

THE SCIENCE OF EFFECTIVE POWERPOINT PRESENTATIONS

What makes a PowerPoint presentation effective? Why are some PowerPoint presentations described as being highly engaging and others infamously referred to as, “death by PowerPoint”? These are meaningful questions because your proficiency in communicating your ideas will be the determining factor in whether or not you or your ideas are embraced by others. Hillary Chura writes about this in one of her *New York Times* articles where she cites numerous examples of how a presenter’s ability to communicate was the deciding factor in whether his or her message was met with acceptance or rejection.¹ Behavioral science has established that people are influenced by both an idea and how that idea is communicated. As distinguished management expert Peter Drucker affirmed, “As soon as you move one step up from the bottom, your effectiveness depends on your ability to reach others through the spoken and written word.”²

The methodology you adopt when utilizing PowerPoint is vital because your PowerPoint presentation will shape how your content is received. PowerPoint is an important tool that, when used correctly, has been scientifically proven to increase the persuasiveness of a message. Yet, the problem lies in the fact that rarely is PowerPoint used properly.

At the Hoffeld Group, rather than speculate on how a PowerPoint presentation may be improved, everything we do is grounded in scientific research. So the question we ask is what principles from empirical science can be applied to amplify the effectiveness of a PowerPoint presentation? Research in the field of cognitive neuroscience has conclusively revealed how the human brain processes information.³ Scientific studies have also shown that the way information is presented significantly influences the brain’s comprehension and retention rate. PowerPoint presentations are often so poorly executed that they actually obstruct the brain’s cognition of the material being presented. Though there is an abundance of research that could be shared, the following are two highly relevant scientific principles that if adhered to will significantly increase the brain’s absorption of PowerPoint presentations.

Scientific Principle #1: The Human Brain Has Limited Cognitive Abilities

Scientific research has confirmed that the human brain has the mental capacity to process only a limited amount of information at any given time.^{4 5 6} In fact, there is a general consensus within the scientific community that after the brain’s threshold is surpassed its capacity to cognitively grasp information is severely diminished. For instance, George Miller, the great cognitive psychologist, wrote about the brain’s limited capacity to be attentive to and process information in his famous article, “The magical number seven, plus or minus two: some limits of our capacity for processing information” which was published in the *Psychological Review*. Miller demonstrated how the brain can only grasp a small amount of information at one time. This is why phone numbers, excluding area codes, are only seven digits. Scientists maintain that if phone numbers were more than seven numerals they would be forgotten with far greater frequency.

In spite of this reality, the typical PowerPoint presentation contains nearly 40 words per slide.⁷ The wordiness of most PowerPoint slides actually thwarts its persuasive impact and produces a dangerous mix of boredom and confusion in those who are subjected to it.

The reason that most PowerPoint slides are unnecessarily complex and exhibit an irresponsible dependence on text is because most presenters use PowerPoint as their presentation notes. Frequently, PowerPoint slides are even read by the presenter to the audience during the presentation. In contrast to this naïve and detrimental approach, PowerPoint slides should always be designed for the purpose of enriching the audience's understanding of the content being communicated. In short, due to the fact that the brain can only process a small amount of information at once, keep your PowerPoint slides uncomplicated and use text sparingly.

Scientific Principle #2: The Picture Superiority Effect

The second scientific principle that can transform a PowerPoint presentation from dull and bewildering to engaging and memorable is known as the Picture Superiority Effect. The Picture Superiority Effect is the scientific construct that describes how the human brain thinks in terms of pictures and therefore pictures are more easily understood and remembered than words.^{8 9} As neuroscientist John Medina writes, “To our cortex, unnervingly, there is no such thing as words.”¹⁰ When the human brain encounters a word it links the word to its corresponding picture. It is because of this fact that learning and retention can be improved by explaining a concept with pictures, instead of just words. This fact has been validated through numerous scientific studies. For example, educational psychologist Kirsten Butcher published research in the *Journal of Educational Psychology* which demonstrated that people learn complex data with less difficulty when words and visual illustrations are used, in comparison to only text.¹¹ Dr. Richard Mayer, an educational psychologist at the University of California echoes this notion when he stated, “Learners can more easily understand material when it is presented in both words and pictures.” Mayer further elaborates on this fact when he asserts, “When giving a multimedia explanation, present words as auditory narration rather than visual on-screen text.”¹² What's more, neuroscientist John Medina confirms, “Text and oral presentation are not just less efficient than pictures for retaining certain types of information; they are way less efficient. If information is presented orally, people remember about 10 percent, tested 72 hours after exposure. That figure goes up to 65 percent if you add a picture.”¹³

Consequently, when creating PowerPoint slides, incorporate pictures to visually illustrate what you are verbally stating. This will guide you in delivering your presentation in a way that is in line with how the brain encodes, stores and retrieves information.

In summary, resolve to only produce PowerPoint presentations that are in harmony with what science has revealed about the human brain. This will make your presentations more effective and you will find that your audience will respond more favorably to both you and the ideas you are conveying.

About the Author

David Hoffeld is CEO of the Hoffeld Group, a research based sales training, coaching and consulting firm that is the leader in the integration of proven science and sales. The Hoffeld Group takes the repeatable and predictable principles, which science has proven to create and enable influence, out of the laboratory and academic journals and apply them to selling. For a deeper look at the Hoffeld Group's groundbreaking research and innovative sales strategies visit HoffeldGroup.com.

Notes

1. Hillary Chura. "Um, Uh, Like Call in the Speech Coach." *New York Times*, January 11, 2007.
2. Peter Drucker. "How to be an employee." *Fortune*, May, 1952.
3. L. Cozolino and S. Sprokay. "Neuroscience and Adult Learning." In S. Johnson and K. Taylor (eds.), *The Neuroscience of Adult Learning*. New Directions for Adult and Continuing Education, no. 110. (San Francisco: Jossey-Bass, 2006).
4. H. Pashler. "Dual-task interference in simple tasks: Data and theory." *Psychological Bulletin*, 116, 1994. p. 220 – 224.
5. J. Deese. "On the Prediction of Occurrence of Particular Verbal Intrusions in Immediate Recall." *Journal of Experimental Psychology* 58, 1959. p. 17 – 22.
6. Shenna Iyengar and Mark Lepper. "When Choice is Demotivating: Can One Desire Too Much of a Good Thing?" *Journal of Personality and Social Psychology*, vol 79, 2000. p. 995 – 1006.
7. John Medina. *Brain Rules*. (Seattle: Pear Press, 2008). p. 239.
8. W.E. Hockley. "The picture superiority effect in associative recognition." *Memory & Cognition*, 36, 2008. p. 1351 – 1359.
9. G. Stenberg. "Conceptual and perceptual factors in the picture superiority effect." *European Journal of Cognitive Psychology*, 18, 2006. p. 813 – 847.
10. John Medina. *Brain Rules*. (Seattle: Pear Press, 2008). p. 234.
11. Kirsten Butcher. "Learning form text and diagrams: Promoting mental model development and inference generation." *Journal of Educational Psychology*, 98, 2006. p. 182 – 197.
12. Richard Mayer and Roxana Moreno. *A Cognitive Theory of Multimedia Learning: Implications for Design Principle*. (University of California, Santa Barbara: unm.edu/~moreno/pdfs/chi.pdf accessed: January 30th, 2009).
13. John Medina. *Brain Rules*. (Seattle: Pear Press, 2008). p. 234.