Comment
Powerless to stop myself
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Therapists say that the first step in overcoming an addiction is to admit that one has a problem and needs help. OK, I admit it: I have a problem, and I need help. I really need help. I'm addicted to PowerPoint. PowerPoint, for those of you who have spent the last five years on some other planet, is a computer program for the creation, organization, and presentation of slide shows. Although not the only software for this purpose (Apple, Inc.'s Keynote is among a handful of quite good competitors), PowerPoint - from the same sadists at Microsoft who gave us the maddeningly supercilious word-processing program Word - is the best-known presentation program (there are over 400 million copies in circulation, many of which actually, sort of, work as advertised) and its name, like that of Xerox, has become synonymous with its function, so I shall use it exclusively here.

Most technological change is gradual, but once in a while an invention comes along that is so superior to what was there before that it takes over in an amazingly short time. Compact discs, which replaced records so fast and so completely that most children under the age of ten have never seen a record, are an example of such an all-conquering technology. Much the same thing has occurred with PowerPoint. When the first few brave speakers - undoubtedly descended from pioneer stock - began to use PowerPoint to illustrate their talks, the necessary infrastructure was so rare that many of them had to lug a special projector with them, like explorers toting vital supplies into the uncharted wilderness. I, along with many of my colleagues, observed their struggles with hardware incompatibility and software glitches with the smug superiority of a blacksmith gazing at the wreckage of one of the first automobiles that has just broken down outside his shop.

Some of these problems still occasionally bedevil Power-Point users (think how much time we've all spent staring at a giant image of someone's desktop as they frantically reboot), but for some reason that didn't seem to matter. In less than two years, the ratio of PowerPoint talks to talks using traditional audiovisual aids had completely reversed, and now, if one wants to give a presentation involving, say, overhead transparencies, it is frequently the overhead projector that must be special-ordered in advance; the PowerPoint computer-connected projector is standard equipment in every lecture hall. Microsoft and other software vendors would have us believe that this transformation is due to the inherent superiority of their method of showing visual aids. They would further claim that our productivity has been greatly increased by its intrinsic greater efficiency.

Rubbish. There is nothing inherently superior about a method that has led to more overcrowded, weirdly-colored, and background-dominated graphics than can be found in a psychedelic music video. PowerPoint, with its plethora of options, has given people with too much imagination and limited artistic common sense a license to break the most fundamental rules of slide design. (Rule number 1: The background should be white. If one insists on having a color other than white for the background, it must be of a uniform hue. Backgrounds that progress, for example, from light at the top of the slide to dark at the bottom of the slide render the text at the bottom of the slide invisible, which is a bad thing. Rule number 2: All text should be a sharply contrasting color, usually black, and when projected should be larger than a bacterium. If several colors are to be used, they should be kept to a minimum, and used to make a point, not to reproduce the effect of a van Gogh painting. Rule number 3: Each slide should make only one point. Not, as I've seen attempted, four or more quite distinct points, none of which could be comprehended because the slide contained more information than the human genome sequence, and was about as much fun to read.)

I'm not the only one who has a problem here. Edward Tufte, the information theorist, has written a blistering critique of PowerPoint and its ilk ("The Cognitive Style of Power-Point", available online [http://www.edwardtufte.com/tufte/powerpoint]), concluding that "slideware often reduces the analytical quality of presentations. In particular, the popular

PowerPoint templates (ready-made designs) usually weaken verbal and spatial reasoning, and almost always corrupt statistical analysis."

Lest you think that this is merely the ramblings of a few technophobes, or in any case is all relatively harmless, let me point (or should that be PowerPoint?) out that last August, when the Columbia Accident Investigation Board issued its report on why the space shuttle Columbia crashed, one of its conclusions was that NASA had become too reliant on presenting complex information via PowerPoint, instead of by traditional paper reports. Apparently, when NASA engineers presented their assessment of possible damage to the shuttle wing during liftoff, they did so in a PowerPoint slide so crammed with nested bullet points and other complicated formats that it was impossible to comprehend. The board stated that "it is easy to understand how a senior manager might read this PowerPoint slide and not realize that it addresses a life-threatening situation." In another instance, U.S. Secretary of State Colin Powell used a PowerPoint presentation last February when he made his case to the United Nations that Iraq possessed weapons of mass destruction (you can view it online [http://www.state.gov/secretary/rm/2003/17300.htm]). Right now, he's probably wishing he hadn't.

And as for efficiency, the overabundance of options has made it impossible to realize any productivity gains from the new technology. Brothers, this finally justifies the Luddites: with PowerPoint someone with a machine can accomplish in a week what it used to take a human laborer a day to do. Yet paradoxically it is this very inefficiency that, in my opinion, is responsible for its overwhelming popularity and, I confess, for my own addiction. Because PowerPoint is one of the greatest time-sinks ever invented.

It used to be that one created one's research talk and then didn't change most of it for months, or even years. Not any more - with PowerPoint one can change it constantly - so much so that most of us create a 'new' presentation for every talk we give. (My laptop has a 40 gigabyte hard drive, 39.99 gigabytes of which is taken up with different versions of the same presentation.) Genomics talks are particularly susceptible to

such fussing, because the field changes so rapidly that updating can easily be justified. Has this customization led to better talks? Maybe, but much of the time I seem to spend 'improving' a talk actually involves resizing graphics, adjusting contrast levels, trying out different color schemes, and making numerous minor - albeit, of course, brilliant - changes to text. I know that most of this endless tinkering is probably a silly waste of time, but the problem is, it's tremendously satisfying. There's a mindless, Zen-like quality to it. Because it ostensibly involves work, it feels much more virtuous than sitting in front of the television, yet it has the same pacifier-like effect. And because no presentation is ever perfect, the process is endless, so one never has to worry about what to do with oneself when one is finished.

To make matters worse, I'm constantly discovering new things you can do with PowerPoint. I still remember, with the same euphoria that I recall I felt at my first teenage romance, the moment when I discovered the crop tool. I love the crop tool. I love the crop tool so much that it is probably fortunate that most of my PowerPoint work is done in the evening, in the privacy of my own home, or on long airplane trips, because it might be a tad disconcerting for the people in my research group to see their leader, with a wild gleam in his eye, feverishly cropping some borrowed (pirated) illustration exactly right. Last spring I started embedding movies of rotating protein structures into my talks. Each PowerPoint file now has more movies in it than a multiplex cinema, and takes so many megabytes of disc space that it won't fit on one CD. As for artistic quality, well let's just say that in terms of plot and character development, not to mention cinematography, Frederico Fellini and Akira Kurosawa have nothing to worry about. It isn't even clear that these movies add anything to the information content of the talk. But I love making and embedding movies, and I can't stop.

But I want to stop, I really do. I admit I have a problem and I need help. I even know exactly what kind of help I need. I need someone to invent a way of giving presentations that doesn't allow this infinite refinement loop. If each slide were a separate physical object that, once made, could not be altered, then I would have to think carefully about what I wanted to say and how I wanted to say it before producing the slide, instead of constantly experimenting with alternatives. My ability to customize presentations would then be limited to adding and subtracting a few slides, and perhaps rearranging their order. I could take just those physical slides with me instead of schlepping my laptop everywhere, and I would never be at the mercy of computer crashes or hardware/ software incompatibility. Of course, there would need to be some device for holding the slides in the chosen order and delivering them, one by one, into the projector. Some sort of cartridge with slots, perhaps - it could even be circular and rotate between slides, like a merry-go-round. I realize that what I'm describing is such a radical and sophisticated concept that it may take years to develop, but I'm hoping that

my plight, and the plight of those countless scientists who suffer from the same dependence, will prompt inventors all over the world to get busy. Until they succeed, you can find me at the next meeting of PPA - PowerPoint Anonymous.

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