

PowerPoint | A Cognitive Perspective

Introduction

Every day in countless offices, conference rooms and meeting halls speakers step in front of an audience armed with their PowerPoint presentation. Amazingly, very few of these speakers consider or understand how their audience actually receives information. This paper examines why cognitive process can determine the success of any presentation and how understanding this process leads to more effective communication using PowerPoint.

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PowerPoint is pervasive

Microsoft estimates that there are over 400 million people using Microsoft Office with PowerPoint on their desktop. It's commonly accepted that PowerPoint presenters are churning out 30 million slides a day. In businesses, schools, public agencies and any other presentation setting PowerPoint is an inescapable fact of life.

Since the launch of PowerPoint in 1987 there have been hundreds if not thousands of books and essays dedicated to its use. Opinions regarding the pros and cons of PowerPoint are abundant. Supporters and detractors alike do agree on one thing; even though so many people use PowerPoint, not many do it well.

PowerPoint imposes a structured presentation style

Edward Tufte, Professor Emeritus at Yale University has authored an extensive body of work concerning the visual display of complex data. He believes that PowerPoint is deficient for presenting high density scientific data in what he calls "*serious*" presentations.

Even more troubling for Tufte is his view that PowerPoint imposes its own cognitive communication style. Presenters are automatically led down the path of rigid hierarchical information segmentation and relentless sequentiality. Communication is reduced to series of incomplete thoughts delivered in the all too familiar bullet



point regimentation. The reliance on templates and adherence to typical rules for how many bullets per slide and how many words to a line just exacerbates the problem.

There are certainly times when PowerPoint is not the appropriate way to convey information, but in general, PowerPoint can be an excellent visual medium when one is not heavily influenced by the inherent cognitive style.

Tufte advocates that an appropriate metaphor for presentations is “*good teaching*,” which is not exemplified by slides full of nested bullet points read to an audience verbatim.

Science calls for change

In his book *Multimedia Learning*, Richard Mayer, Professor of Psychology at the University of California in Santa Barbara, chronicles his ground-breaking research on the subject.

Mayer defines multimedia as “*presentation of material using both words and pictures*.” By this definition PowerPoint is clearly multimedia. And if presentations are a form of teaching then it follows that understanding how people learn from multimedia becomes important. Mayer’s research shows that the structure of a typical PowerPoint presentation actually presents a barrier to audience comprehension.

The research tests two cognitive models for multimedia learning, multimedia learning as information acquisition, and multimedia learning as knowledge construction.

Information acquisition learning assumes information is a commodity that is simply moved from one place to another. When the information acquisition model is applied to a PowerPoint presentation, members of the audience are passive empty vessels and the presenter pours in the information where it is immediately stored in unlimited long term memory with no cognitive processing.

Knowledge construction learning is a sense-making activity. In this model the audience members are active listeners that organize and integrate presented material into a coherent mental representation during the presentation.

Mayer’s research suggests that knowledge construction is the accurate model. In a series of studies Mayer developed and tested his cognitive theory for Multimedia learning. The theory states that people receive information on two channels verbal/auditory and pictorial/visual. Information received through these channels is actively processed in a limited capacity working memory area before it is added to the knowledge stored in high capacity long-term memory. Optimal learning occurs when pictures and spoken words are presented simultaneously during multimedia presentations.

During a PowerPoint presentation everything shown on a slide is taken in through the visual channel. The presenter’s spoken words are taken in through the auditory channel. Then words

and pictures are selected, organized and integrated in working memory and reconciled with prior knowledge from long term memory before the newly constructed knowledge is finally added to long-term memory. On the surface PowerPoint seems perfectly suited to exploit Mayer's cognitive theory. This is true only when a presentation is designed and delivered using the theory's concepts.

Unfortunately typical PowerPoint slides are bulleted lists of text or a combination of bulleted lists and pictures that may or may not be relevant to the bullet points. While slides are shown the presenter often restates some or all of the text presented on the slide. This sets up some problems.

First the words on the slide are coming in through the visual channel. The visual words now have to be converted to verbal meaning and transferred to the auditory channel which takes extra time and reduces the amount of working memory available for knowledge construction. In addition the opportunity for picture processing is being wasted.

Next, the speaker's repetition of the slide text creates a *redundancy effect*. The auditory channel attempts to reconcile both the spoken words and the visually presented words which overloads the auditory channel and takes still more working memory away from knowledge construction.

The end result is that less knowledge is created and retained. Or put another way, your audience doesn't hear everything you have to say and forgets most of it. A well designed PowerPoint slide should provide visual representations of content and a scarcity of text. The visuals should not be just decorative but should support and emphasize the important points of the oration. This is consistent with another of Mayer's discoveries that superfluous decorative illustration is distracting and reduces the quality of learning.

The audience owns presentation success

Most PowerPoint presenters don't understand or consider the way that their audience receives and retains information. In *LIFE IS A SERIES OF PRESENTATIONS* written by Tony Jeary, Scott Klein then president of the \$1-billion Consumer Industries, Retail and Energy division of EDS states, *"Too many times with presentations a bunch of information is conveyed and people sit in the audience and listen and kind of nod their heads, but an hour later the audience has forgotten 80 percent of what they heard."*

Understanding how people process information and the willingness to abandon conventional PowerPoint thinking are two important steps toward more effective presentations but content itself can't be overlooked. Great visuals and delivery can't overcome content that doesn't connect with the audience. Three key elements should be taken into consideration when preparing a presentation, message, relevance and action.

Message – What will the speaker say? Why does it need to be said? Will the delivery be sincere?

Relevance – How does the presentation relate to the audience? Why will they care?

Action – What is the audience expected to know or do after the presentation?

Dave Paradi, co-author of a book on PowerPoint states in a November 2006 article in the Wall Street Journal Online that *“Executives routinely seem to be surprised that they should think about the audience before they think about what they’re going to say.”*

And it’s not just what is said; it’s *how* it is said. Brian Fugere, Chelsea Hardaway and Jon Warshawsky point out in **WHY BUSINESS PEOPLE SPEAK LIKE IDIOTS** that there is a wealth of insidious buzzwords and jargon creeping into presentations. A satire of business-speak found in the opening chapter reads, *“This is just the kind of synergistic, customer-centric, upsell-driven, churn-reducing, outside the box, customizable, strategically tactical, best-of-breed, seamlessly integrated, multi-channel thought leadership that will help our clients track to true north. Let’s fly this up the flagpole and see where the pushback is.”*

There are four traps they suggest you avoid:

The Obscurity Trap – Avoid using jargon and evasive language, speaking simply is powerful.

The Anonymity Trap – Don’t cave in to templates and conventions that aren’t really rules. Hang on to your personality.

The Hard-Sell Trap – Don’t overly accentuate the positive and pretend the negative doesn’t exist. Your audience won’t be fooled.

The Tedium Trap – Politically correct generalization is a presentation killer. Tell a story, make a joke, or share something personal. In short, acknowledge your humanity.

Another consideration is presentation structure. How many slides are best? How should they be paced? Guy Kawasaki evangelizes his 10/20/30 rule; 10 slides delivered in 20 minutes with 30 point type. This is primarily directed at people seeking venture capital from him but the message is that less is more. Rather than racing through dozens of slides at 30 seconds a slide, slow the pace and reduce the number of slides to allow two, three or more minutes on each of them.

Visually engaging slides devoid of business speak and jargon along with good pacing will connect with the audience.

Good design is important

During a 2004 interview Tad Simons, former Editor and Chief of Presentations Magazine says, *“I think PowerPoint is a fine program that gets horribly misused millions of times every day. Where we went wrong, I think is in assuming that just because PowerPoint resides on everyone’s computer, everyone can and ought to create their own presentation slides.”* Simons goes on to point out that most companies would rather save the cost of getting professionally designed visuals by having employees create their own. He believes businesses fail to consider the opportunity cost of

employees creating their own slides. “...they are willing to accept horrific slides even if the presentation is for a million dollar deal and their lousy PowerPoint slides may jeopardize their chances of winning.”

Dave Paradi conservatively estimates that bad PowerPoint presentations cost companies upwards of \$252 million a day in wasted time.

One can find help. There are professional designers and copywriters specializing in skillfully creating PowerPoint visuals based on cognitive theory. Slidework is a firm that has chosen to exclusively focus on helping clients develop engaging and effective PowerPoint presentations.

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In conclusion

PowerPoint will continue to be a dominant tool for creating and delivering presentations of all kinds. The evidence shows that the typical bullet laden slides make it difficult to absorb and retain information which is exactly the opposite of what any speaker wants.

Considering the audience point of view, developing well considered content, resisting outline structure and developing visuals that support cognitive multimedia learning theory will result in memorable presentations delivering the value that audiences expect and deserve.

About Slidework

Slidework helps business people create dynamic, successful presentations. With personalized content development, strategy, and visual design, the unique Slidework one-on-one approach ensures that content is polished, focused, understood, and retained.

