From Information to Impact

A guide on the effective use of presentation software (Powerpoint and Keynote) for medical professionals

Information is not knowledge - Albert Einstein

Introduction:

Those invited to present at medical conferences are knowledge experts. Most often they also have unique clinical expertise and insights to share with the audience. Unfortunately the key points they aim to convey are often lost in translation. This leaves the audience frustrated, confused and bored. It also represent a missed opportunity to improve physician knowledge and possibly patient outcomes.

We role model on poor presentations we have been exposed to most of our professional careers. When we do 'experience' an effective presentation, it is difficult to tease out the elements that 'make it work' and incorporate these into our own presentations.

While there are many other aspects to effective presentations beside the effective use of presentation software, it is my observation that most presentations fail due to misuse of this potential powerful tool. This guide will thus mainly address issues concerning the use of Powerpoint (by this term I also include the Mac application Keynote which while being marginally better, suffer from the 1same design flaws)

Should we kill Powerpoint before it kills us ? (And thus avoid our untimely 'Death by Powerpoint') Probably not, as the problem is not entirely with the media, but the ease with which it allows us to create poor presentations. Steve Jobs and Al Gore has provided examples of using presentation software very effectively. These are tools (not crutches) to create great presentations, but using them effectively needs awareness of how people learn as well as careful thought about slide design.

There are well established principles in cognitive psychology re. learning and memory to guide the effective use of Powerpoint. I will be discussing the practical implications of these principles without going into detail about the underlying science. For those interested to read more, I suggest 'Clear and to the Point - 8 Psychological Principles for Compelling PowerPoint Presentations' by Stephen Kosslyn (Key reference 3). Richard Mayer one of the world experts of multimedia leaning, co-authored an excellent, concise and highly readable document on this topic (Key reference 2).

Another very valuable source provided a good framework, 'Less is more' by Manuel Mah. I am attaching this as an appendix to this document.

As the name suggest Garr Reynolds in his book 'PresentationZen - simple ideas on Presentation design and delivery' takes a different approach but the key message is the same.

Much has been written re. choice of colors, fonts etc by graphic design professionals. I do believe that if you stick to the basics (as presented below) and use common sense you can achieve much without knowing the details.

A lot of existing material on this topic is written for business professionals. While a lot of the principles are useful, as health professionals we rely less on emotions and good salesmanship. We are faced with the real challenge to convert complicated data into formats that are very easy to grasp in a very short time.

Three goals underlie effective presentations;

Goal 1: Connect with your audience.

Goal 2: Direct and hold attention

Goal 3: Promote understanding and memory.

As the guidelines and principles that promote goals 1 to 3 are essentially the same, I will discuss them together

<u>Guideline 1</u>: **Practice restraint**

You should design the presentation from the start with two goals in mind:

• Meet the audience's need
• Prevent information overload

In order to achieve this, ask yourself:

• <u>Who is my audience ?</u>
   • The need (and practice realities) of generalists are very different from those in a subspecialty.
   • Generalists value relevance and an engaging speaker and forgive omission of large data sets from the latest article !
   • Why was *I* asked to speak ?
   • What is the audience's bias on this topic ?

• <u>What is the purpose of my presentation ?:</u>
   • Inform, inspire or persuade ?
   • Case-based learning is not a refresher course !
   • A panel discussion is not 3 or more separate lectures

- <u>How do I avoid information overload ?</u>

  - Every aspect of the presentation (text, images,   motion, sounds, transitions) should **reinforce** what you want the audience to know when they walk out the door - the key message.

  - Tell them what the key message(s) is. Audiences are not going to do the 'hard work' of trying to figure out what your key message is. The few who are willing to do this, won't retain much information from your talk as they are too distracted !

  - The key purpose of setting learning objectives: they are meant to act as a lighthouse to keep you as presenter on course when you explore what to include and exclude when planning your presentation.

  - The goal is not to convey all your knowlegde on a topic. The goal is to get the listener interested enough to read more in depth or to start a conversation. If too much information is presented, the listener is likely to be irritated and disorientated and will 'give up' - either walk out or take out their smartphones.

  - People learn better when extraneous material is excluded rather than included (a.k.a Coherence principle - see key reference 2)

  - A presentation was never meant to replace a scientific article - only present enough evidence to make your point - you don't need to present data from three articles if only one will do.

  - **Move** most of **text off the slide** to 'presenters notes' (not visible to the audience). Why put words such as methods, results, conclusion on slides - don't 'display the obvious'. Mention it if you are uncertain if your audience are clear, but keep it off your slides.

  - **Effective slides should make poor handouts** as it should only contain a few words and visual images.   Without you to bring meaning to these, the 'reader' of your slide should be lost.

- Hand out proper word-formatted (without copyrighted images) documents after your presentations.

Tips:

1. Your presentation may involve making distinct points or more than one key message. In this case - organize it into digestible modules.

2. Give the audience a roadmap (brief outline) at the start - can show this a few times during your presentation in order for you and them to stay on track. ('map the milestones')

Guideline 2 - **Use multimedia**

Text alone on a screen is simple not effective. It disregards the most basic principle of multimedia learning, namely that people learn better from words and pictures than from words alone. A picture is still worth a thousand words in 2013, and a powerful image worth a lot more in the era of information overload.

Our *'visual channel'* handles information presented to the eyes (images, animations, video and on-screen text) while the *verbal channel* handles narration and other sounds. established.

While simply reading out text on your slide, does use this concept of dual encoding it represent the lowest possible use. A highly relevant video clip or powerful image (with you leading the discussion) represents a very powerful use of this concept.

<u>What is the copyright rules on Internet content ?</u>

According to Canadian law educators are allowed to display Internet content, but distribution in the form of paper or digital format is prohibited. Another reason to make a separate handout !

Tips:

1. Avoid clip art - it is outdated in 2013.
2. Consider buying high quality images from sources such as www.istockphoto.com, Corbis.com or Hemera.com
3. Downloaded image files < 2MB will look poor when 'stretched'
4. Background of images should always match the background of the slide.
5. Images of people help the audience to connect on a more emotional level.

Guideline 3 **Tell a story**

Humans have an innate ability to engage and learn from stories. You can use this in two ways - incorporate an anecdote or case in your presentation and/or structure your presentation in the form of story.

Like all stories - it will have a beginning, a middle and end. In case of new research - start with current knowledge, then new knowledge and conclude with future directions. In case of a refresher course - start with state of knowledge about 3 years ago, new knowledge since then and conclude with clinical implications.

Tip:

1. When you tell a story, you should get to the point before you lose the audience. No difference when making a presentation.

Guideline 4 **Headlines, not slide titles**

People learn better when the material is organized with clear headings (a.k.a signaling principle) Instead of creating slide titles, create a headline in active voice, with a subject and a verb - think newspaper. The headline is the main idea of the slide.

Rather than a slide with title 'methods' - say e.g. '4000 patients recruited throughout Canada to answer key question about effect on anesthesia on long-term memory' Fill the necessary details in verbally - you are presenting a key message, not displaying you lifetime body of research!

Guideline 5 **Design to draw attention**

Our brains are 'difference detectors'. We can't help to be drawn by differences in colors, fonts, text, motion. It is not the absolute properties that matters, but relative to the surroundings.

Example: When you read THIS the word "this" is salient; BUT WHEN YOU READ THIS THE WORD "THIS" IS NOT.

Capture the audience's attention by making 'the signal' larger, brighter, or louder, so that you control what the audience members pay attention to.

On the other hand, irrelevancies (in text, images,sounds etc) 'the noise' will detract attention, promote information overload and reduce learning. When we see or hear a change, we expect it to mean something, so every visible or auditory change should convey information.

The real enemy of effective use of powerpoint is not bullets, but poor templates that encourage abuse of bullets, busy backgrounds and in general very poor slide design.

Tips:

1. *'Graying out'* text already presented will draw attention to the newly introduced text.
2. Do you really need to display your university or hospital logo on each slide ?
3. Leave citations off the slide and add to the handout !
4. Stick to one 'low-key' animation (also called 'object builds') throughout.
5. Stick to maximum two 'low-key' transition effects and don't use between all slides - only introduce a novel transition to grab the attention of the audience.
6. Don't fear empty space on your slides (think Steve Jobs's presentations) Less clutter improves clarity.
7. Stick to a standard bullet and don't vary bullets unless changing the bullet signify a change.
8. Challenge yourself and create your own template (save as design template file .pot in Powerpoint) or purchase a professional template on-line (such as www.powerpointtemplatespro.com){Reynolds:2013wu}

Are there one best color scheme to use ?

Garr Reynolds advise: If you will be presenting in a dark room (such as a large hall), then a dark background (dark blue, grey, etc.) with white or light text will work fine.

If you plan to keep most of the lights on (which is highly advisable) then a white background with black or dark text works much better. In rooms with a good deal of ambient light, a screen image with a dark background and light text tends.

What font should I use ?

Most important limit font selection to two complementary fonts (e.g., Arial and **Arial Bold**). San-serif fonts are generally best for PowerPoint presentations, but try to avoid the ubiquitous Helvetica. Gill Sans is somewhere in between a serif and a sans-serif font and is professional yet friendly and "conversational."

Regardless of what font you choose, make sure the text can be read from the back of the room.

How do I best present results from scientific articles ?

This can be challenging, but is vital as many audiences lose interest due to large amounts of data being presented in a way that is very difficult to interpret and learn from.

Tips:

1. Only present the data that are truly necessary to make your point.

2. Stick to a display format that is familiar to the audience. When in doubt, explain how the graphic works.

3. Use the correct display type for the type of data (see below)

4. Avoid 'copy and paste' tables from journals. You will end up with lots of noise and lose the signal. Create your own display with Excel or Number and export to Powerpoint.

5. X and Y axes should be clearly labelled.

When should I use tables:

Data in tables (2x2; 3x2 etc.) are seldom intuitive and in most cases requires the audience to do 'hard work' - don't confuse this with engaging the audience.

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Try to convert relative amounts, trends and differences into a graph whenever possible.
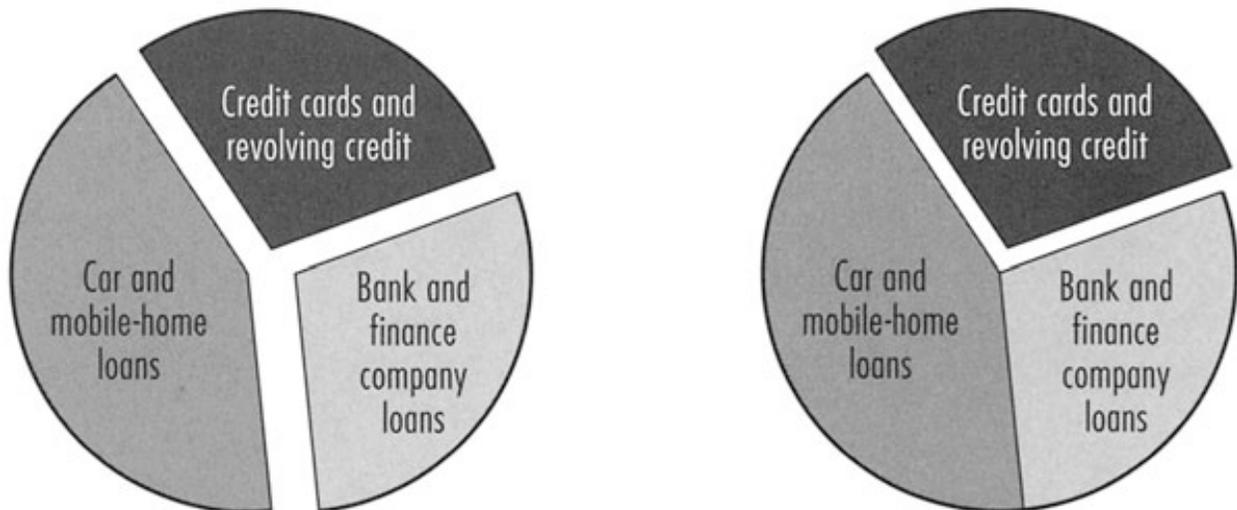
Use a table only to convey *absolute values, not trend or differences*.
When stressing a critical value in a table, 'zoom in' on the critical value (enlarge and encircle with red). This can then be can be presented on the next slide.
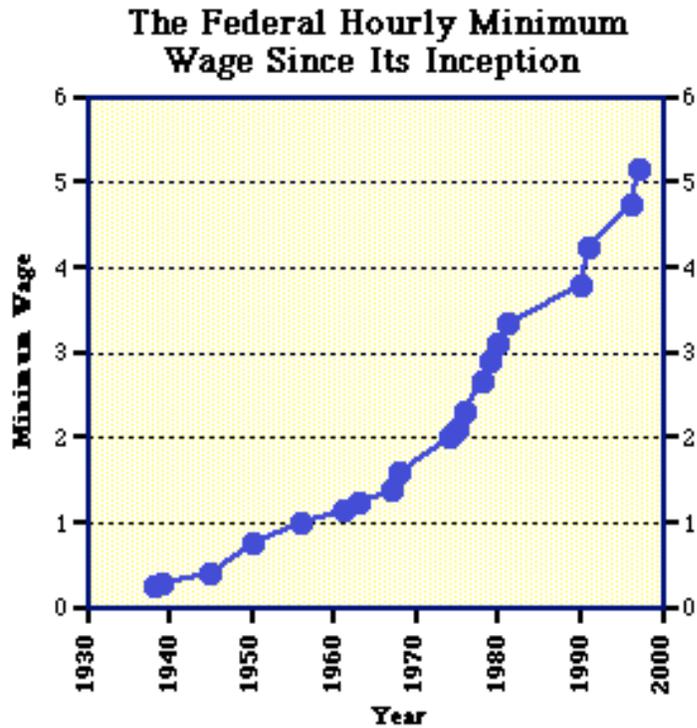
When to pie chart and graphs ?:

Pie charts works very well to convey approximate relative amounts.
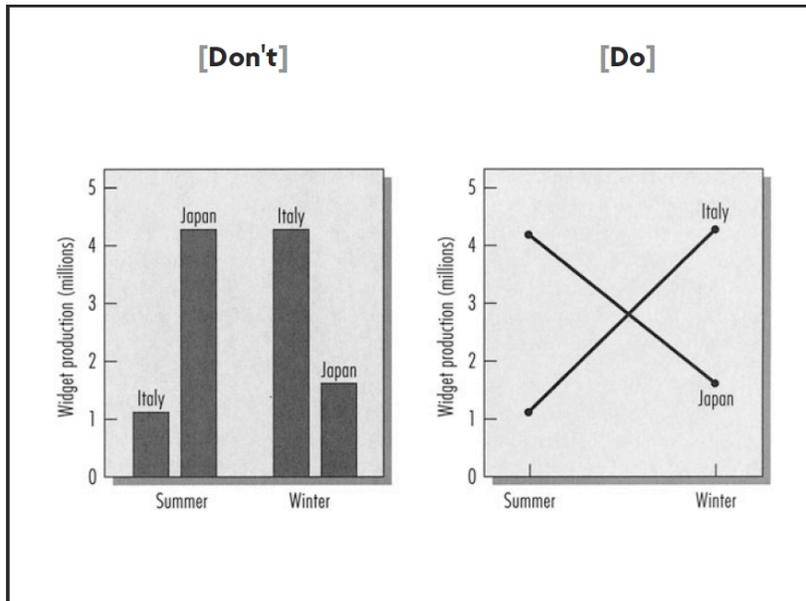Explode the pie ('move the pizza slice out') to draw attention to one pice of the pie chart.

Use a *line graph* to display *trends* (changes in quantity over time) - the rise and fall of a line creates a shape which the brain easily interprets as a trend - up, down or no change.
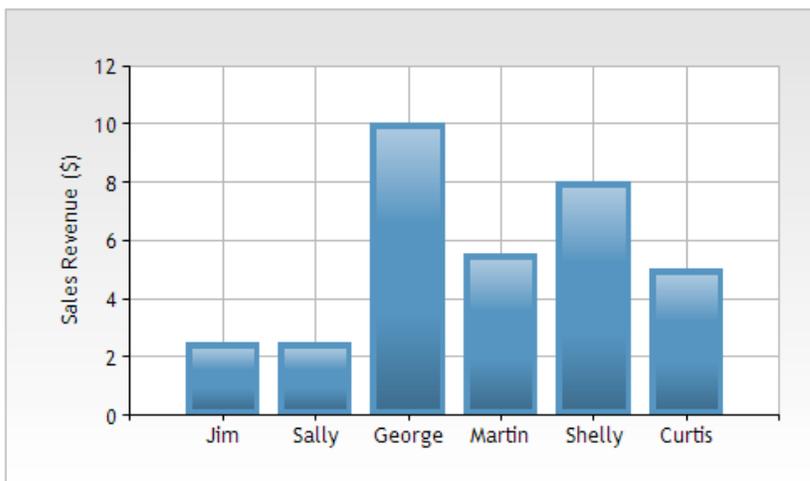
The Federal Hourly Minimum Wage Since Its Inception

Line graphs are also useful to show how variables interact (see below) on the condition that the X-axis specify a continuous scale.

Vertical bar graphs are used to compare quantities where the X-axis specify a non-continuous scale (in case of a continuous scale, a line graph is often better)

Use a **horizontal bar graph** if the labels are to long to fit under a vertical bar graph.

Guideline 6 Chunking and hooks

Our short-term memory not only have a limited capacity, but also operates in certain ways. Every aspect of your presentation - content, design and delivery should aid learning and memory.

The audience can only hold in short-term memory four 'chunks '   of information. Each 'chunk' can can hold again four 'chunks'. You have to organize the material in such a way to use this inherent ability.

We are more likely to remember information grouped together when reading and remembering as opposed to isolated components

One way to improve the audience's memory is to show how
new material relates to information the audience members have
already stored - a.k.a 'hanging it on memory's hook'

Tips:

1. Present material you want audience to remember best at the beginning or at the end of a 'module' (a.k.a. 'Privileges of the first and the last')

2. If you want the viewers to understand a complex structure (e.g., a table or graph with multiple groups), it makes sense to build up a slide one part at a time, only showing the part you want to talk about at that moment.

3. If you simply want them to focus on a specific part, it makes sense to "build a pointer" into your slide by including a red arrow that points to the subject of interest, or put a circle around a portion of a graphic or text that your focus.

Guideline 7 **Thinking is learning.**

The more people think through material (for example by being asked questions or discuss in small groups or dyads), the more likely they are to remember it. Interactive learning is not a fad, it is based on best evidence.

Tips:

1. Using audience response systems, of which iClickers is the best known, has been shown to improve learning and audience satisfaction

Other Useful tips:

1. Break up the information with a cartoon, joke (these should add to the key message) This give the audience time to 'come up for air'
2. Prepare extra slides to answer questions that may come up in the question period.
3. When wrapping up - present the outline again and use it to remind the audience what the presentation included.

Key **references:**

1. *Less is More v3*. (2011) by Dr. Manuel Mah, currently Deputy Medical Director at Calgary Health Region

2. Atkinson, C and Mayer, R (2004). Five ways to reduce PowerPoint overload, 1–15. Downloaded from http://www.indezine.com/stuff/atkinsonmaye As mentioned before, an excellent resource that uses scientific principles to make solid recommendations.

3. Kosslyn, S. M. (2007). Clear and to the point: 8 psychological principles for compelling PowerPoint presentations. Published by Oxford University press

<u>Useful</u> **web sites**

http://www.presentationmagazine.com

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

Guy Kawasaki is known for the quote 99% of the presentations suck and the 10/20/30 rule.

http://www.nytimes.com/2010/04/27/world/27powerpoint.html
Worst possible use of powerpoint by US military

http://www.presentationzen.com
Garr Reynolds, well known for his book on simplistic slide design, 'PresentationZen' maintains this blogs.

<u>Interesting powerpoint slideshows on **Slideshare**</u>
<u>(www.slideShare.net) about powerpoint !</u>

http://www.slideshare.net/thecroaker/death-by-powerpoint

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http://www.slideshare.net/alwynlau/powerpoint-skills

YouTube videos:

http://www.youtube.com/watch?v=bOrHxRB3JrQ&feature=share&list=LL04Xt0zjXRlaeSGNQPpJYGg

Very useful video with lots of practical ideas.

http://www.youtube.com/watch?v=KbSPPFYxx3o

A comedian tries to save us from Death by Powerpoint - worth watching

http://youtu.be/i68a6M5FFBc

Animation used extremely effectively to highlighting the issues with powerpoint and provide one way to fix this.

Created by Dr. Martin van der Vyver MBChB MMed (Anes) FCA (SA) FRCPC
Assisstant Professor of Anesthesia
Department of Anesthesia University of Toronto

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