

Speaking With PowerPoint: *Tips, Traps and Rules of Thumb*

**VMS 576
2012**

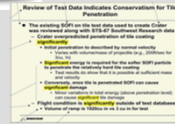
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Associate Professor of
Epidemiology
AAHP Field Disease Investigation Unit
Washington State University**



This presentation focuses on presenting with PowerPoint



Considerations for using PowerPoint



Research behind the considerations



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Should you use visual media for a presentation?

The Gettysburg address?



"I Have a Dream"?



A most important first question:

**Communication synergy
OR
Attention competition?**

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What annoys audiences? (Dave Paradi 9/27/11 <http://pptideas.blogspot.com/>)

Annual Annoying PowerPoint Survey: (<http://www.thinkoutsidetheslide.com/>)

- Speaker reads the slides to us (74%)
- Full sentences instead of bullet points (52%)
- Text point size too small (48%)
- Poor color contrast (34%)
- Overly complex diagrams and charts (26%)
- Moving graphics or text
- Too many fonts
- Text and graphics imbalance
- Annoying sounds
- Irrelevant graphic images

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I plead guilty

Consumer food handling in the home: A review of food safety studies. J Food Prot 66(1):130-161 (2003).

Risk and perception

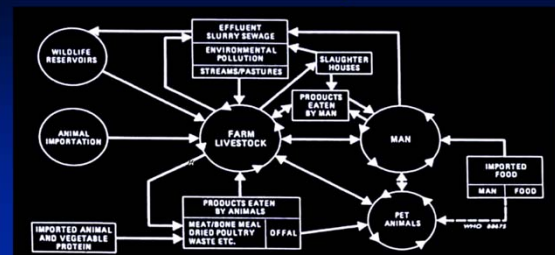
- Illness arising from foods consumed in private homes is three times more frequent than that arising from foods consumed in cafeterias.
 - Pathogenic and nonpathogenic organisms are continually introduced into the home by people, food, water, pets and insects and sometimes through the air.
 - 7 to 48% of poultry is contaminated with *Salmonella* and 28 to 80% is contaminated with *Campylobacter*.
 - Most consumers (77% to 91%) surveyed in reviewed investigations perceived their homes and the homes of friends to be locations where the acquisition of food poisoning was improbable.

optimistic bias: perception of being be at less risk from foodborne disease than others...

... many consumers remain unaware that food safety problems are likely to occur in their homes, believing that the responsibility for food safety lies instead with food manufacturers or restaurants.

Another from the same presentation

Overall Salmonella Cycles - WHO



Poor backgrounds make things hard to see



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Poor text is hard to read quickly

WHAT IS MULTIMEDIA FROM THE POINT OF HUMAN PERCEPTION?
IT IS USING MULTIMODAL INFORMATION TO ACHIEVE OPTIMAL STIMULATION

- CINEMA EXAMPLE: VISUAL AND ACOUSTICAL STIMULATION IS USED BUT MUSIC HAS ITS SUBTLE IMPORTANT ROLE

www.cs.tut.fi/~defee/mmmp/mmmp.2.ppt

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Poor graphics examples abound



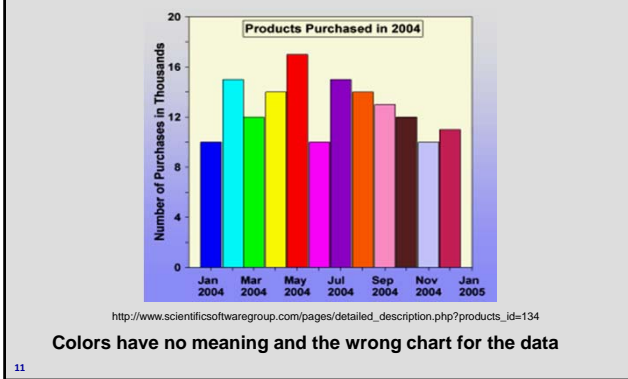
9

Simple text is better than a poor chart



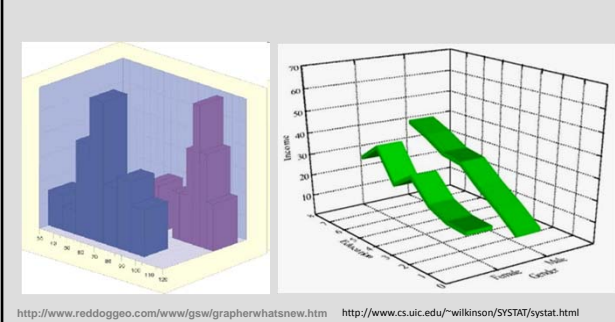
10

Poor charts have elements with no or wrong meaning



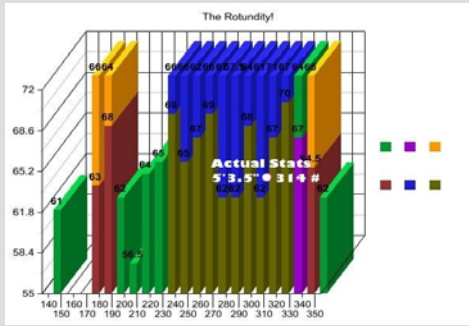
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Whizzy graphics impede data interpretation



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Just because you can doesn't mean you should!



http://www.stat.columbia.edu/~cook/movabletype/archives/2008/06/new_candidate_f.html

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Do not use PowerPoint defaults!

The defaults of PowerPoint are not based on research in communication or cognitive psychology



[Gomes, 2007]

http://www.writing.engr.psu.edu/slides_talk_instructors_09.ppt

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Edward Tufte asserts that a poor bullet point slide contributed to the Columbia shuttle disaster

Review of Test Data Indicates Conservatism for Tile Penetration

- The existing SOFI on tile test data used to create Crater was reviewed along with STS-87 Southwest Research data
 - Crater overpredicted penetration of tile coating significantly
 - Initial penetration to described by normal velocity

The "buried" key information:
The foam impacting the wing was 640 times larger than the test chunks

- Minor variations in total energy (above penetration level) can cause significant differences
- Flight condition is significantly outside of test database
 - Volume of ramp is 1920cu in vs 3 cu in for test

PowerPoint Does Rocket Science--and Better Techniques for Technical Reports
<http://www.edwardtufte.com/tufte/index>

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The past few years, this common practice of PowerPoint has received harsh criticism

[Tufte, 2003]
[Schwartz, 2003]
[Keller, 2003]

The primary slide design principle is KISSS

Keep it:

- Simple
- Short
- Sharp



Everything should be made as simple as possible, but not simpler
Albert Einstein

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Select a clean background

Nice photo, poor slide background



<http://www.freedigitalphotos.net/>

A solid light color is recommended
This background is 221 R, 221 G, 221 B

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Select an easily read font, such as Calibri

Sans (“without”) serif fonts are easier to read than serif fonts

This is Calibri, a sans serif font in 24 point bold that is easy to read quickly on a slide

This is Times New Roman, a serif font in 24 point bold that is not as easy to read quickly on a slide

Calligraphy in 24 point bold
English is beautiful, but not for reading quickly on a slide

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Use a limited range of font point sizes and colors consistently across slides

Suggested point sizes and color scheme:

Title sentence – 32 to 36 point and initial color

Body Text – 28 point & contrasting color

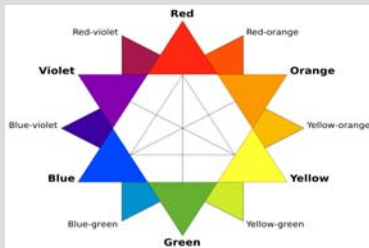
- **Subheadings** – 24 point & initial color (this blue is 0 R, 0 G, 255 B)

Chart labels – No smaller than ~20 point

Reference footnotes and URLs – 14 point

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Select several contrasting colors but use sparingly for emphasis



Remember that 1 in 10 of your male audience cannot read this

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Antidotes for PowerPoint Poisoning

Choose Colors Carefully



Slide backgrounds, font sizes and colors

Tips for Preparing and Giving an Effective Scientific Presentation using PowerPoint
<http://www.biology.utah.edu/dearing/teaching/Courses/Bio%20Boot%20Camp/Pots%20BioBoot/PresentationTipsinPowerPoint.pdf>
Susan McConnell, Stanford University

Whenever you can, run through your presentation on the equipment in the room beforehand!

Bad things to look for and correct ahead of time:

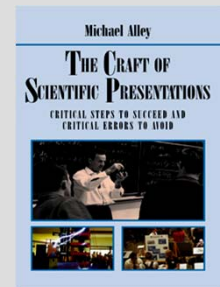
- The projector color contrasts are markedly different from your LCD color contrasts
 - What were contrasting are now indistinguishable
- Text point sizes are too small to read from the back of the room because the projection screen is small
- The aspect ratios are different between your display and the projector, disrupting your slide formatting
- The software version on the projecting computer is older and incompatible with the one you used to develop the presentation

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Use the Assertion-Evidence format, replacing the title with a sentence containing an important concept

Include major supporting point
(no more than two lines)

Add several other supporting points
(if needed)



http://www.writing.engr.psu.edu/teaching_slide_design.html

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This sentence headline makes an assertion on the first topic: 32 point Calibri, no more than two lines

Image(s)
supporting
above assertion

If necessary, identify key assumption or background for audience—keep to two lines (18 – 24 point type)

25 ← Note the handy automatic page number macro

Logo

Students learning from assertion-evidence formatted slides scored higher on tests

Q: How abundant is iron in the earth's crust?

Iron

- An abundant metal, makes up 5.6% of earth's crust
- Properties:
 - shaped, sharpened, welded = strong, durable
- Accounts for >95% of metals used
- Iron ore discovered in 1844 in Michigan's Upper Peninsula
- Soon found other ores in upper Wisconsin and Minnesota

Iron Ore Distribution

Kessler 1994

Iron ores make up 5.6% of the earth's crust and account for 95% of the metals used

Iron Ore Distribution

Kessler 1994

Led to 59% recall p < 0.001 Led to 77% recall

[Alley et al., 2006]

Students learning from a opening question scored lower than from an opening assertion

Q: Heat source for movement of lithospheric plates?

Why do the plates move?

- Convection
- Heat is from nuclear fission.
- Uranium, Thorium, are large "unstable" atoms which break down to produce, smaller atoms, heat, and radioactivity

Miller, 2004

Plates move because of convection caused by heat from decay of radioactive elements in the mantle

Uranium and Thorium are large "unstable" atoms
↓
break down to produce, smaller atoms, heat, and radioactivity

Miller, 2004

Led to 54% recall p < .001 Led to 86% recall

[Alley et al., 2006]

Use design and presentation strategies that maximize viewer retention

To reduce audience overload limit to key information & reveal step-by-step

- Bullet points emerge
- Images emerge
- Draw unfamiliar plots at hand drawing speed
- Progressively reveal table data

•Cliff Atkinson blogs by the same name <http://www.beyondbulletpoints.com/blog/>

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To maximize message retention remove visual clutter

Convert:

- Sentences to shorter phrases
- Frequent words to abbreviations or symbols
- Passive verbs to active
- Decimal % to whole %
 - 29.7% to 30% (easier to recall)
- Numbers to fewest significant digits that maintain message
 - 335,492 to 340,000 or 340K

Remove:

- Extra words (most adverbs, adjectives)
- Most prepositional phrases
 - Reword to remove
- Most punctuation, especially periods
 - if needed, clue to shorten phrase

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To maximize message retention progressively reveal complex information

Progressively Reveal:

- Tables row-by-row or column-by-column
 - Use background color rectangles to hide subsequent rows
 - Use simple "click to remove" animation to reveal
- Bullet points, subheadings

Otherwise listeners become readers, disconnecting from speaker

Herd	Month	Min SCC	Month	Max SCC
AR3A	Oct	330K	Mar	660K

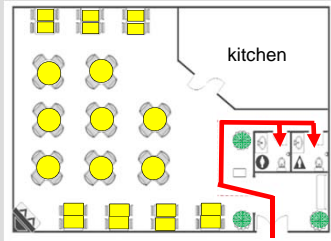
30

Appropriate graphics inform faster than text

Q: Where is the restroom?

From front door:

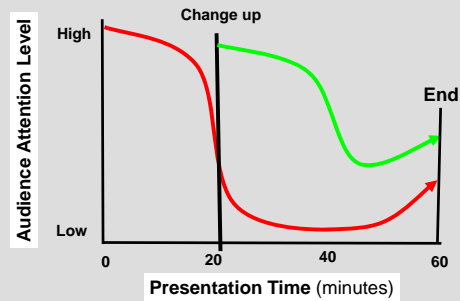
- Walk into the dining room
- Turn and walk ~15 ft towards the kitchen
- At the tall palm tree turn right and walk down the hall
- The first door to the right is the Women's restroom
- The second door to the right is the Men's restroom



<http://blog.smartdraw.com/archive/2009/05/27/visuals-versus-text-what-makes-you-say-a-ha-faster.aspx>

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Assemble and explain graph at speed the audience can draw it out in their notes, starting with axes and legends



Idea credit – Dan Roam <http://www.thebackofthenapkin.com/>

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Avoid the temptation of special effects

Special effects impede readability; skip the “Word Art”

Use simple “Entrance on click” and “Remove on click” for animation; nothing that moves, spins or makes sounds

ALL CAPITALS ARE HARDER TO READ THAN Title Case, Which is Easier to Read

Even *italics* reduce readability, use sparingly for *emphasis*

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Avoid “chartjunk” (chart features with no meaning) that reduces comprehension



Chartjunk:

- Colors with no meaning
- Texturing
- Most Pie-charts
- Most 3-D charts
- Wrong chart for the data

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Many PowerPoint “thumb rules” have emerged

Guy Kawasaki’s 10/20/30 Rule:

http://blog.guykawasaki.com/2005/12/the_102030_rule.html

- Use 10 slides or less, 20 minutes or less and 30 point or greater font

6 x 6 Rule:

- 6 or less lines per slide
- 6 or less words per line

What is behind the KISSS principle and these “thumb rules”?

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Working memory limited to processing 4 to 7 unfamiliar items at once

This is the single most important concept to understand

Why we “chunk”:

- Phone numbers into 3 blocks
- Social security numbers into 3 blocks

Why recognizing and recalling:

onp, rph, dcb, sfb, itw, aso, src, aus, aat, t
is harder than

o npr, phd, cbs, fbi, twa, sos, rca, usa, att

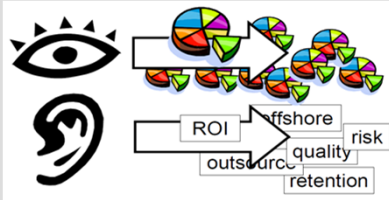
Training and familiarity increase “chunk” size

– Speakers overestimate audience “chunk- ability”

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Cognitive overload occurs when listener is moving too much into working memory

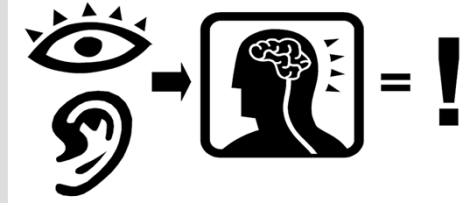
- Processing “chunks” requires time
- Input occurs orally and visually



- In overload “chunks” simply vanish without a trace
- Humans cannot multi-task and don’t recognize they can’t!

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The mind needs space to select, organize & integrate what’s important



From: **Five ways to reduce PowerPoint overload**
by Cliff Atkinson and Richard E. Mayer
http://www.sociablemedia.com/PDF/atkinson_mayer_powerpoint_4_23_04.pdf

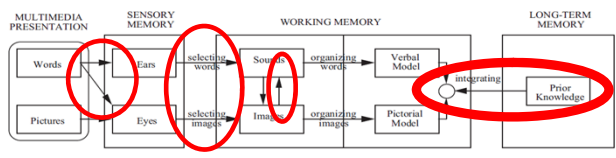
The basis of KISS and the thumb rules

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Cognitive research underlies KISSS and the thumb rules

Mayer, RE (2008). **Applying the Science of Learning: Evidence-Based Principles for the Design of Multimedia Instruction.** *American Psychologist* 63(8):760-769.

Cognitive Theory of Multimedia Learning



Note: Reprinted from “Cognitive Constraints on Multimedia Learning: When Presenting More Material Results in Less Understanding.” R. E. Mayer, H. Heiser, & S. Lounsbury. *Journal of Educational Psychology*, 93, Figure 2, p. 190. Copyright 2001 by the American Psychological Association.

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Use highly recommended presentation design books, such as Presentation Zen or slide:ology



<http://www.presentationzen.com/>

<http://blog.duarte.com/>

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Use Alltop to follow developments in presentation improvement and delivery

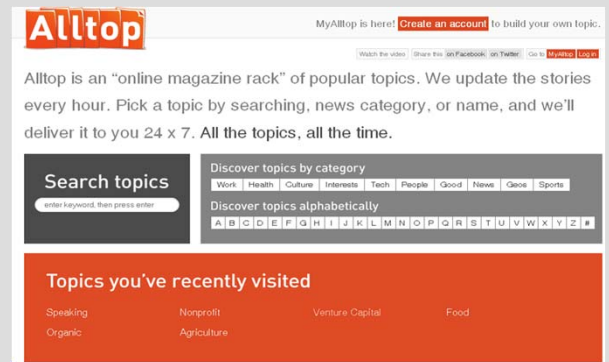


Alltop aggregates active blogs by subject area

- An “online magazine rack” of popular topics
 - Updated hourly
 - Pick a topic 24 x 7 by searching, news category, or name
- All the topics, all the time** - <http://alltop.com/>

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Alltop aggregates active blogs by subject area



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Selecting "Speaking" brings up the 5 most recent postings on 79 blogs

Speaking

MOST POPULAR STORIES

- PowerPoint Tip: The audience wants the conclusion
- Kamishibai: Lessons in visual storytelling from Japan
- Sherlock Holmes and the Perfect Presentation
- The best tool for presenting PowerPoint on the iPad
- Designing Effective PowerPoint Slides

DECKER BLOG

- Video Blog: Steve Jobs motivated with numbers
- The Top Ten Best (and Worst) Communicators of 2011
- Lead like the Apple Store
- Refresh your email manners
- What happened, Rick?

PRESENTATION ZEN

- Progress: Intentional selection of less
- Steve Jobs: "People who know what they're talking about"
- Kamishibai: Lessons in visual storytelling from Japan
- Coming to France, Belgium, & England in November
- Steve Jobs & the art of focus

ETHOS3 - A PRESENTATION DESIGN AGENCY

- Sherlock Holmes and the Perfect Presentation
- Twilight Tips for Presenters
- Who Knew Q and A
- Gonzo Your Presentation
- It's Not Your Presentation, It's You

DUARTE BLOG

- DAVE PARADI'S POWERPOINT BLOG**

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Arrowing over listings brings up the post's first words

PRESENTATION ZEN

Progress and the intentional selection of less

Steve Jobs: "People who know what they're talking about"

Kamishibai: Lessons in visual storytelling from Japan

Coming to France, Belgium, & England in November

Steve Jobs & the art of focus

ETHOS3 - A PRESENTATION DESIGN AGENCY

Sherlock Holmes and the Perfect Presentation

Twilight Tips for Presenters

Who Knew Q and A

Gonzo Your Presentation

It's Not Your Presentation, It's You.

Simplicity, among other things, is a conscious choice between inclusion and exclusion. Often the magic is in what you leave out. But this means that you need to be comfortable with saying no, to yourself and to others. This is not easy to do. In the two video clips below from 1997, Steve Jobs shares his ideas on simplicity and focus while speaking to the issue of killing OpenDoc (a software framework standard), a decision that was not popular for many people at the time. Jobs's explanations about his decision sheds more light on his thinking process and how his quest for absolute focus was...

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Excellent example presentations to mimic are the 20 minute TED presentations

<http://www.ted.com/>

TED Ideas worth spreading

Riveting talks by remarkable people, free to the world

TED: Technology, Entertainment, Design

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Practice KISSS:

Keep it
Simple, Short & Sharp

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