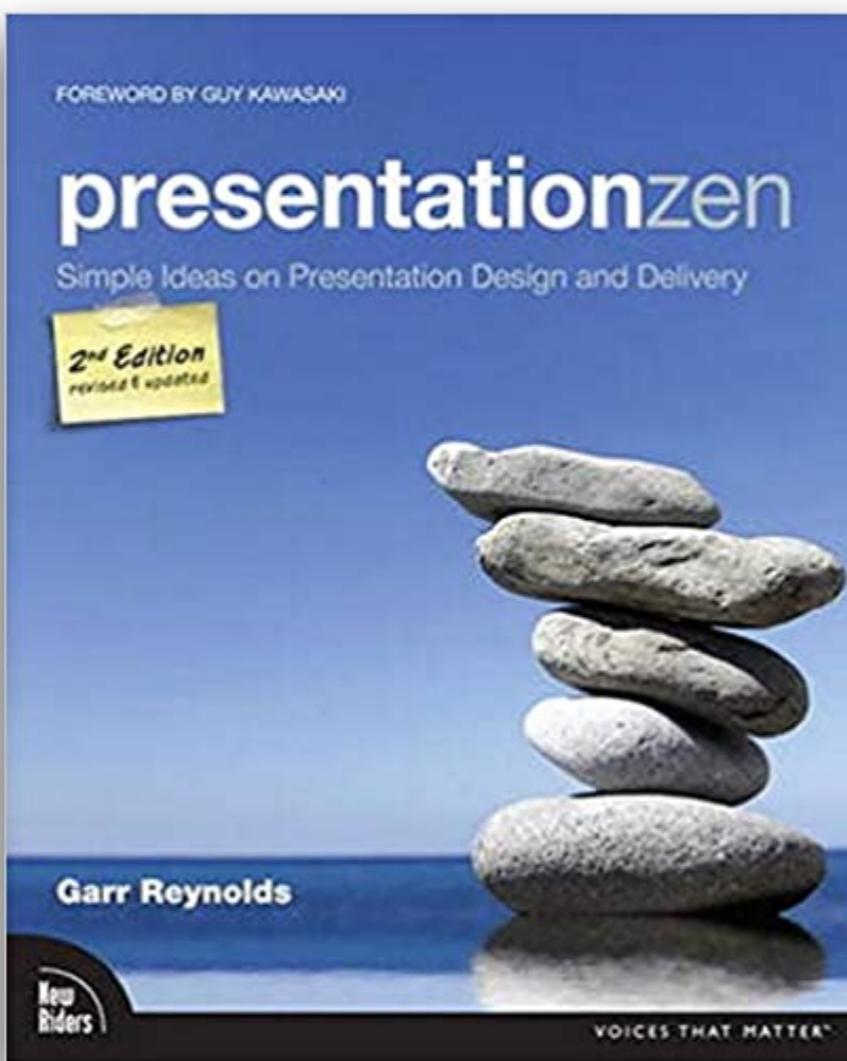
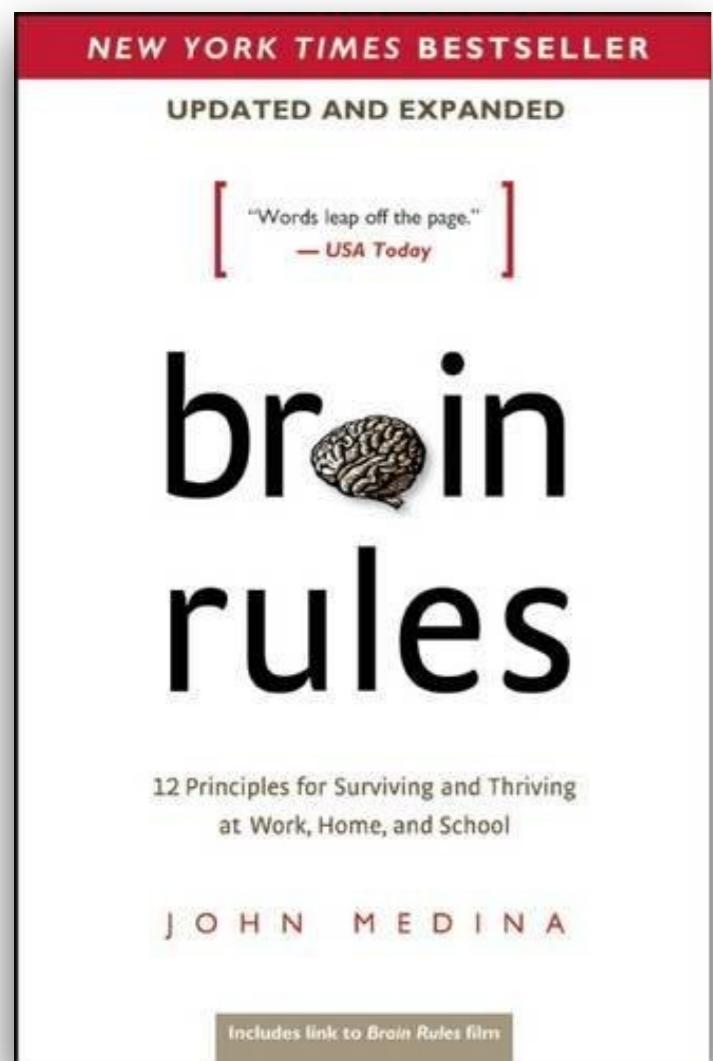
Still in 2018, a similar story happened with my Assistant Professorship application at IMDEA (Institutos Madrileño de Estudios Avanzados) - I failed because I misunderstood my audience...

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Presentation Tips, How

In other words, presentation skills are required at all levels, from presenting a paper till getting a position or winning a grant. Hence, once again, do not consider presentation as a “quick-and-dirty” work to do...

Form is part of the substance. Your work as professional researchers does not limit to technical stuff, but goes WAY beyond, reaching psychology, marketing, and color theory.



Two highly recommended books.

John Medina is biologist with special research interests in the isolation and characterization of genes involved in human brain development.

Garr Reynolds is a well-known communicator, speaker, and author.

—> Your work does not limit to computer science!

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Presentation Tips, The Core Idea

Storytelling IS related to modern presentations and sometimes to kids' stories!

But... Who am I to give tips about presentations?



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Presentation Tips, What do We Learn from It

Life is all about change. Every time we get on stage, every time we give a lecture or presentation, we are talking about some kind of change. If we are not talking about a change, there is basically no reason to be on stage!

If there is no reason for change, why should the audience buy what you are selling?

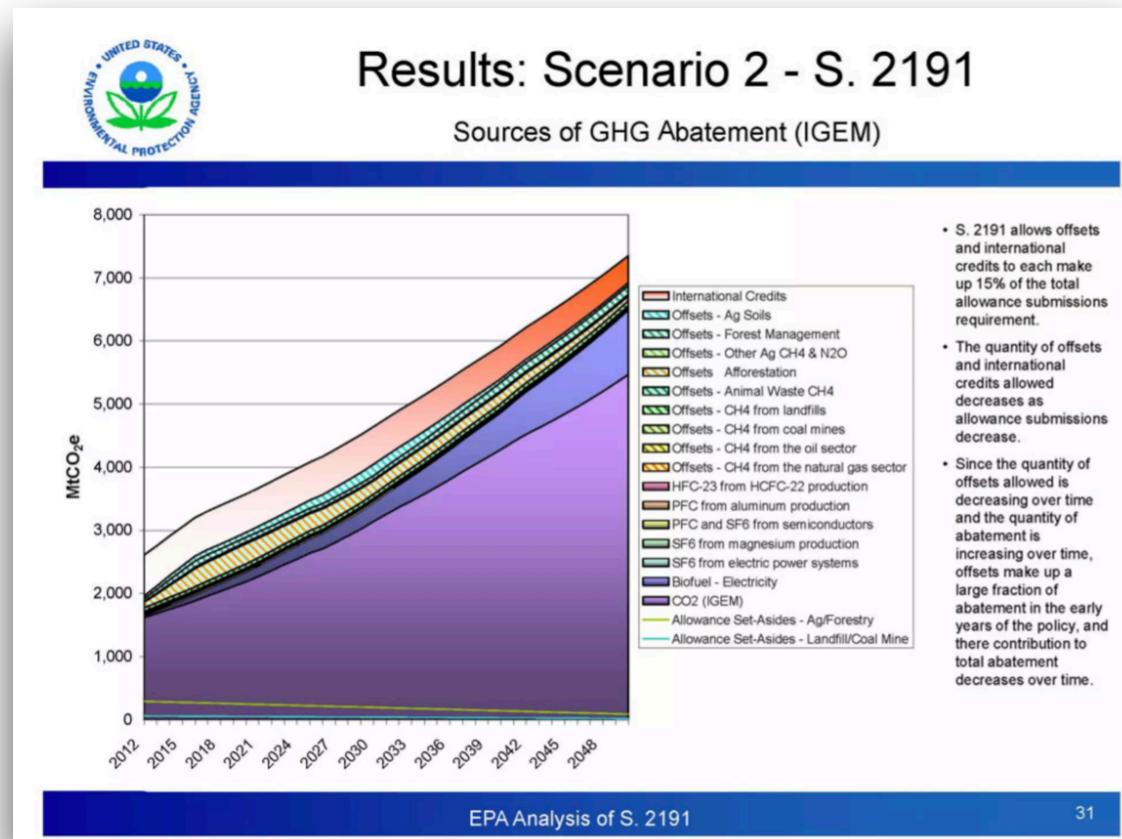
Let's summarize what we have been listening to:

- (1) Turn-off your computer, **paper** still matters!
- (2) Put the audience first, i.e., your story is **their** story!
- (3) Have a solid structure, i.e., story needs **architectural structure!**
- (4) Have a clear theme, i.e., your story is **really their** story!
- (5) Remove the non-essential, i.e., remember the **Chekhov's gun!**
- (6) Hook 'em early, i.e., **do not waste your time**, you have a limited slot!
- (7) Show a clear conflict, i.e., **character, struggles, obstacles, goal.**
- (8) Demonstrate a clear change, i.e., **make data actionable and visibly clear!**
- (9) Show or do the unexpected, i.e., remember the “**Luke, I'm Your Father**” factor!
- (10) Make 'em feel, i.e., make your presentation **real!**

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Presentation Tips, Some Practical Tips

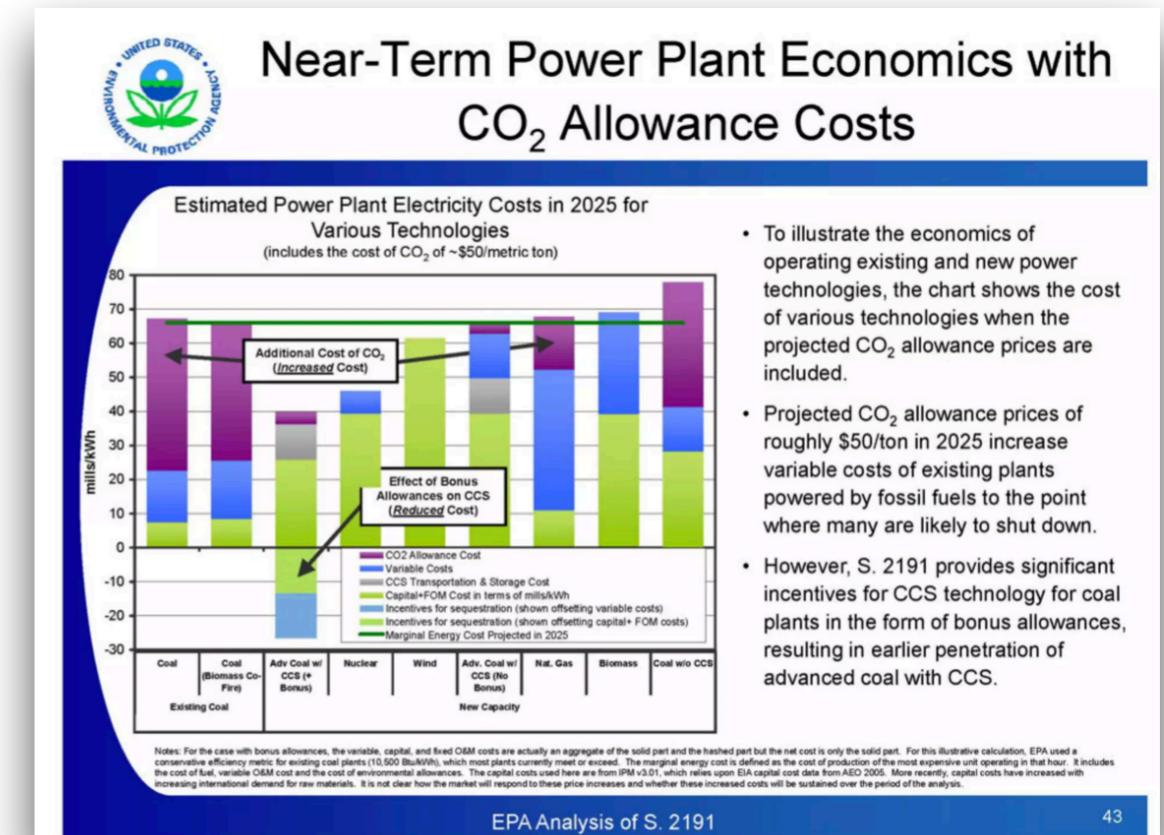
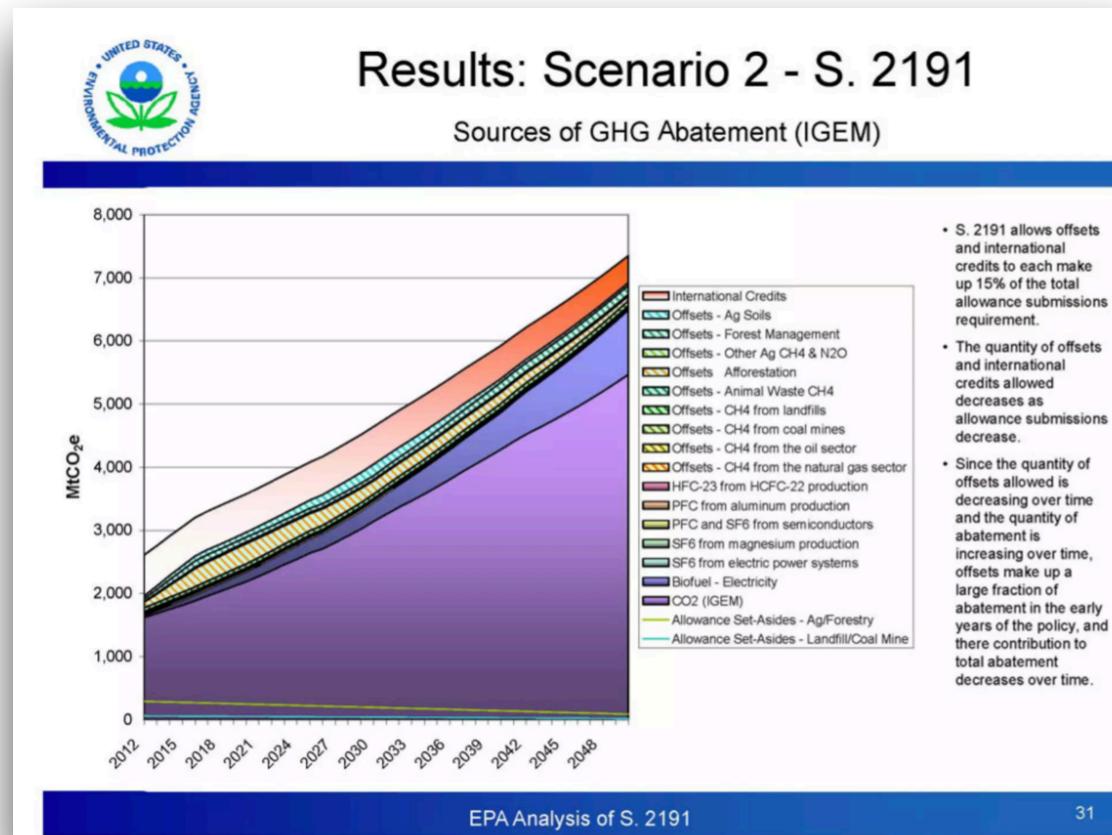
Giving these principles in mind, what can we do to improve our presentation skills?



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Results: Scenario 2 - S. 2191

Sources of GHG Abatement (IGEM)

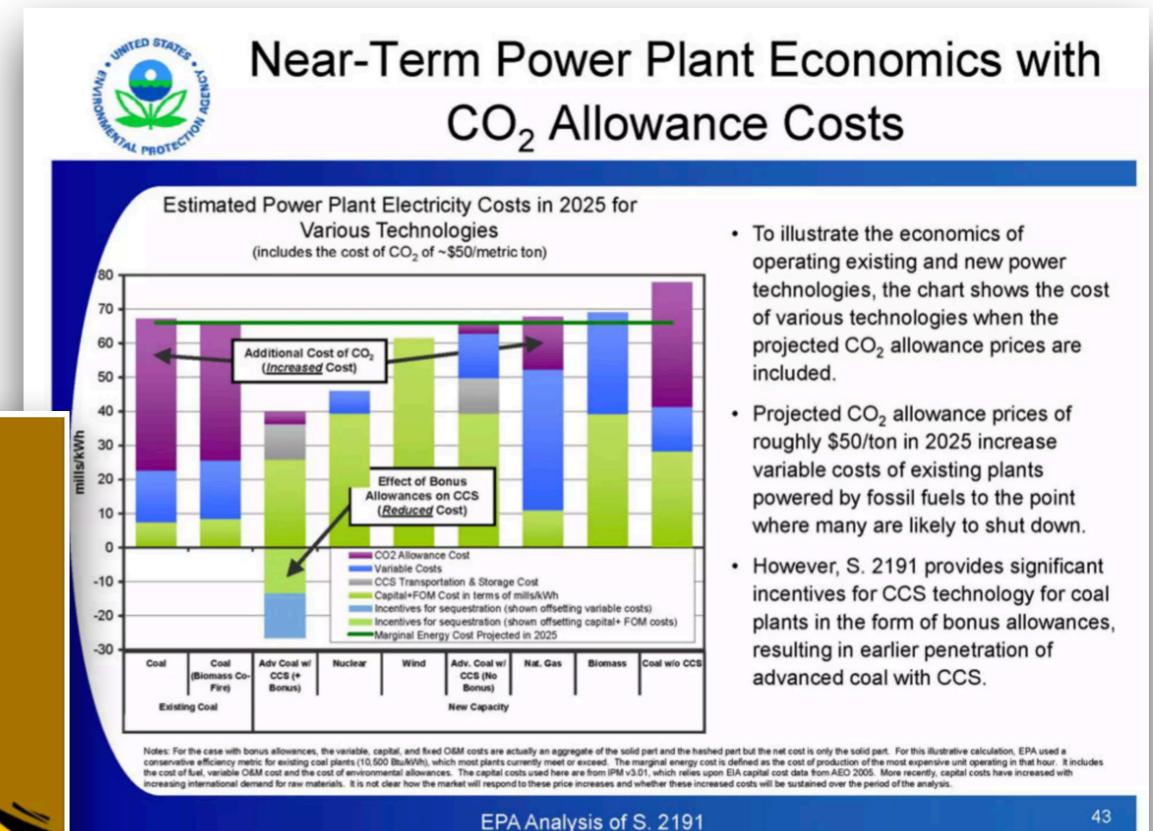
MtCO₂-e

International Credits
Offsets - Ag Soils
Offsets - Forest Management
Offsets - Other Ag CH₄ & N₂O
Offsets - Afforestation
Offsets - Animal Waste CH₄
Offsets - Child from Inuit

- S. 2191 allows offsets and international credits to each make up 15% of the total allowance submissions requirement.
- The quantity of offsets and international credits allowed decreases as

Wall Arrangements

- Should draw customers farther into the store or department
 - Reinforce store image
 - Divide large areas into smaller sections
 - Color groupings
 - Same garment groupings



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The collage consists of three separate presentation slides arranged side-by-side.

Left Slide: A chart titled "Results: Scenario 2 - S. 2191" showing "Sources of GHG Abatement (IGEM)". The Y-axis is labeled "MtCO₂e" and ranges from 5,000 to 8,000. The X-axis shows various sources of abatement. The chart includes a legend and a note about S. 2191 allowing up to 15% of allowances to be used for offsets. Below the chart is a yellow section titled "Wall Arrangement" with a bulleted list of tips for store layout.

- Should draw customers farther into the store or department
- Reinforce store image
- Divide large areas into smaller sections
 - Color groupings
 - Same garment groupings

Middle Slide: A diagram titled "Community- Enlightenment (To Selforganization, Self governance for self transformation)". It features a central circle labeled "The Person" with arrows pointing to "Community development", "Agent Engagement", and "Structures". Arrows from these points lead to "Integration", "Local Governments", "Community Groups", and "Conscientization (COMMUNITY ACTION PLANS)". Other labels include "Site of lifelong Learning", "Knowledge", "Skills & Attitudes", "Self help Initiatives", "Delegation", and "Authority".

Right Slide: A slide titled "Near-Term Power Plant Economics with costs". It includes a chart showing the economics of existing and new power technologies under different CO₂ allowance price scenarios. The chart shows cost curves for various technologies like coal, natural gas, wind, and solar. A note at the bottom states that the chart uses 2005 data and includes a solid part for the most expensive unit operating in that hour.

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Giving these principles in mind, what can we do to improve our presentation skills?

The collage consists of four distinct presentation slides:

- Top Left:** A slide from the United States Environmental Protection Agency (EPA) titled "Results: Scenario 2 - S. 2191". It shows a bar chart titled "Sources of GHG Abatement (IGEM)" with values in MtCO₂e ranging from 5,000 to 8,000. The chart includes a legend for International Credits, Offsets - Ag Soils, Offsets - Forest Management, Offsets - Other Ag CH₄ & N₂O, Offsets - Afforestation, Offsets - Animal Waste CH₄, and Offsets - Child from satellite.
- Top Right:** A slide titled "Near-Term Power Plant Economics with costs". It features a circular diagram with "Community- Enlightenment" at the top, "To Selforganization, Self governance for self transformation" in the center, and "Programs", "Site of lifelong Learning", "Knowledge Capital", "Partners", and "Local" around the bottom. Below the diagram is a text block about CO₂ allowance prices.
- Bottom Left:** A slide titled "Wall Arrangement". It contains a list of tips:
 - Should draw customers farther into the store or department
 - Reinforce store image
 - Divide large areas into smaller sections
 - Color groupings
 - Same garment groupingsA background image shows a store interior with a counter and a display.
- Bottom Right:** A slide titled "How to Succeed in Business". It features a bar chart comparing East, West, and North regions across four quarters. A central figure is surrounded by text and diagrams, including a diamond grid and arrows pointing to "The job you want" and "You". The text discusses career progression and success factors.

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What's wrong with them?

Death by Powerpoint

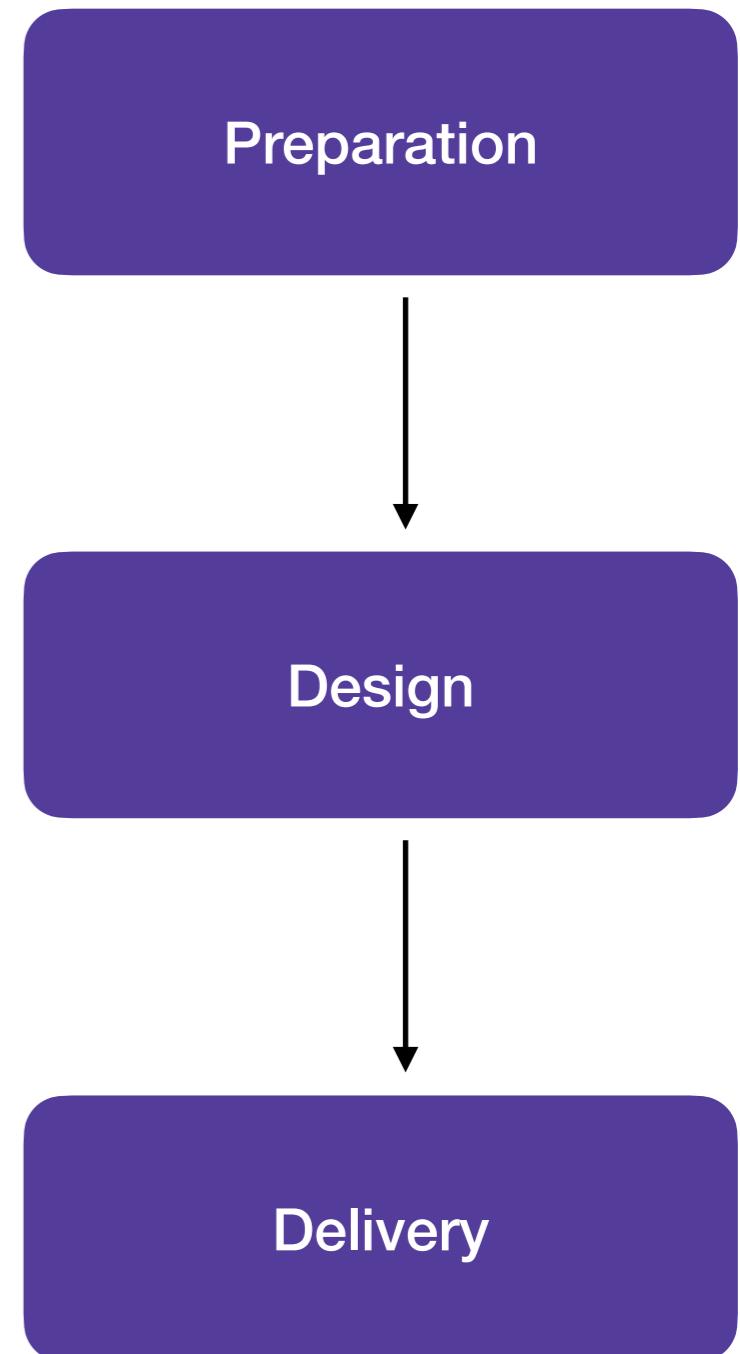


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Some practical tips:



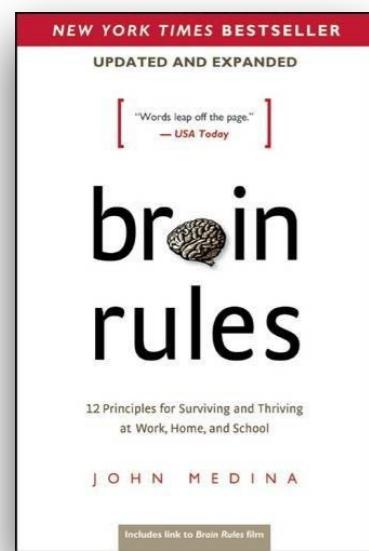
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Some practical tips:

- (1) Preparing a 30-slide presentation requires 36-90 hours;
- (2) Know your audience, e.g., for those of you who did not realize it, in the video Garr Reynolds often referred to Japanese culture because it was a TEDx-Kyoto event!
- (3) Simplicity is about subtracting the obvious and adding the meaningful!
- (4) Sooner or later, you will be involved in presentations that might change your life: get alone and think at your message!



*"Multitasking, when it comes to paying attention, is a myth. We are **biologically incapable of processing attention-rich inputs simultaneously**"*

People who are interrupted make around 50% more errors and take 50% longer to complete a task.

Being always online is being always distracted and unproductive.

Preparation

Design

Delivery

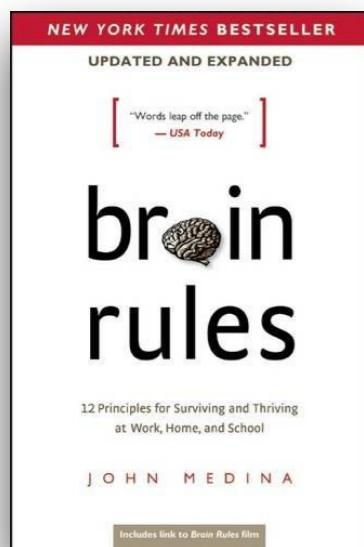
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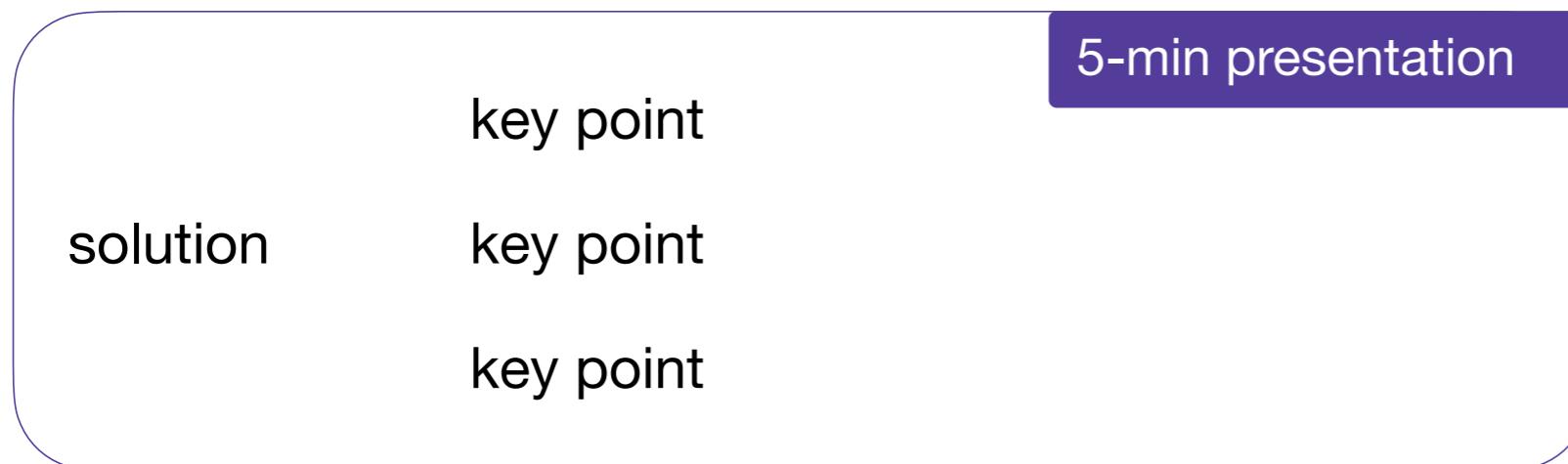
- (5) Brainstorming and mind-mapping matter!
- (6) If you are stuck, go for a walk or a run... just move!



Rule #1: Exercise boost brain power —> exercise increases oxygen flow into the brain, which reduces brain-bound free radicals; an increase in oxygen is always accompanied by an uptick in mental sharpness.

Exercise reduces depression, treats dementia, improves reasoning, and more.

- (7) Create a scalable architecture.



Preparation

Design

Delivery

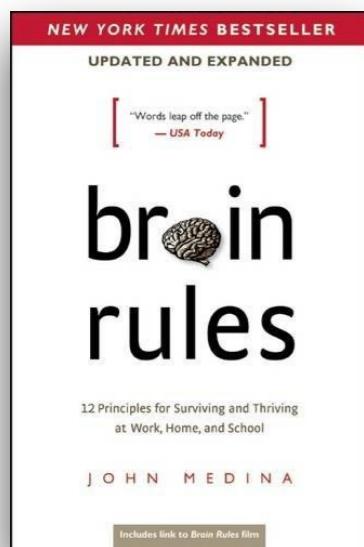
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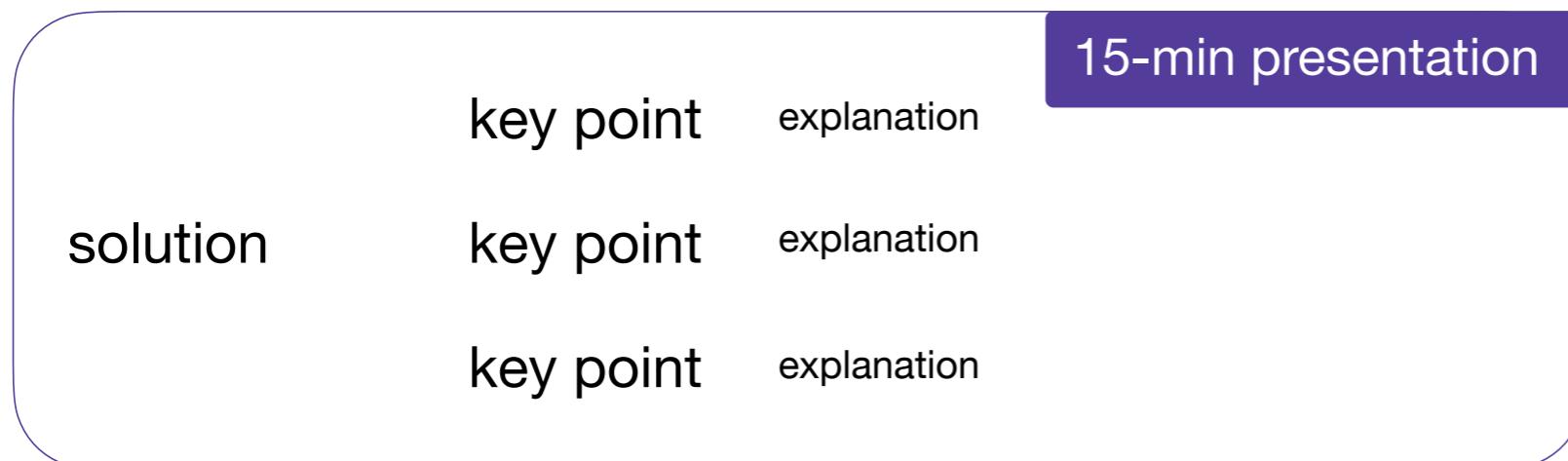
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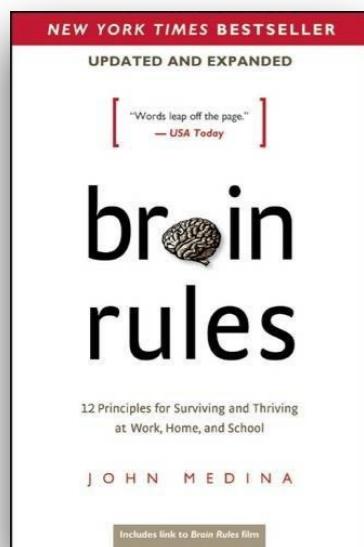
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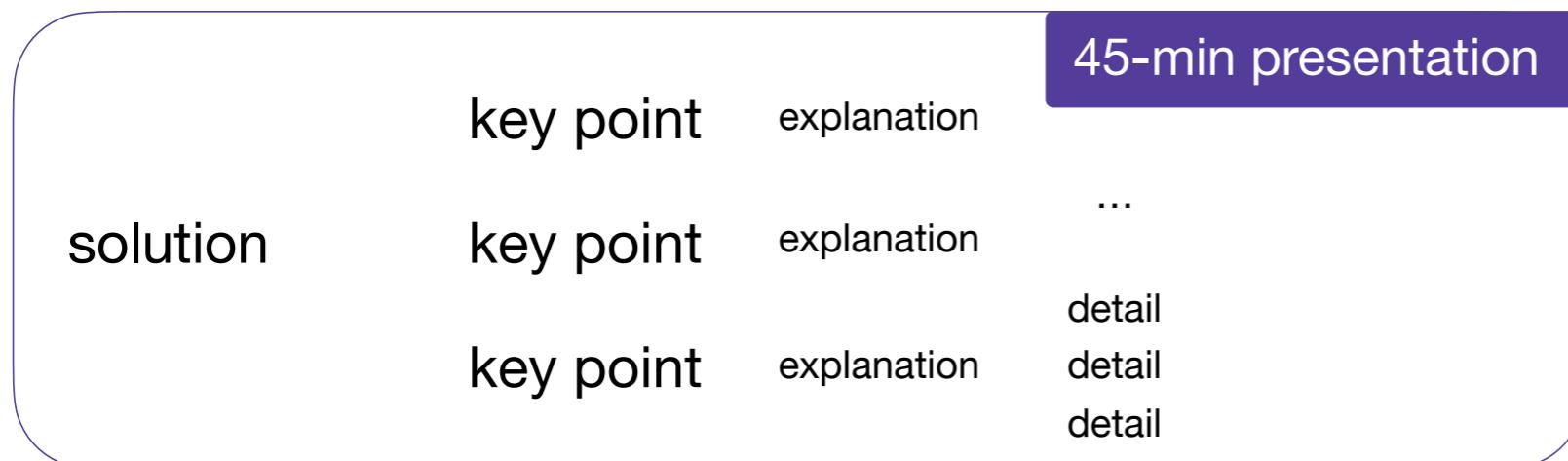
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Presentation Tips, Some Practical Tips

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Common design mistakes:

I. T E L E P R O M P T I N G

People tend to put every word they are going to say on their PowerPoint slides. Although this eliminates the need to memorize your talk, ultimately this makes your slides crowded, wordy, and boring. You will lose your audience's attention before you even reach the bottom of your ...

NB: Teaching slides are different from the rest!!!

Preparation

Design

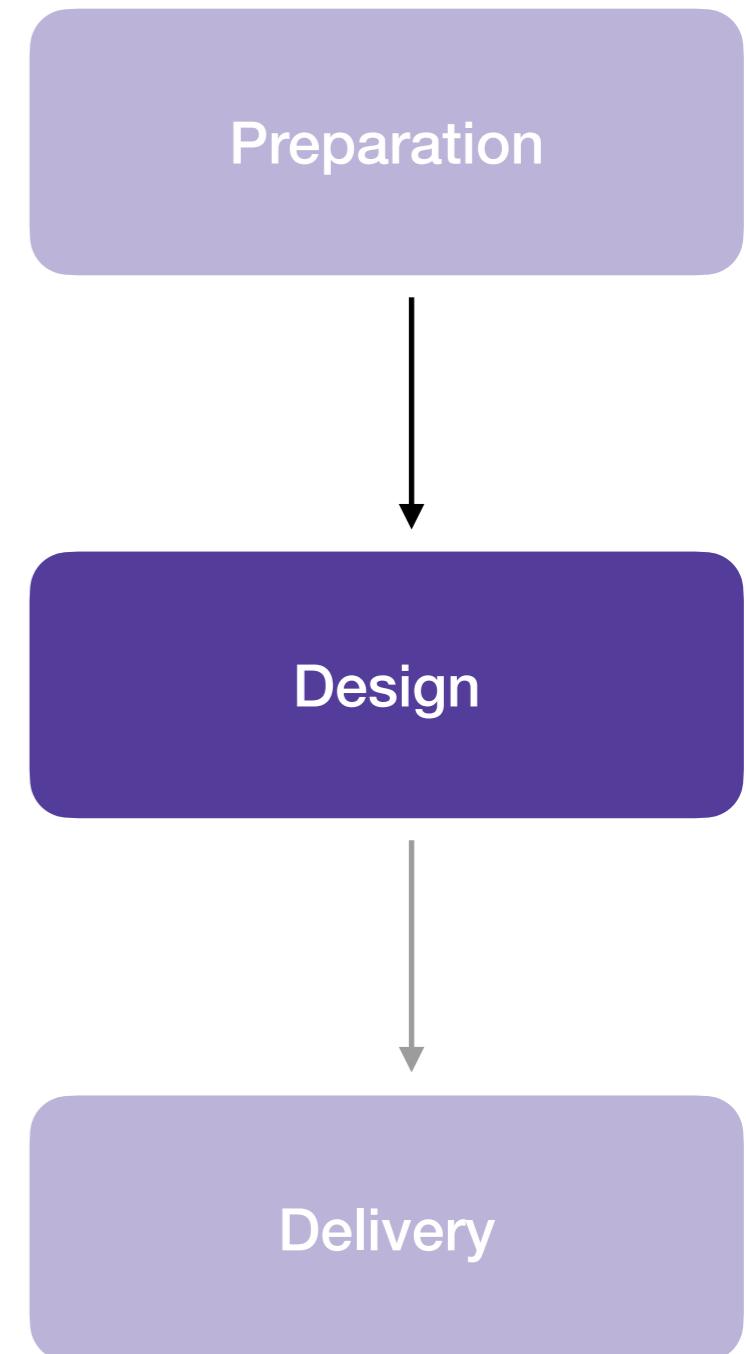
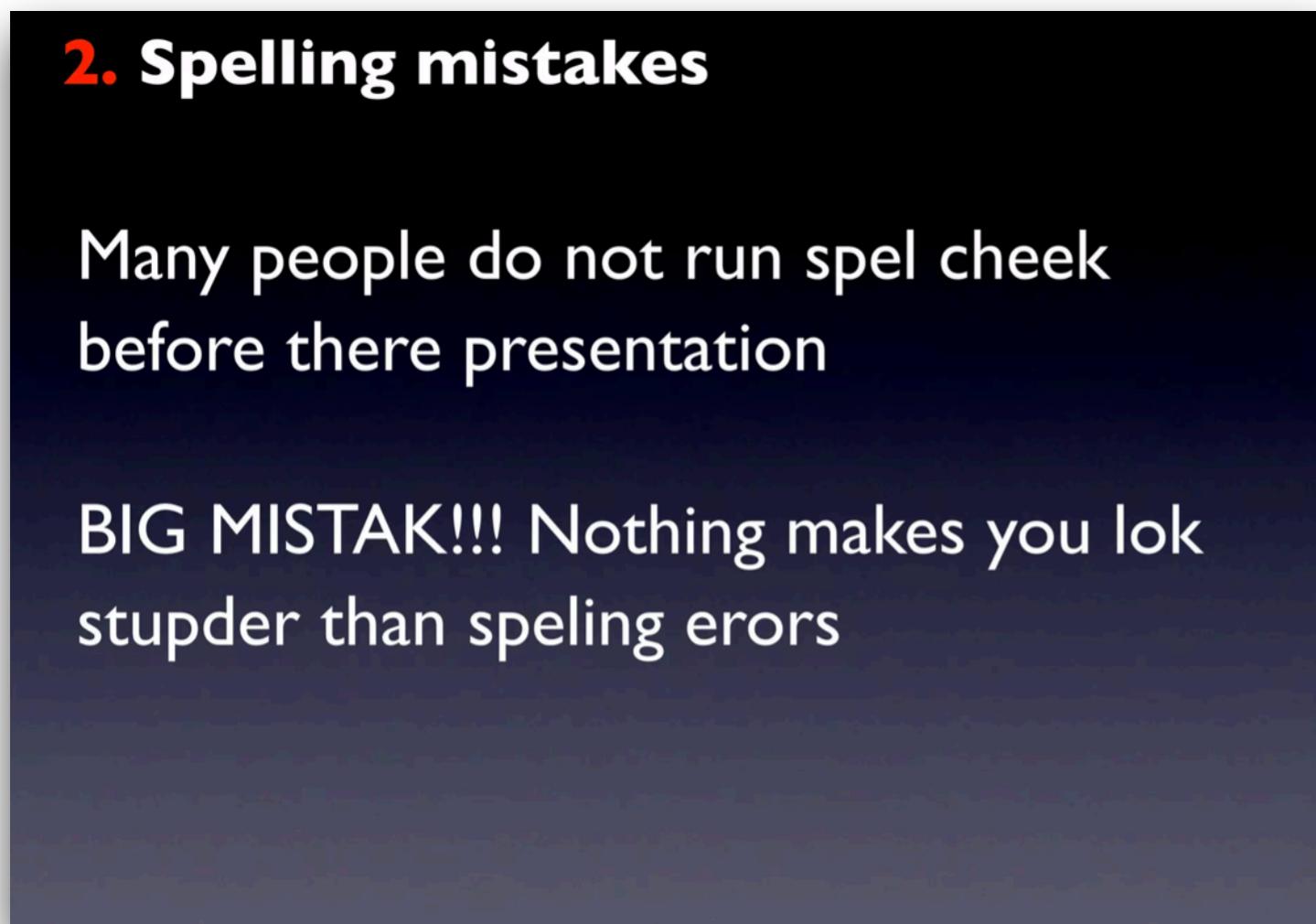
Delivery

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Giving these principles in mind, what can we do to improve our presentation skills?

Common design mistakes:



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Common design mistakes:

3. Bullet pointing

- Avoid
- Excessive
- Buller-Pointing
- Only
- Bullet
- Key
- Points
- Too
- Many
- Bullet-Points
- And
- Your
- Key
- Messages
- Will
- NOT
- Stand
- Out

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Giving these principles in mind, what can we do to improve our presentation skills?

Common design mistakes:

4. Too many levels

- What is worst
 - Too many bullet point levels are shown
 - Type size gets smaller and smaller
 - Until it is utterly unreadable
 - Even for audiences in the 4th row
 - So you better have just one bulletpoint level
 - Better yet, forget about bullets (bullets, not guns, kill people. Don't you know?)
 - Use them sparingly
 - There are many other ways of detailing your ideas!

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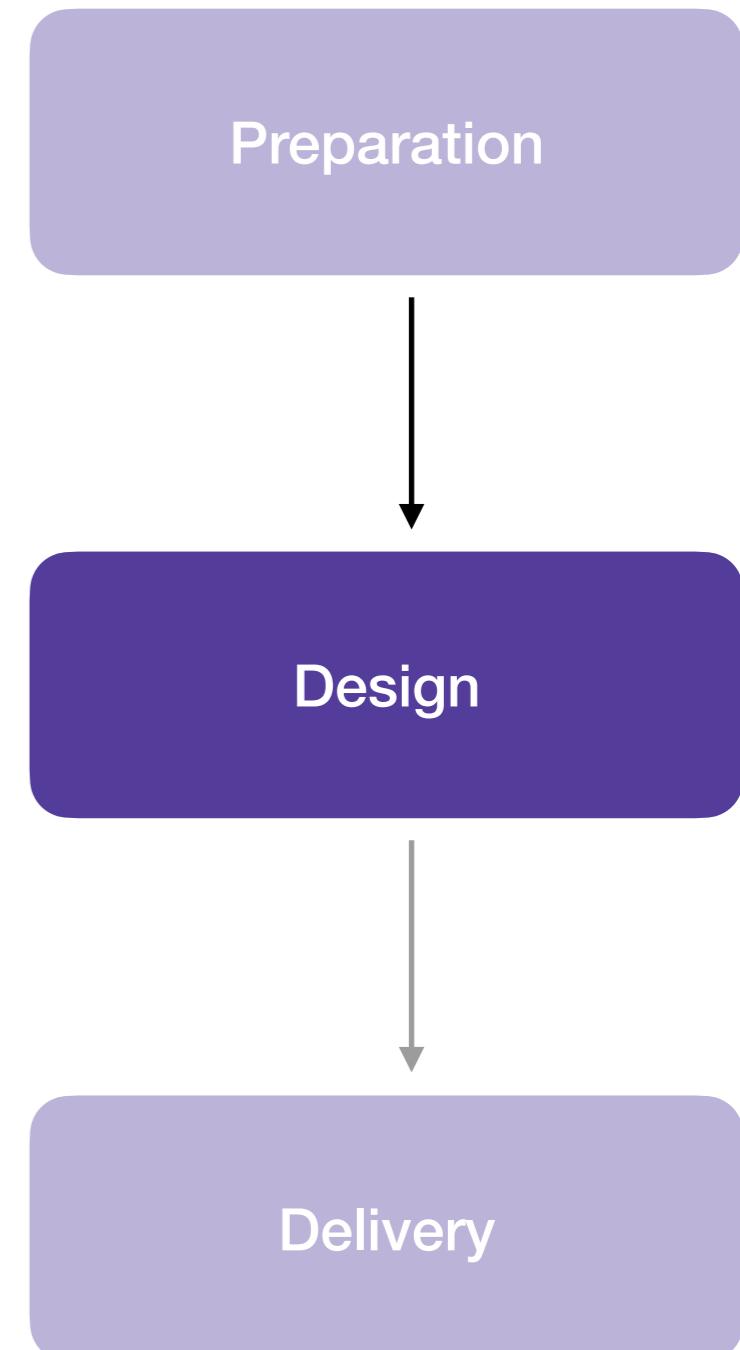
Giving these principles in mind, what can we do to improve our presentation skills?

Common design mistakes:

5. Color schemes gone wrong

bad color **schemes** can lead to...

- Distraction
- Confusion
- Headache
- Nausea
- Vomiting
- Loss of bladder control

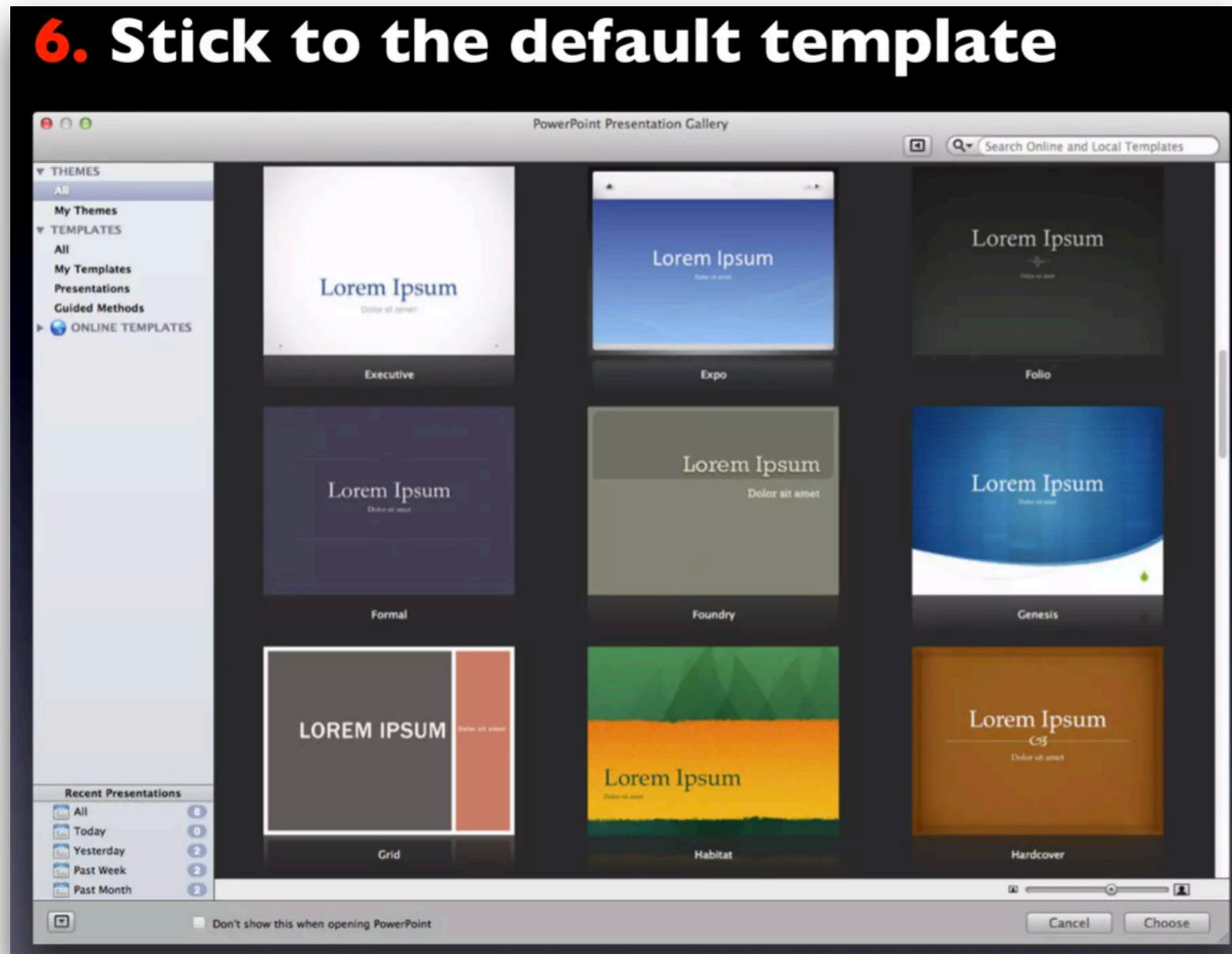


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Giving these principles in mind, what can we do to improve our presentation skills?

Common design mistakes:



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Giving these principles in mind, what can we do to improve our presentation skills?

Common design mistakes:

7. Use things people won't understand

$$EDHCM_{\{a, \dots, b\}}(j) = \sum_{i \in \{a, \dots, b\}} \frac{HCPF_i(j)}{e^{\phi_1 * (|\{a, \dots, b\}| - i)}}$$

$$LDHCM_{\{a, \dots, b\}}(j) = \sum_{i \in \{a, \dots, b\}} \frac{HCPF_i(j)}{\phi_2 * (|\{a, \dots, b\}| + 1 - i)}$$

$$LGDHCM_{\{a, \dots, b\}}(j) = \sum_{i \in \{a, \dots, b\}} \frac{HCPF_i(j)}{\phi_3 * \ln(|\{a, \dots, b\}| + 1.01 - i)}$$

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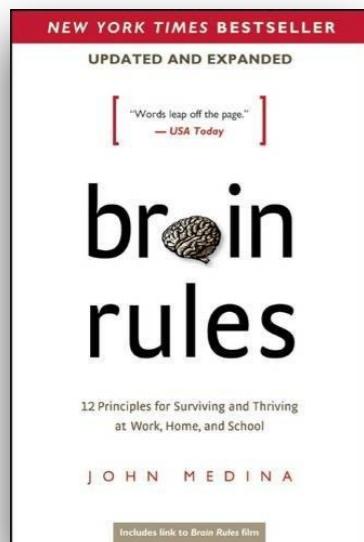
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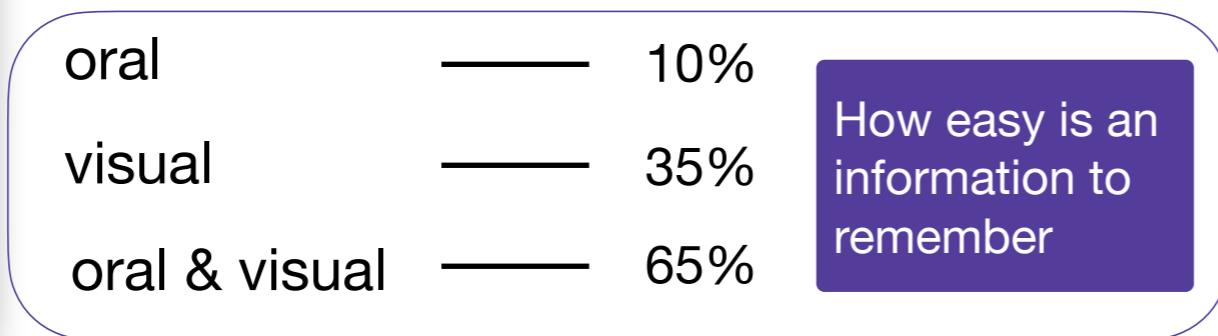
Some practical tips:

(1) Design right-brain slides!



Rule #10: Vision trumps all other senses.

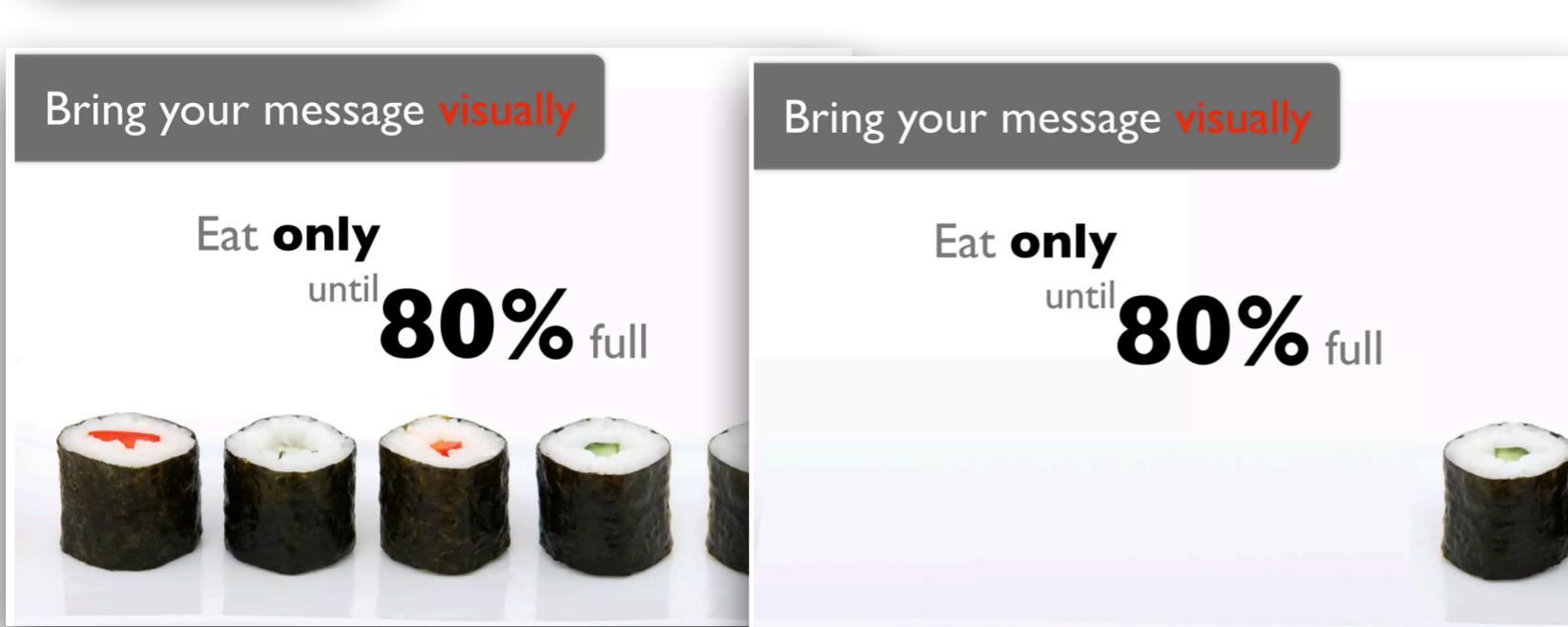
We have a better recall for visual information.



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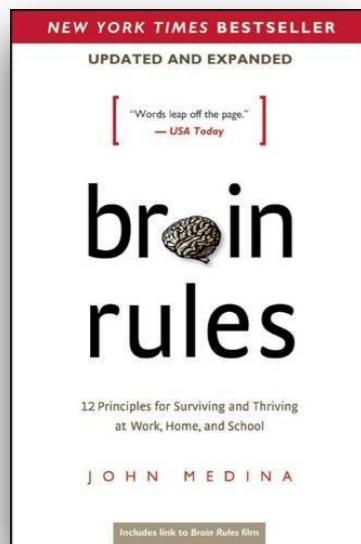
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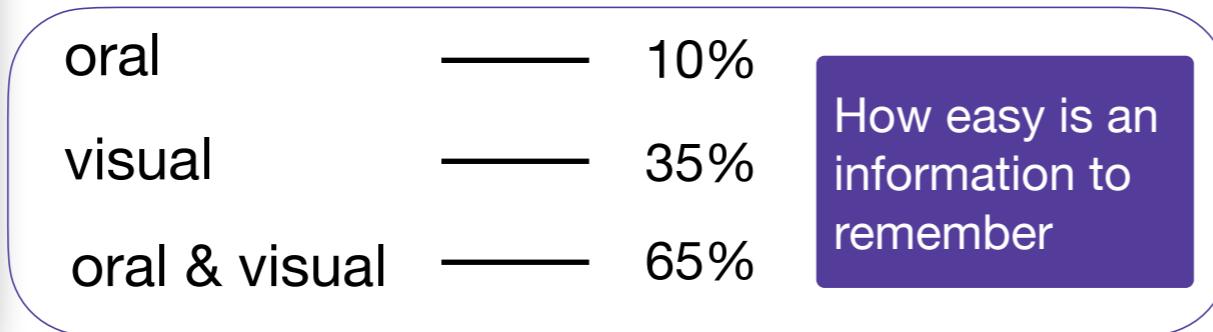
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(2) Use metaphorical images!

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66% of Americans
are obese or overweight.

All adults	134 million	(66%)
Women	65 million	(62%)
Men	69 million	(71%)

Be provocative



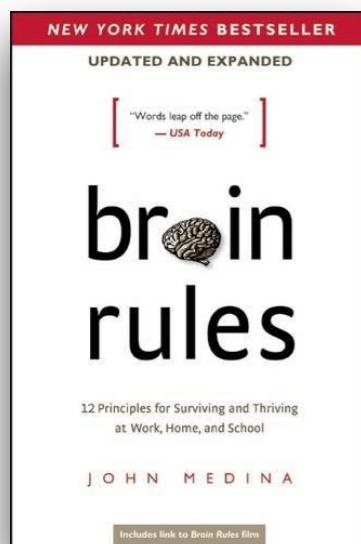
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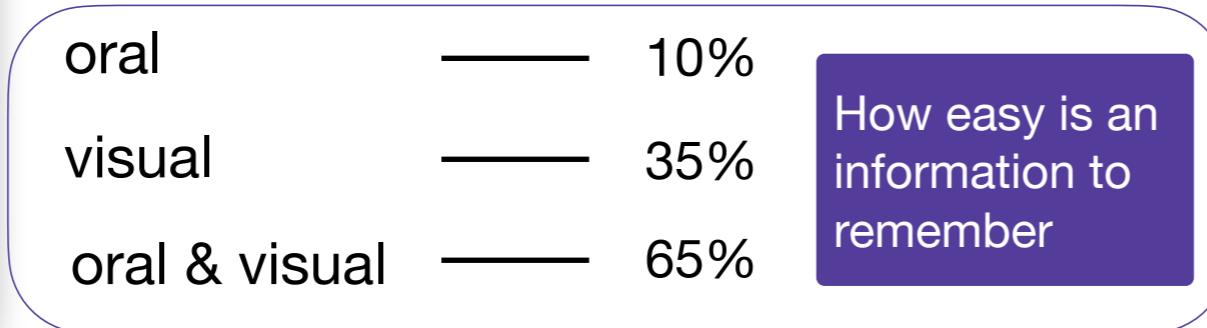
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Rule #10: Vision trumps all other senses.

We have a better recall for visual information.



(2) Use metaphorical images!

(3) Do not use more than 2/3 types of fonts!

Use **color** and **size** to build contrast!

(4) Reduce to the max: ***people cannot listen and read at the same time!*** Use images properly, e.g., go full quality!

(5) Learn about design principles! Proximity, the rule-of-third, color-theory, color-blindness are just some examples.

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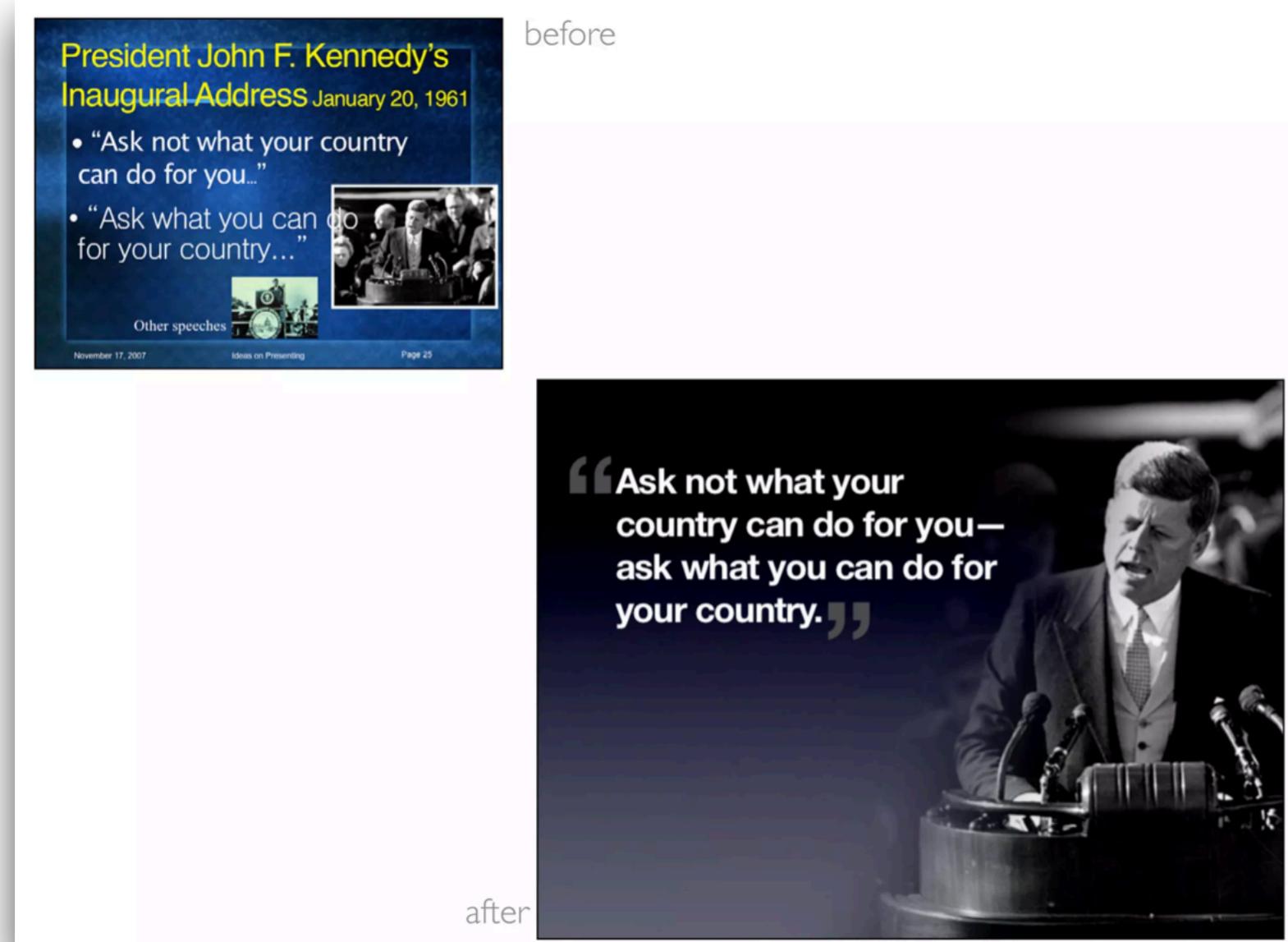
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Giving these principles in mind, what can we do to improve our presentation skills?

Some practical tips:

(1) Refine your slides!



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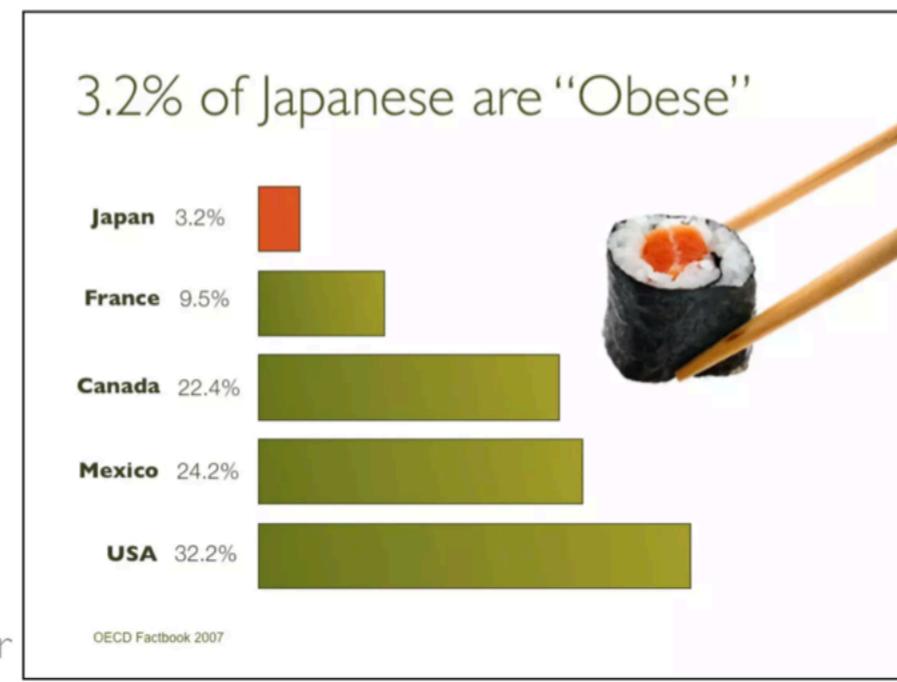
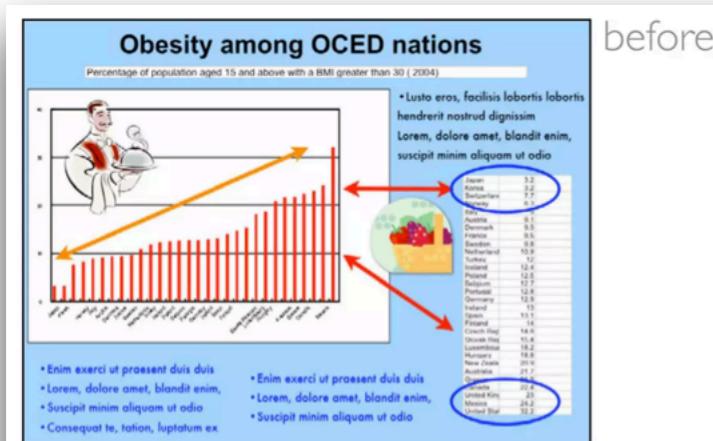
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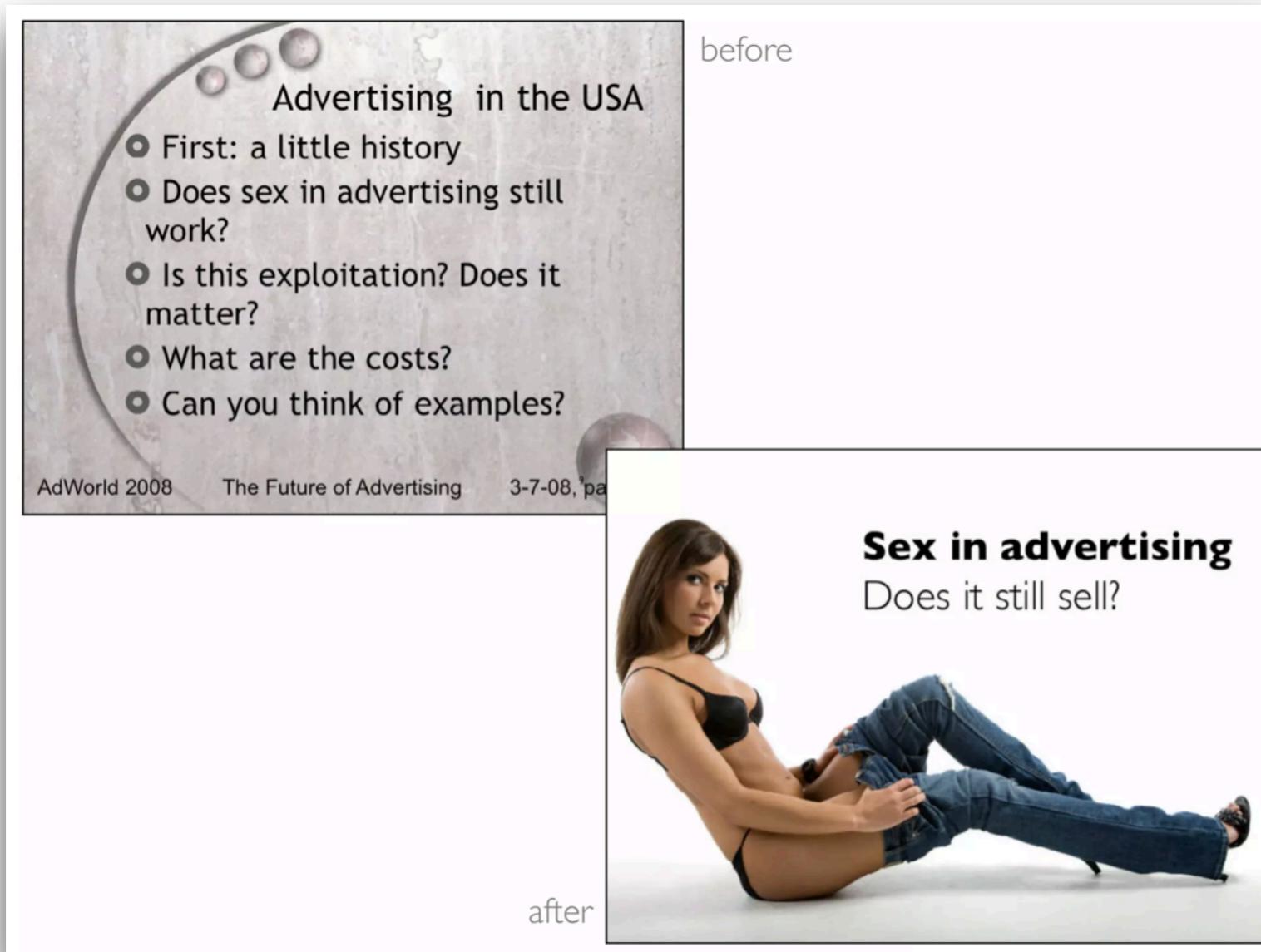
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Some practical tips:

- (1) Refine your slides!
- (2) Rehearse, Rehearse, Rehearse! Show your passion!
- (3) Be slightly more elegant than the audience!
- (4) Start strong!
- (5) Do not be shy, you are the expert!
- (6) Keep it short!
- (7) Keep it short, audience attention drops after 10 mins!
- (8) Do something emotionally relevant at each 10 mins!
- (9) End on a high-note!
- (10) Move away from the podium!
- (11) Use a remote!
- (12) Make pauses and do not apologize: the stage is yours!
- (13) Make good eye contact! Body language matters!
- (14) Be prepared: check the beamer beforehand!
- (15) Always recap!

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Chapter I.

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