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### FEATURES

#### Missing the Point

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*Is PowerPoint the enemy of thought?*

It's not precisely clear how PowerPoint evolved from an office novelty into one of the world's most widely used software programs. About 300 million people worldwide use it to create more than 30 million bullet-point-laden slide presentations every day.

Maybe PowerPoint quenched presenters' demand for an alternative to overhead transparencies and 35 mm carousel slides, which were expensive to produce and became hopelessly disarrayed if dropped on the ground, say, just before a big meeting. Perhaps PowerPoint's owner, software monolith Microsoft Corp., cornered the briefing business through feats of marketing or, some say, monopolistic practices.

However it happened, PowerPoint has become the tool of choice when the nation's leaders want to get their point across.

In December 2001, President Bush received a PowerPoint briefing from Gen. Tommy Franks on options for invading Iraq. A year later, political adviser Karl Rove gave Bush bulleted PowerPoint slides to show which leadership qualities to emphasize in his reelection campaign.

In February 2003, Secretary of State Colin Powell used PowerPoint slides showing satellite photos of suspected Iraqi weapons facilities to convince the U.N. General Assembly that Iraq was a world threat. A month earlier, engineers had given PowerPoint summaries to NASA executives about damage to the doomed space shuttle *Columbia* from a piece of foam that struck its wing during liftoff. And in the early days of the Bush administration, counterterrorism chief Richard Clarke wrote his plan to "roll up" the al Qaeda terrorist network using, what else, PowerPoint.

These are some of the program's sexiest implementations. But PowerPoint is ubiquitous throughout the federal bureaucracy, trotted out even for mundane conference speeches or working group meetings. In many of those gatherings, it's almost expected.

It's common, however, to find people who don't know how to use the presentation maker. Microsoft advertises that PowerPoint will "improve the way you create, present and collaborate on presentations." But more often, clear-thinking, articulate people who use PowerPoint are transformed into muddled, monotonous speakers who shoehorn their thoughts into bullet points and anesthetize audiences with their slide shows.

A growing body of research suggests that, far from illuminating people's thoughts, PowerPoint actually obscures them. And now a debate is brewing across government as PowerPoint critics and adherents ask, "Is this any way for us to communicate?" Considering the momentous deliberations in which PowerPoint is employed, it's not such a bad question.

## **Slide Rules**

Recently, Edward Tufte, Yale professor emeritus of political science, computer science and statistics, helped make PowerPoint-bashing popular with this unflattering thesis: Most PowerPoint users are drawn to it because they're stupid.

In a 27-page treatise published last year, Tufte argued, sans bullet points, that PowerPoint's unsophisticated design attracts shallow thinkers. For example, it encourages supplanting already brief text with stock illustrations known as "clip art," a convenient way to avoid complete sentences and punctuation.

PowerPoint is designed to think for its users. Its selling feature, the Auto Content Wizard, tells presenters how to position bullet points - usually not more than three to five per slide - and offers prefabricated subject headings such as "Vision Statement," "Goals and Objectives" and "How Did We Get Here?" Limited slide space doesn't allow much elaboration on broad topics.

Tufte seized on PowerPoint's limiting "cognitive style," which he says:

- Suffocates evidence and thought with bullet points;
- Makes it difficult to print much data on a slide;
- And offers little opportunity for intellectual digression, since slides are presented in sequence.

The result, Tufte writes in *The Cognitive Style of PowerPoint* (Graphics Press LLC, 2003), are slick pamphlets that turn serious discussions "into a sales pitch." PowerPoint cannot convey complex ideas, he argues. And in government, where many ideas are complex, that can be dangerous.

Before Tufte began his PowerPoint crusade, he created an academic discipline to study how people interpret visual information. His books, such as *The Visual Display of Quantitative Information* (Graphics Press, 2001), are bibles, not just for serious-minded designers, but for

anyone interested in how people receive messages, from architects to commercial illustrators to map makers. So, when Tufte says PowerPoint's visual style encourages "generic, mushy, simplistic thought," people listen.

Some of them run NASA. Soon after the loss of *Columbia*, Tufte filed a Freedom of Information Act request for PowerPoint briefings pertaining to the flight. Among those he received were three briefings to NASA senior managers by contract engineers with the Boeing Co. about possible damage to *Columbia*'s wing, caused by impact with foam debris.

Tufte was aghast. The slides were a muddle of banner headings and bullet points. Important findings were buried in subheadings. Information in data tables was squished into tight cells, making it hard to read. The engineers wrote in a mishmash of acronyms and parenthetical notes that didn't clearly convey that *Columbia* was in danger.

"I couldn't believe it," Tufte recalls. So he posted the slides on the Internet.

The members of the *Columbia* Accident Investigation Board couldn't believe it either. Their final report cited Tufte's analysis and excoriated NASA for favoring slides over prosaic explanations.

The investigators singled out one slide that proved pivotal in the failure of NASA executives to grasp *Columbia*'s jeopardy. It is classically bad PowerPoint, a "festival of bureaucratic hyper-rationalism," Tufte writes. It contains six levels of hierarchy: A banner title followed by a big bullet point, a dash, a diamond and a little bullet point to denote subpoints, and finally, a set of parentheses.

"It is easy to understand how a senior manager might read this PowerPoint slide and not realize that it addresses a life-threatening situation," the Columbia investigators wrote. "The board views the endemic use of PowerPoint briefing slides instead of technical papers as an illustration of the problematic methods of communication at NASA."

Today, PowerPoint briefings are sometimes banned at the space agency. For some technical reports, engineers and scientists must write their findings on paper in narrative style, which they did more often before PowerPoint became popular.

Tufte has given lectures to NASA managers, and they've adopted some of his theories, says Ralph Roe, director of the Engineering and Safety Center, an independent group created to root out safety risks following *Columbia*'s disintegration. "PowerPoint is good for briefing and highlighting . . . and for status reports," Roe says. "But we shouldn't neglect to have, in the case of technical work, an engineering or scientific report that is always available to back that up. . . . The processes you go through in writing things out in long form add some rigor. You come up with a better product in the end."

NASA executives drew unintended conclusions from the *Columbia* engineers' bullet points. But if those points had been described in detail, Roe thinks it's more likely that the executives would have comprehended them.

## Stop Thinking

It's no accident that PowerPoint slides often are thin on content. Over time, Microsoft developers have added visual effects such as clip art, borders and larger fonts that leave less room for words.

Developers also have searched for ways to help presenters rely less on their own creativity. Indeed, the Auto Content Wizard was developed in the mid-1990s when users complained of writer's block when they stared at blank slides. As Ian Parker noted in a history of PowerPoint in the May 28, 2001, issue of *The New Yorker* magazine, a Microsoft developer jokingly offered a solution: "What we need is some automatic content! Punch the button and you'll have a presentation." Auto Content was born, "a rare example," Parker wrote, "of a product named in outright mockery of its target customers."

Gradually, more elaborate visual and sound effects have almost done away with the need for presenters. An entire industry of PowerPoint "plug-ins" has emerged. For instance, Right Seat Inc., a Golden, Colo., company, makes a product called Vox Proxy that inserts animated, talking characters into slides. There's a character for every audience, such as Tom, a tall, dark-haired, vanilla Everyman. But there are zanier actors, such as Squidge, a green-eyed goblin with enormous ears, and Marge, a biped dinosaur-like creature that wears a green necklace and a dress. Right Seat executives say Vox Proxy characters spice up otherwise boring PowerPoint presentations. The plug-ins have been purchased by 37 federal organizations or agencies, including the Air Force, the Bureau of Prisons and the FBI.

The success of other PowerPoint augmenters indicates that many presenters find slides, on their own, too boring to keep an audience engaged. But viewers often complain about special effects overkill, such as darting arrows to emphasize words, or cameos by a faceless stick figure, called a Screen Bean, which sports a question mark or light bulb over its head to denote uncertainty or a "bright idea."

"Whenever I see clip art and special effects, I immediately don't trust the speaker because I think he's covering for the fact that he has nothing to say," says a Washington trade association executive who has witnessed numerous PowerPoint briefings by officials from the Health and Human Services Department. Usually they cover complicated topics such as compliance with federal health-care regulations, but that doesn't stop presenters from trying to convey their points with technological acrobatics.

Aside from distracting viewers, special effects tend to obscure the facts that lie beneath them. In his chronicle of the lead-up to war in Iraq, Bob Woodward of *The Washington Post* recounts the briefing that President Bush received from Gen. Tommy Franks on his options for invasion. Franks "presented a chart in the form of a matrix with 'slices' of regime power listed along the top, or horizontal axis, and the 'lines of operations' along the side, or vertical axis," Woodward writes in *Plan of Attack* (Simon & Schuster, 2004).

At key intersections, "little graphic explosions or starbursts indicated where particular 'lines of operations' could be effectively employed against 'slices' of regime vulnerability," such as bombing key leadership or security facilities, Woodward reports. "The president was taken with

the concept that force could be applied selectively and carefully across the different slices. . . . [But] in an interview two years later, Bush specifically recalled 'the little starbursts' on the matrix but not much of the detail."

## **Fake Learning**

The president's failure to recall detail is a common occurrence for people who try to learn from slides. Michael Miller, chief technology officer of the National Defense University's Information Resource Management College and a cognitive psychologist by training, says people who are shown a presentation years after first seeing it can usually recognize particular slides. But when asked to recall what the slides said, they're often stumped.

How much detail someone recalls is a better measure of how much he has learned, because the information has been assimilated into his memory, Miller says. "You learned what was on the slide and can later use that information."

People learn differently - some like to read text, some prefer to listen to a speaker - but there are no shortcuts to comprehension. And PowerPoint is all about shortcuts, he says.

The program makes things easy for the presenter, not the audience, Miller explains. Take bullet points. Ordinarily, a speaker might write down, for his own use, a series of points he wants to make, Miller says. But his audience expects him to fill in the data between those points since, on their own, they make sense to no one but the speaker.

But PowerPoint encourages speakers to present just the notes, passing them off as a finished product, Miller says. Put another way, PowerPoint lulls its users into thinking they've actually communicated by projecting their notes on a screen, reading them aloud and then distributing them on paper so people can take them home. "It's the illusion of education," Miller says.

Many of the National Defense University's professors are PowerPoint addicts, Miller says. To keep PowerPoint out of the classroom, professors must expand their lecture slides into prose. Miller says a four-slide presentation could yield 10 pages of course material, which can be posted on the Internet, handed out in packets, or taught in the classroom.

## **Don't Blame the Messenger**

Although many people love to hate Power-Point, a countermovement is growing among communications experts who say it's not an inherently bad device. They defend PowerPoint's use in moderation, and put the onus on users to tame its stupefying tendencies.

Lead critic Tufte rightly criticizes PowerPoint's reliance on bullets, the sequential presentation of slides, and features such as Auto Content, says Karl Keller, a principal with consulting firm Communication Partners in Evanston, Ill., who wrote a retort to Tufte's essay last October. Tufte fails to recognize that, with some mental elbow grease, PowerPoint can be a decent tool for displaying information, Keller says.

In his essay, Keller retooled the infamous slide presented by Boeing engineers into an arguably clearer format. He also crafted coherent data tables and dropped them into slides, to show that PowerPoint can deliver cogent data.

Of course, that all requires a higher level of independent thinking than PowerPoint encourages. But is the program to blame for its users being intellectually lazy?

"People who just read slides are just poor speakers in the first place. It has nothing to do with PowerPoint," says Annetta Cheek, who holds the rare but official title of plain language coordinator for the Federal Aviation Administration and leads an interagency seminar on clear writing for federal employees. "If they had note cards in front of them, they'd just be reading those."

Cheek, a PowerPoint user, says people can learn to write better - and thus give better presentations - but that government employees face particular challenges. "Writing in government is often turgid, overly complex, puffed up with a lot of extra words," Cheek says. "I think a lot of federal writing doesn't say anything."

And since PowerPoint slides often don't say much either, people should use them to only supplement presentations, and should focus their energy on learning to write better, Cheek says.

Paradoxically, a major weakness in government writing is something PowerPoint presumably could correct: It's too long. In federal writing and presentations, Cheek says, "There seems to be a feeling that if it's short, there must be something wrong." But rather than learn to write tersely, presenters often paste unnecessary content into their presentations - such as passages from laws or regulations - that adds little of substance and is hard to read if you're sitting far from the screen, Cheek says.

PowerPoint's critics and defenders agree that most people are capable of articulating, and that if they think about what they want to say before they boot up their slide maker, their innate Auto Content device might guide them.

But they also concur that this requires something PowerPoint is designed to avoid: hard work, preparation and the courage to stand by one's words. "Shy presenters like [PowerPoint] because they can stand in the dark, next to the screen, and they don't have to look at the audience," Tufte says. "They look at the screen. And the audience looks at the screen. And they can hide in the dark."

Unless people make themselves the masters of their words, Tufte and others say, their points will stay hidden, as well