Beyond Bullets
Effective Presentations for Teaching

engaging content
presenting with PowerPoint
designing slides
This guide is designed for academics at The University of Queensland who use presentation software (particularly Microsoft PowerPoint) in the classroom and lecture theatre. These guidelines are intended to help you get the best results for student learning when using presentation software to support and augment your teaching.

This guide is not for other kinds of presentations, like study resources or stand-alone presentations, such as those that take the place of classroom interaction in distance learning.

This guide assumes that you have a working knowledge of PowerPoint, including working with slide formatting and graphics.

In This Guide

Engaging Content
What kinds of content work best in PowerPoint?
What kinds of content should not be presented with PowerPoint?
Issues with and recommendations for using PowerPoint in specific teaching contexts.
How PowerPoint might affect student recall.

Presenting with PowerPoint
How you can enhance your classroom presence when presenting with PowerPoint.

Designing Slides
Considerations for slide design so that content is effective but not distracting or confusing.

‘We Have Met the Enemy and He is PowerPoint’

Engaging Content

PowerPoint and learning

Although PowerPoint provides a fast way to bring a vast range of content, from text to diagrams, photographs and video, into the classroom, PowerPoint (and presentation software generally) has been criticised on a number of points. Many — from the leading information designer Edward Tufte to Gen. Stanley A. McChrystal, formerly the leader of American and NATO forces in Afghanistan, who prompted The New York Times headline — have argued that it is not just the misuse of slide presentations but the design and ‘cognitive style’ of PowerPoint that hampers comprehension and clarity.

Many university teachers believe that students ‘expect’ PowerPoint in lectures, and have created and used presentations to support their teaching and enhance student learning. However, the literature is undecided on whether PowerPoint enhances student learning and retention or not. Furthermore, students disengage when lecturers simply ‘read the slides’ and are sceptical of the value of attending classes in which the entirety of lecture content is available through slides afterwards.

Figure 1: PowerPoint fails to clarify strategy: ‘Rigid lists of bullet points (in, say, a presentation on a conflict’s causes) that take no account of interconnected political, economic and ethnic forces’ (The New York Times).
Savoy, Proctor, & Salvendy (2009) studied the quality of information retention and performance in students, comparing traditional (‘chalk and talk’) lectures and lectures presented with PowerPoint. Their findings are adapted and summarised in the table below.

The content type categories are considered in more detail in the following sections.

<table>
<thead>
<tr>
<th>Content type</th>
<th>PowerPoint</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbal/auditory</td>
<td>negative effect on recall</td>
<td>improved recall</td>
</tr>
<tr>
<td>text/numeric</td>
<td>no notable gain</td>
<td>no difference</td>
</tr>
<tr>
<td>Visual/graphical</td>
<td>No significant difference (may be better for complex diagrams)</td>
<td>No difference for basic graphics</td>
</tr>
</tbody>
</table>

**Verbal/Auditory**

Verbal information in lectures and teaching includes argument, dialogue and narrative. A teacher may work with narrative or immerse students in a complex debate, often integrating and moving between different perspectives.

**The issue**

Students appreciate the structure a well-ordered presentation can provide (Hill, Arford, Lubitow, & Smollin, 2012). But, in the case of dialogue, argument and narrative, PowerPoint distracts and fragments. PowerPoint, Catherine Adams argues, literally encourages ‘pointing’, by breaking a connected argument into simplified, truncated bullet points (Adams, 2006). This encourages linearity and hierarchical thinking. Tufte asserts that discussion and critical thinking are discouraged or fragmented (Tufte, 2003).

![Figure 2: The Gettysburg Address as rendered in PowerPoint (Peter Norvig, norvig.com)](image)
PowerPoint can negatively affect students’ recall. By concentrating on the points rather than the development of the argument, students can fail to make important connections. Students tend to copy the bullet points, rather than actively reflecting and making their own notes.

**Recommendations**

Use PowerPoint sparingly, if at all, during discussion and dialogue.

Students appreciate structure in class and during revision. Use PowerPoint to indicate the main headings or turning points of the discussion, as a signpost or guide, or to post questions and discussion topics.

Use a blank slide, or clear the screen (as described later), when you stop to speak or engage with students. Summary slides can be very helpful to wind-up after the discussion.

**Text/numeric**

Text/numeric information comprises information such as data, definitions and references, that would formerly have been written up to a blackboard or overhead projector, or distributed as a hand-out or classroom resource.

**The issue**

PowerPoint is faster and clearer than writing. It does not necessarily improve retention (Savoy, Proctor, & Salvendy, 2009).

**Recommendations**

PowerPoint is a quick and convenient way to capture and present supporting information and references in lectures. This includes:

- **Quotes**: You can easily use PowerPoint to project a quote or reading that is the basis of the discussion.
- **Definitions**: PowerPoint is ideal for a quick definition
- **References**: Readings, dates and names are easily projected
- **Numeric Data**: PowerPoint can quickly present numeric data, such as statistics and results, particularly in table form.

However, as Tufte (2003) and others have noted, PowerPoint tables have low resolution (only a few rows and columns can be seen clearly before the data becomes illegible) and table layouts are not flexible, discouraging more complex analysis.
Graphics and Images

PowerPoint easily brings illustrations (such as charts, diagrams, graphics and photographs) into the teaching space. PowerPoint is much faster than drawing for moderately complex diagrams and charts. It is possible to animate charts and diagrams to show, for example, changes over time.

The issue

PowerPoint encourages ‘chart junk’: confusing, misleading, or simply illegible representations of data. PowerPoint also ‘weakens spatial reasoning as it does verbal reasoning’ (Tufte, 2003).

The built-in charts and graphics are often (like bullet points) prone to oversimplification or distortion (or both).

Built-in graphs (such as bar charts or line charts from PowerPoint or Excel) do not check that the type of graph used is appropriate to or even accurately reflects the data being represented.

The wrong or inappropriate graphic can lead to the ‘mixed visual metaphor’ – at best a distraction, at worst confusion between the meaning of the slide and the visuals.

Attractive graphics or branding developed for other purposes (such as print) may overwhelm the slide, leading the viewer to lose focus.

Figure 3: A busy, illegible diagram (chart junk) overwhelms the slide, which is already overloaded with branding and other graphical noise (including text).

Recommendations

Use clear, clean graphics. Tone-down or avoid SmartArt (PowerPoint’s built-in, pre-formatted graphics). Select graphics and images that are always legible from the farthest point in the teaching space. If using photos, select images carefully and crop to focus on the most important part of the picture. Consider distributing a handout for high-resolution (detailed) charts and tables.
Dynamic/animated Data

PowerPoint can create and animate presentations, adding movement to slides and generating animated charts and graphs. PowerPoint is also a potential multimedia hub, allowing you to link to video, audio and websites.

The issues

Built-in animation can distract from slides, or make it difficult to follow a graphic. Animations or video draw attention from the presenter.

Entertaining or humorous videos may be crowd-pleasing, but ultimately distracting or seen as ‘filler’.

Recommendations

Use animations only where necessary. Frame all audio and video clips with discussion, and match content to the topic.

Matching the Presentation to Content

<table>
<thead>
<tr>
<th>For this information:</th>
<th>Use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>graphics, figures, animation, multimedia</td>
<td>PowerPoint</td>
</tr>
<tr>
<td>Text, numeric information</td>
<td>either - PowerPoint is faster than writing</td>
</tr>
<tr>
<td>Concepts - verbal or dialogue</td>
<td>verbal presentation - be selective in supporting your presentation with PowerPoint</td>
</tr>
</tbody>
</table>

Presentation

Student comments on the use of PowerPoint in the classroom reveal that they can resent a presenter who is just ‘reading the slides’. Students expect more from lectures and seminars than just the bullet points reiterated. However, PowerPoint visually emphasises the projection screen rather than the classroom presenter. It is important that you cultivate a teaching style that enhances students’ learning experience and keeps the focus on your material.

You are the presenter, not PowerPoint – expand your classroom presence

- Use PowerPoint to support your presentation. You are not there to deliver a series of slides but to foster a learning experience. Your knowledge and understanding bring students to lectures and keep them engaged.
- Keep bullet points terse: expand on your points in discussion. Where possible, cultivate discussion and interaction.
- Contextualise and explain the data on slides in tables and charts, to avoid copying without understanding.
- Use displays effectively. If you need to know what the audience is seeing, refer to your laptop or PC screen, or keep a printout of your slides in note form before you. Face the classroom, and never turn to read the content of a slide.
- Many podiums are designed to accommodate a PC and other AV hardware at the expense of isolating the speaker from the rest of the space. Move out from the podium – consider using a remote control to advance slides and as a pointer.
- Hide PowerPoint when the focus needs to be on the speaker.
  TIP: To black out the screen during a PowerPoint presentation, press the B key. To white out the screen, press the W key. To reactivate the screen, press the same key again.
- Use gestures and voice to guide your audience’s attention.
Designing Slides with PowerPoint

Pacing and outlining

First, use your lesson plan to outline your slides, rather than the other way round.

A slide should encapsulate one main idea, and so the fewer distractions the better. As a rough rule of thumb, to avoid crowding, use no more than five to seven (and often fewer) discrete slide design elements (headings, points or images) on any one slide.

Similarly, the fewer words the better. One way to keep text concise is to always use at least 30 point font size.

Depending on the kind of information you want to convey, use no more than one slide per minute, particularly if you are speaking. If your presentation is data intensive, more slides might be required (but consider presenting this information in a digest form and making the details available in another format).

A clear, one-line slide title is an excellent way to orient your audience to the purpose of your slide.

Templates

PowerPoint provides a large number of built-in templates to help you get started. However, many PowerPoint templates are NOT suitable for teaching: they use busy, often visually incoherent layouts, and encourage reliance on bullets by defaulting to bulleted text.

For example (from the title slides of two PowerPoint 2007 templates):
If you choose to use a built-in template:

- Select a simple design
- Adjust the Slide Master to remove unnecessary elements

Adjusting the Slide Master

In PowerPoint, the slide master acts like a template for all formatting and content on new slides. You can view the slide master and adjust the formatting to all slides in your presentation.

To edit the slide master:

1. Change to the slide master view:
   - Office for Mac: from the View menu, select Master, Slide Master.
   
   The slide master appears in the design view, with the layout of the current slide displayed. The slide master tab appears on the left. Note that all the layouts associated with the current slide master are displayed in the slides pane on the left.

2. Select the layout you want to change. If you want to change all layouts, then select the Office Theme slide (the topmost slide).

3. Directly format the slide master (background, fonts and so on).

4. When you have finished, click Close Master View.
Backgrounds

For an effective slide background:

- Use a consistent background, preferably of a single colour, or a subtle gradient (blending or shading one or two colours across the slide). Some backgrounds can make content hard to see.
- Change the slide background only for a complete change of topic or a new presenter.

![Background light effect makes it difficult to see the lighter text.](image1)

![The red text does not contrast with the background colour. If you use coloured text, select strong, contrasting (not clashing) colours.](image2)

Typography

Make the most effective use of text and type in your slides

Use crisp, legible fonts, such as serif fonts:

- Georgia
- Palatino
- Times New Roman
- Garamond

or sans serif fonts:

- Arial
- Helvetica
- Calibri
- Tahoma
- Verdana
- Tahoma

Avoid decorative or ‘fancy’ fonts, or scripts, such as:

- Comic Sans
- ENGRAVERS
- Brush script
- Curlz

Avoid ‘special effects’ text altogether, such as that created by Microsoft WordArt.

Word Art = Dated
Use two font families at most

A font family is a single typeface with all its varieties (such as bold, italic, condensed and so on). If you want to use different fonts, such as a heading and body text font, use two font families at most.

It is most effective to pair a serif and san serif font. Avoid using two fonts that look similar (particularly serif fonts paired with serif, and san serif with san serif).

Use:  Heading - **Verdana, San Serif, Bold**  
      Slide Text - **Georgia, Serif, Roman**

Not:  Heading - **Times New Roman**  
      Slide Text - **Georgia** (These fonts are too similar)

Curabitur luctus tristique suscipit


Curabitur luctus tristique suscipit


Text size, colour, effects

Use:

- Consistent sizes and colouring: wherever possible, use the same font size for headings, text and captions and so on. Similarly, use the same colours for type in the same context. Use different coloured text sparingly, for emphasis only.
- Subtle text effects: PowerPoint 2007 (and later) allows you to apply special effects such as shadows, reflections and glows to text. Use these effects to enhance titles and subtitles only.
Images

When using images and other graphics in PowerPoint:

- **Maximise your use of the slide**: many images contain much more detail than you need to make your point. Crop and position images to frame and draw your audience’s focus to the most important parts. Use as much of the space on the slide for images as possible.

- If you are comfortable with Photoshop or iPhoto, or other image editing software (there are several good, free tools online), then crop, scale, rotate, and adjust and compress images before you insert them in PowerPoint.

  ![Original image](image1.png)
  ![Cropped to display relevant part of image](image2.png)

  ![Original image](image3.png)
  ![Rotated and cropped, an image is much more effective](image4.png)

Make sure the resolution of images (particularly those copied from the Web) is high enough to make them legible (low resolution images look ‘grainy’ when they are scaled).

Images taken directly from digital cameras are often high-resolution and very large (several megabytes (MB)). Convert these to medium-quality images before using them. Generally, for best quality images that fill the slide, the image size (in pixels) should equal to the resolution of the screen (1024 x 768, for example). In other words, the image should fit the slide without scaling.

  ![This image has been scaled up to look bigger on screen; however, its low resolution means that it looks blurry and unprofessional.](image5.png)
  ![This image has an appropriate resolution for the size that it’s being shown at; therefore, it retains clarity.](image6.png)
SmartArt diagrams

Built-in SmartArt diagrams (the latest version of Office graphics with many automatic effects) are often unclear, particularly when special effects (such as 3-d shadows and colours) are applied. Select the simplest SmartArt diagrams, or consider creating your own diagrams for maximum impact.

For diagrams of moderate to high complexity, consider splitting the diagram or process over several slides, or use animation selectively to change or refocus the diagram.

IS THIS CHART TOO COMPLEX?

- NO
- MAYBE
- PROBABLY
- YES
Transition Effects

Be moderate in your use of transitions (the animations that play as you move from slide to slide): use no more than one transition in one presentation.

Fancy transitions are distracting
unnecessary
and sometimes pretty weird

Just get to the next slide already

Just get to the next slide already
References


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