

HELP STUDENTS REMEMBER MORE BY CHANGING YOUR SLIDE DESIGN

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TRADITIONAL DESIGN

When it's time to design presentations for your online (or face-to-face) courses, it's tempting to use the pre-formatted slides in PowerPoint. The pre-formatted bullet point slides are convenient, easy to use, and the fact that style has been the default setup since 1990 conveys that this must be a good way to present information. It's common for instructors to break free from the original bullet point slide by adding pictures alongside the bullets, using fewer words, adding slide animations or sound effects, or add blanks to the slides to help students with learning. These are steps in the right direction, yet there is potential to more skillfully use PowerPoint to mentally engage your students and help them remember more content.

In fact, there is a scientifically-supported presentation style that is backed by well-established and accepted learning theories. If you're continually hoping students remember more content from your lectures and you have the time, opportunity, and motivation to change your slides, keep reading!



COGNITIVE THEORY OF MULTIMEDIA LEARNING

The current recommendations for slide setup begin with the Cognitive Theory of Multimedia Learning. The premise of this theory includes ideas you may already be familiar with—the idea that students can take in information through multiple senses (or “channels”), that those senses have a limited capacity, and that learning must be an active process.

Richard E. Mayer proposed that the best teaching methods will carefully manage the flow of essential information and encourage students to form their own webs of inter-related information through the use of visual or auditory means.

The “channels” students rely on to learn new lecture information is largely auditory (what they hear in the narration) and visual (what they see on the slides, whiteboard, or computer screen recording). While it would be helpful to have an unlimited ability to take information into these channels, it turns out that there’s a limit to how much information humans can store across these two channels at one time (the notion of “cognitive load”). For instance, if there’s too much visually on a slide and the narration simultaneously contains too much information, students are unlikely to retain the content. When less information is presented at one time, students are more likely to remember the information because those channels are not over-burdened. The final piece of the Cognitive Theory of Multimedia Learning is that learning must be an active process where students filter, select, organize, and integrate information into pre-existing knowledge of the topic or similar topics.

Richard E. Mayer proposed that the best teaching methods will reduce excess information processing (that is, will not cause an excessive “cognitive load”). Meanwhile, the best teaching methods will carefully

manage the flow of essential information and encourage students to form their own webs of inter-related information through the use of visual or auditory means. How this could be accomplished would later become known as the assertion-evidence model or the “sentence headline” structure.

Time and time again, research studies support the use of the assertion-evidence model because it positively impacts audience comprehension (Garner & Alley, 2013; Garner, Alley, and Aippersbach, 2016; Alley & Neeley, 2005; Garner, Alley, Gaudelli, and Zappe, 2009). The ability of the assertion-evidence model to call out important information and provide visual evidence appears to help with cognitive load issues while challenging the audience to construct meaningful connections that result in longer-term retention of the information.

INTRODUCING THE ASSERTION-EVIDENCE MODEL

The assertion-evidence model is aptly named because the slide asserts a fact that is then supported with evidence on the rest of the slide. This, in and of itself, is a fairly easy concept to grasp, but potentially challenging to implement the first couple times. It requires a sentence statement at the top of the slide and careful selection of information for the rest of the slide that will help compel your learners to conclude the assertion at the top of the slide is correct and why it is correct.

One of the most difficult aspects of the assertion-evidence model is that the evidence is largely intended to be image-based. However, it’s not just any image that can be included. The image must help demonstrate the assertion in a way that provides more meaning and understanding to the assertion.


WHAT THIS LOOKS LIKE IN REAL LIFE

1. Presume you are beginning with slides you created in the past. Maybe your slide looks something like this:

Annuals

- Go from “seed to seed”
- Invest very little into
 - Leaves
 - Roots
 - Shoots
- Invest most of their energy into
 - Seeds
 - More seeds

• This survival strategy focuses on the production of many offspring and little investment in long-term survival of the matured plant



2. **Create the headline.** To begin revamping your slides, identify the main takeaway you want students to have from the slide. Replace the title of your slide with a one-sentence summary of what you want students to know. Limit this sentence to just two lines at the top of your slide.

The survival strategy for annuals is to invest in seed production, not long-term structures

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3. **Find pictures to demonstrate your ideas.** Reduce the number of bullets or text on your slide. Think carefully about ways you can replace those bullets with images that help demonstrate your ideas.

The survival strategy for annuals is to invest in seed production, not long-term structures

SUNFLOWER
LIFE CYCLE



4. **Add explanatory text to your image.** If you need to, add text around or within your images to provide clarification. The idea is that you will show students what you mean rather than require students to create mental images of what you mean.

The survival strategy for annuals is to invest in seed production, not long-term structures



5. **Animate your slides.** You can reduce cognitive load (that is, how much information is available at one time on your slides) through the use of animations which reveal only one or two items on your slide at a time. For instance, our sunflower slide example could benefit from 2-3 animations that reveal 1) the arrow along the bottom of the screen and the associated text box 2) the arrow pointing to the roots and the associated text box 3) the arrow and associated text box that reflect the cycle of the sunflower.

When properly created, PowerPoints created with the assertion-evidence model will contain no less information than bullet point slides. The main difference in your slides will be a shift from requiring students to interpret what you want them to learn about the slide to a clear indication of what they need to know and the visual structure with which to remember the evidence that supports the fact.

To read more about Richard E. Mayer's ideas, visit the Learning Theories webpage on [Cognitive Theory of Multimedia Learning](#) or watch [Richard E. Mayer](#) explain his slide design.

Alley, M., & Neeley, K. A. (2005). Rethinking the design of presentation slides: A case for sentence headlines and visual evidence. *Technical communication*, 52(4), 417-426.

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