The problem with PowerPoint...

WHAT IF I TOLD YOU THAT READING A POWERPOINT ALOUD IS NOT THE SAME AS TEACHING

ENG 198 Technical Communication
Slides influence the preparation, delivery, and understanding of a scientific presentation.
Exercise: What are three problems that you see in these slides?

Physics of p-n Junction Based Cells

- A photon of $E > E_{gap}$ excites an electron into the conduction band, creating an electron-hole pair
- The electric field from the depletion zone separates the pair
- Current goes through a load

Corrosion and Hydriding

- Different alloys have different in-reactor corrosion rates and consequently different degrees of hydriding and degradation of mechanical properties
- Benefit of designing good alloy (e.g., M5 (Framatome) and ZIRLO (W) have better corrosion properties than Zircaloy)
- Hydrides are brittle and can severely degrade cladding ductility

Oxidation measured by weight gain
Engineers and scientists often name the same problems with slides

1. Too many words

2. Cluttered—not sure what order to read

3. Much text not readable

Corrosion and Hydriding

- Different alloys have different in-reactor corrosion rates and consequently different degrees of hydriding and degradation of mechanical properties

- \( \Rightarrow \) *benefit of designing good alloy* (e.g. M5 (Framatome) and ZIRLO (W) have better corrosion properties than Zircaloy)

Hydrides are brittle and can severely degrade cladding ductility

Oxidation measured by weight gain
In the past decade, PowerPoint has received much criticism
PowerPoint’s defaults have not changed much since 1987.
Research has found that most slides are heavily influenced by PowerPoint’s defaults

Digital Acquisition System Sampling

- Vibration measured by accelerometer
  - Analog voltage produced
  - Sinusoidal shape
- Analog signal converted to digital signal
- Signal sampled at a specific rate
- Rate → high enough to retain analog shape

Main Components of MRI

- Superconducting magnets
  - Magnetic fields in x, y, and z directions
  - Allow for 3-D images
- Radio frequency (RF) transceiver
  - Transmits and receives RF waves

[Garner et al., 2009]
PowerPoint’s defaults run counter to how people learn

- Does not filter noise
- Leads to too many written words
- Consumes valuable space that could be used for images
Unclear communication can have disastrous consequences

Order of Analysis

- Orbiter assessment of ascent debris damage includes
  - Evaluation of potential for debris to damage tile and RCC
    - Program “Crater” is official evaluation tool
      - Available test data for SOFI on tile was reviewed
      - No SOFI on RCC test data available
    - Even for worst case, SIP and densified tile layer will remain when SOFI is impactor
  - Thermal analysis of areas with damaged tiles
    - Thermal analysis will predict potential tile erosion and temperatures on structure
  - Structural assessment based on thermal environment defined above
    - Basis is previous Micrometeriod and Orbital Debris (M/OD) study performed in 1996
An expert on communication has a lot to say about the importance of good slides designing

http://www.ted.com/talks/melissa_marshall_talk_nerdy_to_me
Although bulleted lists are easy for presenters to create, they are difficult for audiences to understand.
Let us see if the following helps you get a better picture of my presentation

Outline

• Introduction
• Background
• Propulsion
• Landing
• Re-entry
• Exploration
  • Space Suits
  • Rovers
• Conclusion
• Acknowledgments
• Questions
How many of you believe the use of templates below will enhance audience comprehension and inspiration?
The use of “cool” background does not make bulleted lists any less difficult for audiences to understand.
If audiences try to process too many words simultaneously, their attention and retention decrease dramatically.

"Spoken Words" + Written Words

[Sweller, 2005]
In addition, what we project should be for our audience, rather than for us.

A good assumption is that the slides projected are designed as visual aids for the audience, as opposed to speaking notes for the presenter. Few presentations are as painful as presentations in which the speaker reads text off slides.
In summary, to increase audience comprehension stay away from PowerPoint defaults, templates, and declutter your slides.

We can do better.
“My presentation lacks power and it has no point. I assumed the software would take care of that!”
References
   [http://www.wired.com/wired/archive/11.09/ppt2.html](http://www.wired.com/wired/archive/11.09/ppt2.html)