

## Chapter 12

### Improving the Design of PowerPoint Presentations

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The use of PowerPoint has become ubiquitous; whether in a corporate meeting or a classroom, PowerPoint is commonplace. In fact, it is estimated that over 30 million PowerPoint presentations are given each day. The use of PowerPoint has increasingly received criticism regarding its misuse and overuse. The most notable critic of PowerPoint is Edward Tufte. In *The Cognitive Style of PowerPoint*, Tufte (2003a) spends 27 pages highlighting various shortcomings of PowerPoint. In a later article, Tufte (2003b) even compares PowerPoint to a prescription drug whose side effects “induced stupidity, turned everyone into bores, wasted time, and degraded the quality and credibility of communication” (para 1). In the following chapter, I briefly revisit some of the constraints of PowerPoint and then focus on a few message design principles I apply when creating PowerPoint presentations to alleviate or minimize possible issues or constraints.

#### **Constraints of PowerPoint**

Bad PowerPoint presentations are commonplace. Whether it is the speaker who reads the slides line-by-line, the presenter who is not sure how to advance each slide or the presentation where the slides are difficult (if not impossible) to read, we have all sat through—and perhaps even given—some bad PowerPoint presentations. Tufte has turned these common PowerPoint problems into an incisive critique of PowerPoint of the tool. (2003a). He begins by pointing out how PowerPoint’s low resolution makes it difficult to display information-rich data. Tufte though isn’t alone; critics and supporters alike (Anderson & Sommer, 1997; Sommer, 2003; Tufte, 2003a) agree that PowerPoint’s low resolution makes it difficult to display information-rich or visually-rich data with text alone. In fact, PowerPoint users are very familiar with running out of space on a PowerPoint slide. This problem leads many to put too much text on a slide or create presentations with hundreds of different slides. Another problem is that PowerPoint defaults to and encourages the use (and overuse) of bullet outlines which Tufte (2003a, 2003b) contends dilutes thought, narrative, and data. Tufte also criticizes PowerPoint for being deeply hierarchical and linear. The deeply hierarchical and linear structure of PowerPoint no doubt *influences* how one uses PowerPoint and delivers presentations. Finally, Tufte argues that PowerPoint encourages users to be more preoccupied with format, conspicuous decoration, and phluff rather than on the content of the presentation (see Lowenthal & White, 2008, for a review of Tufte’s *The Cognitive Style of PowerPoint*).

Regular users of PowerPoint can probably identify a number of other constraints of PowerPoint use. For instance, I have argued before that PowerPoint can often encourage teacher-centered, screen-centered, and technology-centered instruction (Lowenthal, 2005). However, it is important for us to remember that like any piece of technology, PowerPoint has affordances and constraints. Despite the shortcomings of day-to-day use, PowerPoint is not inherently evil—nor is it neutral. Others have pointed out that many of the problems associated with PowerPoint are typically more the presenter’s fault than the software application itself (Doumont, 2005).

While many of the shortcomings of PowerPoint use can be worked around (e.g., the low resolution of PowerPoint can be addressed by using less text, more information-rich images, and giving out handouts), there comes a time when we must realize that certain presentations—whether because of context or audience or a number of other factors—might be improved by not using PowerPoint.

### **Improving the Design of PowerPoint Slides**

Many of PowerPoint's problems could be alleviated with proper forethought and planning—and most importantly, knowing when not to use it. There are essentially three phases involved in conducting a PowerPoint presentation: (a) creation of the PowerPoint presentation; (b) presenting the PowerPoint presentation; and (c) distributing the PowerPoint presentation. While the focus of this chapter is primarily on the creation phase, the way we design our PowerPoint presentations often influences how we present it and therefore we must think about all three phases every step of the way.

The ACE model is a cyclical process used to create instructional visuals (Lohr, 2003) that I use to help me design effective PowerPoint presentations.. ACE stands for analyze, create, and evaluate. I have found the ACE model is a very useful guide when creating PowerPoint presentations or any type of instructional visual. We typically do not think of PowerPoint presentations as instructional visuals, but good PowerPoint presentations are just this--instructional visuals connected through a narrative. Therefore, I will briefly elaborate on each component of the ACE model.

#### **Analyze**

The first step in the ACE model is to analyze. We should begin by asking ourselves, "What do our learners need to know and be able to do?" and "How can PowerPoint help accomplish this?." There are times when using PowerPoint might be very appropriate (e.g., when giving a keynote), but there are times (e.g., when leading a small intimate meeting--like round table session at a conference) when PowerPoint is most likely not only inappropriate but also possibly even problematic because of the distance it can create between a presenter and his or her audience.

Part of this stage of the model involves analyzing one's audience. Among other things, understanding one's audience helps in deciding whether PowerPoint is an appropriate tool to use. Knowledge of one's audience should also help one determine the look and feel of the overall presentation as well as the basic content. In addition to analyzing one's audience, faculty should also spend time analyzing where they will be giving the PowerPoint presentation (i.e., the learning environment). This is easier done when one teaches in the same classroom week by week. However, I have often found myself giving a presentation for the first time in a strange room where I run into the unexpected (e.g., lights that don't dim appropriately). While there are a number of rules of thumb one can follow when creating PowerPoint presentations (e.g., the 10/20/30 rule—states that you should use only 10 slides, talk for no more than 20 minutes, and never use a font smaller than 30 points--see Kawaski, 2005, for more on this rule), they all tend to assume a "typical" learning environment. But whether I decide to use a 20 point font or a 40 point font should depend more on the learning environment (or my audience) than on some rule of thumb. For example, a 40 point font is probably perfect for a keynote address but too large for an online course where learners will be reading the slides on a computer screen in front of them. Further, some environments (whether a classroom or a presentation hall) are not conducive for PowerPoint presentations (e.g.,

they might not have an LCD projector) and this should be taken into consideration before a presentation is ever given. Therefore, the main things to consider during the analyze phase are your purpose, audience, and environment.

### **Create**

The second step of the ACE model involves creating the instructional visuals. This involves deciding both the structure and focus of the presentation as well as the design and make-up of each slide. (A thorough discussion of alternative ways to create PowerPoint presentations is beyond the scope of this chapter; see Duarte's (2008) *slide:ology: The Art and Science of Creating Great Presentations* or Reynolds (2008) *Presentation Zen: Simple Ideas on Presentation Design and Delivery* as two great books that do this very well.) While I hope one day to be able to implement some of the great ideas of Duarte (2008) and Reynolds (2008), in the mean time, I have focused on implementing a few key message design principles when creating my PowerPoint presentations.

Instructional visuals must be legible. We have all seen (and many of us have created) presentations with unreadable slides. This common mishap is due in part to the lack of emphasis and thought placed on the design of the message (or in this case the slides). For more on instructional message design, see the works of Winn (1993) and Lohr (2003). However, Williams (1994) perhaps takes the simplest approach to explaining basic design principles. Williams coined the term CARP, which stands for contrast, alignment, repetition, and proximity. Adhering to the principles of CARP can help create legible and professionally looking instructional visuals.

- *Contrast* or rather the lack of contrast is often the number one visual problem of most PowerPoint presentations. A PowerPoint presentation can do little good if your audience cannot see or read the slides. A simple approach like using a white background and a black font or a black background with a white font yields the highest contrast.
- *Alignment* is important when it comes to readability. Studies have shown that fully centered text, especially multiple lines of it, is harder to read than text that is aligned left or right. Therefore, maintaining a left justification throughout your presentation can promote readability.
- *Repetition* is important because the brain recognizes patterns. Using consistent and repetitive headings, titles, font, as well as backgrounds, helps improve the readability of your slides. A storyboard or a design guide can help you keep track of things such as the font size and font type of headings vs. body text of each slide. This is helpful because by default PowerPoint will automatically change the font size (e.g., to accommodate more text on a slide) when creating PowerPoint presentations.
- *Proximity* is important because it helps a reader understand, through chunking, what information is related together. Chunking items that are related spatially helps the viewer. This can become a challenge in PowerPoint because PowerPoint by default equally spaces every line of text.

Finally, Williams and others have identified the important role fonts can play when designing presentations or any instructional visuals. A basic Sans Serif font (e.g., Arial or Verdana) is perhaps the most readable and safest bet. While fancier fonts can add aesthetic value, they can at the same time make it harder to read the message on each

slide. Further, presenters should avoid using all CAPS whenever possible; all caps is harder to read. The brain recognizes patterns and words and sentences in all caps are harder to read because they do include any ascenders or descenders. The brain uses these to quickly identify words.

But it is interesting to note that one study found that simply rehearsing the presentation is more important than the format of slides or overheads (Carello, 2002). This suggests simply following a few message design principles is not enough to ensure good presentations—rather, it is just a first step.

### **Evaluate**

Evaluation is perhaps the hardest part of Lohr's model to follow. Part of the appeal of using PowerPoint is the ability to continually reuse and repurpose a lesson. The evaluation step in the ACE model suggests that faculty need to collect some data to determine whether or not the instructional visuals—in this case, the PowerPoint slides—are working. This is not just a matter of asking whether or not students enjoyed the slides and/or the presentation (which is still helpful to know) but also whether or not the PowerPoint presentation is helping students learn. Some ways that you can evaluate the effectiveness of your presentation and use of PowerPoint is through the use of polling (e.g., [www.polleverywhere.com](http://www.polleverywhere.com)) or clickers.

### **Conclusion**

The work of Tufte (2003a; Tufte, 2003b), Norvig (n.d.-a, n.d.-b), and others is powerful and persuasive. Any novice PowerPoint user should be required to read the work of Tufte. Tufte, though, focuses a great deal on the tool. He seems to blame a piece of software for the way that we are using it. PowerPoint does not give bad presentations; people give bad presentations. While recognizing the role presenter's play in bad PowerPoint presentations, Tufte argues that PowerPoint is becoming more than just a tool but rather a cognitive style.

PowerPoint is so engrained in our culture that there is an unspoken expectation that in certain environments, one must use PowerPoint. Try to imagine doing a paper presentation at many major conferences without PowerPoint. You will be labeled a luddite or even worse- technologically illiterate. Or imagine giving a PowerPoint presentation and not handing out the PowerPoint slides. When a tool becomes this deeply ingrained in a culture, it becomes more than just a tool. However, this does not dismiss the fact that how people use PowerPoint is still very much in their control. I outlined, in this chapter, a few steps faculty can take to begin creating and using PowerPoint differently. However, over time, my hope is that faculty and students alike (including myself) begin leveraging the full multimedia capabilities of PowerPoint and begin using it as the multimedia tool it is rather than simply an electric overhead that only contains text. Finally, I hope that faculty begin to experiment with different ways of using PowerPoint whether that be through adopting a fun micro-talk format like Pecha Kucha, creating PowerPoint games, or through developing non-linear web-based learning environments in PowerPoint.

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## Bio

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