So, you're preparing a presentation, for in-person or online learning.

Before doing the typical things, please consider the evidence for designing presentations for learning

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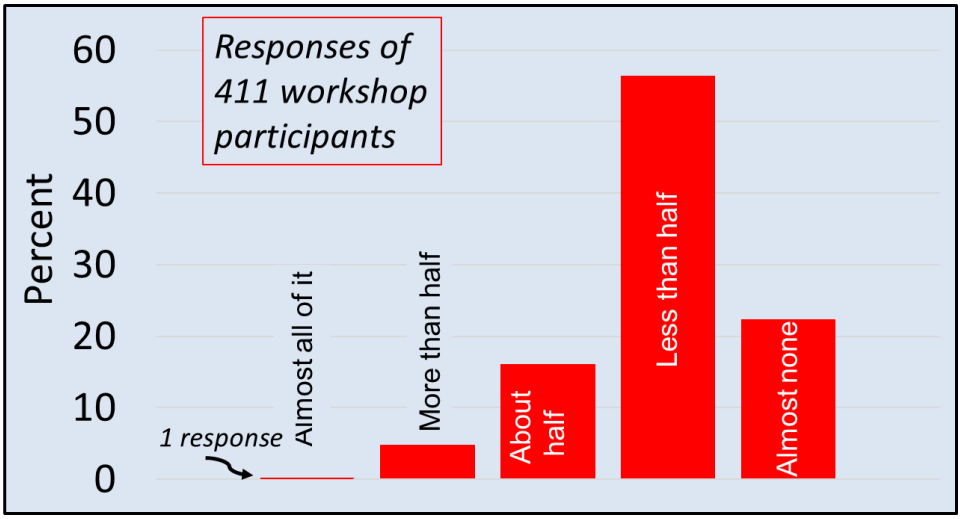
We've asked more than 400 HSC faculty *"How much information do you think you recall two days after attending a one-hour lecture?*

What would your honest answer be?

Do you want your audience learners to remember more than half of what you present?

What learning return do you desire for your investment time to create and deliver the presentation?



A review of the literature on presentations in CME-earning conferences, grand rounds, M&Ms, etc., by Hannah Smith and colleagues found the highest positive association with *interactive learning* and use of *audience response systems*. Also highly ranked were *coherent communication* style and the use of *image-based slides*.

Decades of research on learning processes and strategies along with surveys of presentation audiences inform the best practices for designing your presentation so that your audience learns and, if intended, pursues new behaviors. This research points to the importance of engaging the audience to actively learn (*yes, even when they are viewing an online resource*) and to adopt evidence-based design of presentation slides to avoid cognitive-load erosion of learning.

More than 300 attendees of the CPL workshop, *Transforming Your Lectures*, list the elements of presentations that made positive or negative impressions. Across more than 20 workshops, the same items are mentioned *every* time.

Negative

Slides are full of text

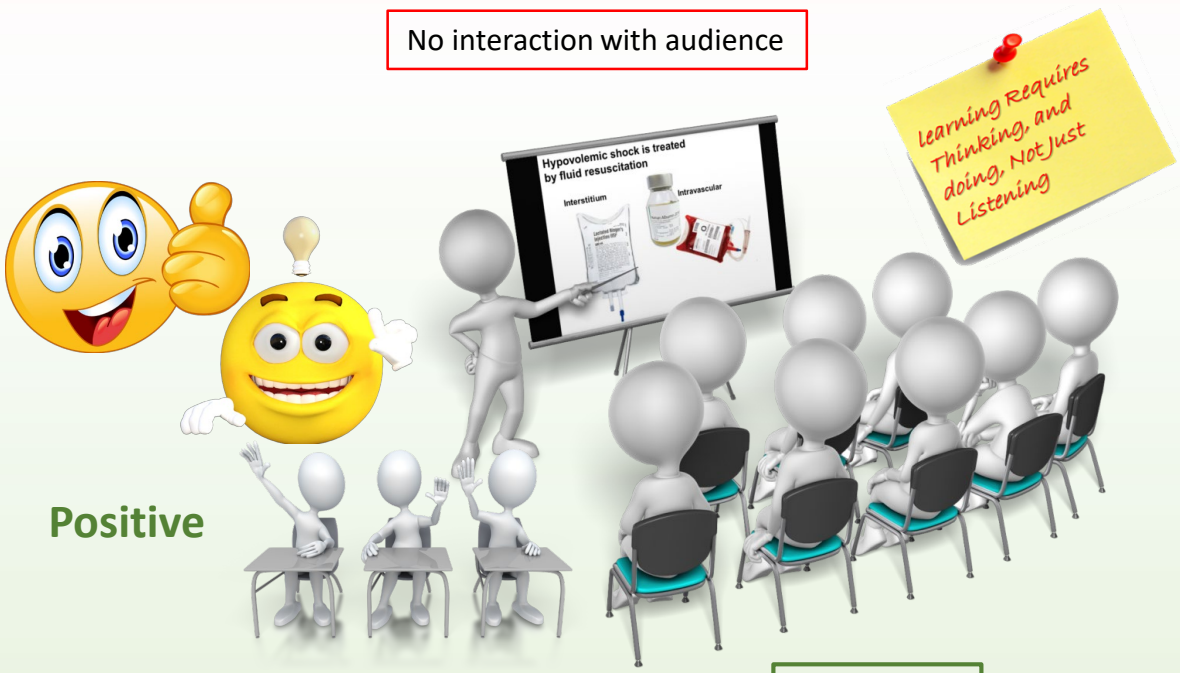
Too much information on each slide

Illegible slides

Presenter just says what's written on the slide

Distracting colors and logos

No interaction with audience



Positive

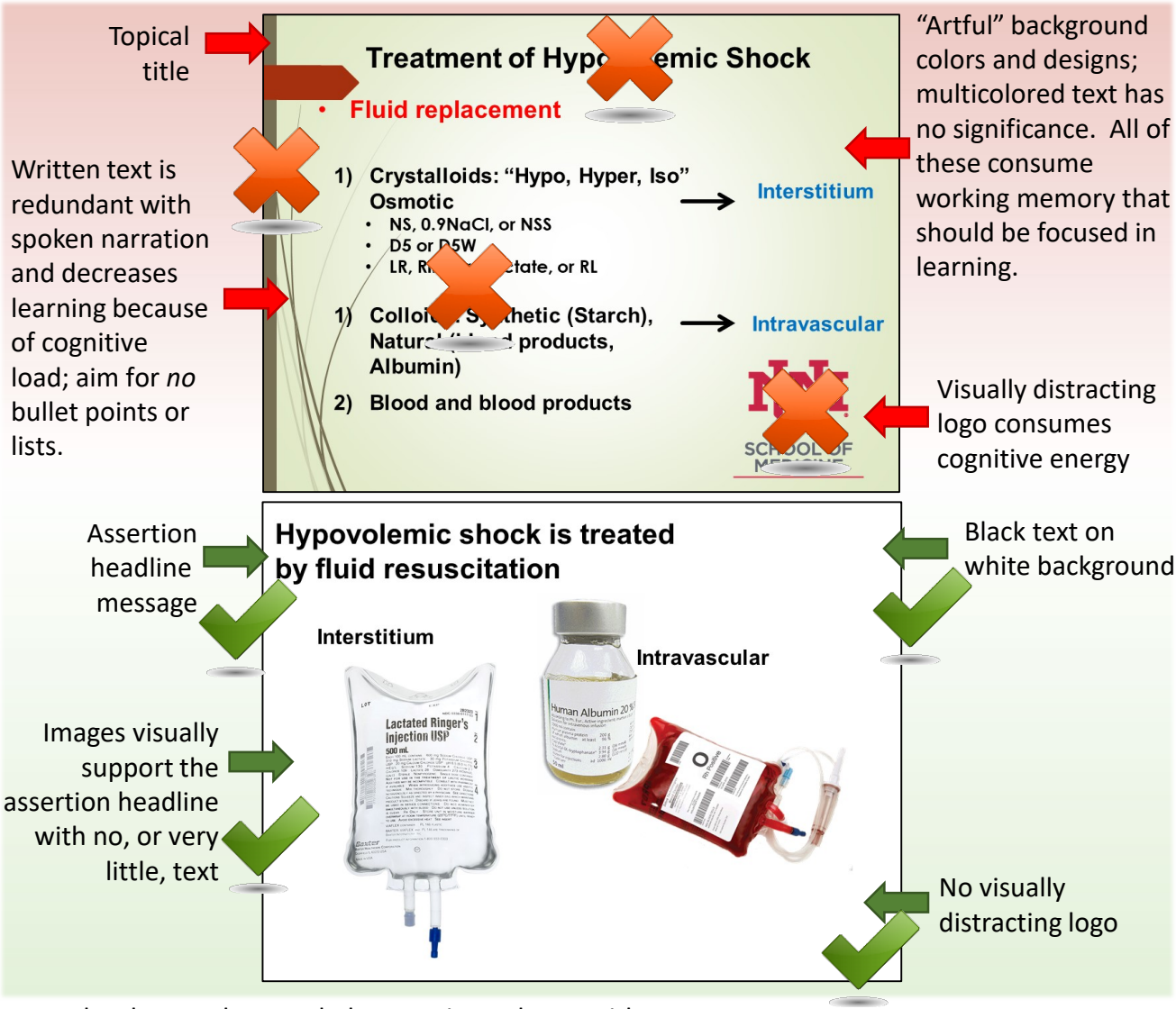
Use effective images instead of text

Simple slides

Participants engage with each other and/or presenter

Presenter explains rather than reads slides

Research encapsulated by *cognitive load theory* and the *cognitive theory of multimedia* leads to the *Assertion-Evidence Model* for creating presentation slides (learn the details and supporting research evidence for enhanced learning at: https://www.assertion-evidence.com/)



Research shows that verbal narration along with written text on a slide diminishes learning compared to verbal narration with an accompanying visual representation or even no text or no narration at all. *Say it, don't write it and link the message to something visual.*

The human brain is accustomed to processing text as black fonts on white background; other schemes consume working memory that should be allocated for learning from the slide and the speaker.

Any image or color that is not relevant to learning the presentation content is detrimental to that learning.

The essence of the Assertion-Evidence Model:

"Build presentations around messages, not topics.

"Support messages with visuals, not bullets.

"To present that evidence, fashion sentences on the spot."

- Michael Alley, Pennsylvania State Univ., assertion-evidence.com

Checklist for Effective Educational Lectures

Gary A. Smith
UNM Office for Continuous Professional Learning
2020

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Organization[1,2]

- ☐ *A hook starts off the presentation*; an unexpected fact, story, case, etc., that grabs the audience attention and makes them want to know more
- ☐ *Objectives (outcomes) stated near (but not necessarily at) the beginning* to activate expectations and trigger metacognition. Objectives are most effective when stated from the learner perspective (e.g., "After completion of this topic, students will [know, be able to do, believe differently about]…")
- ☐ *Objectives are limited in number* (recommend no more than four per hour-long presentation) to avoid cognitive overload of novice learners. [To achieve more objectives, divide the presentation into multiple, self-contained, shorter presentations.]
- ☐ *A "Roadmap" or "Agenda", provided as a list or diagram, provides an advance organizer to the audience of the ordered topics and events that comprise the presentation. The agenda differs from the objectives; objectives inform intended learning outcomes (the "what") whereas the agenda informs the process (the "how")*
- ☐ *Presentation* length, number of topics, terminology, illustrations, and engagement activities are *designed for a novice or emerging* expert and not for an expert peer in order to avoid overloading of working memory
- ☐ *The presentation purposely initiates engagement* of all audience learners (e.g., clicker questions, think/write-pair-share, inclusive discussion, case-based problem solving) in order to deepen understanding through significant use of working memory and to activate prior knowledge for integration with new concepts and knowledge; help learners "see it for themselves"
- ☐ *Clear conclusion* shows connections to the stated objectives

Slide format/components [1,3,4,5]

- ☐ Slide color scheme provides contrast for easy reading that reduces cognitive load, and does not produce eye strain; white background with mostly black text is best (also contributes to brightening rather than darkening the room). Be watchful of noncontrasting color combinations for those with color blindness (https://www.color-blindness.com/coblis-color-blindness-simulator/)
- ☐ Build the presentation as *messages*, not topics, supported by *visuals*, not bullets.
- ☐ Slides are constructed with 1-to-2-line *assertion* statements as titles (28 pt is sufficiently large for most rooms and screens) followed by supporting *evidence*. "Evidence" includes *relevant* illustrations, data plots, etc., to enhance visual memory, with limited use of text
- ☐ Bulleted text and lists are avoided in the body of the slide; minimal text supports visual aids, or text is arranged on the slide to illustrate connections between concepts/facts rather than as lists or sentences to be read
- ☐ Illustrations are *entirely relevant* for supporting visual learning of the content and reinforcing thought processes and are not used as "filler" that may distract the learner (leave off logos and branding colors except on title and conclusions slides)

- ☐ Slide components have no, or limited, animation to avoid visual distraction (*unless* animated to show a process or to sequentially reveal components)
- ☐ Break lists, steps, or multiple ideas into separate slides or sequentially reveal them on a single slide by simple (e.g., appear, fade) animation so that the visual focus is not dispersed across multiple slide elements other than what the speaker is referring to in the moment.

Memorable Elements - "Make it Sticky" [2]

- ☐ *Simple* - Contains a memorable *core message* of 8 words or less, included on your title slide, referred to as often as possible and returned to at the conclusion; this is the essential take-home statement that will trigger audience memory of your presentation in the future
- ☐ *Unexpected* – Introduces the topic in a distinctive or memorable way with an attention-grabbing demonstration, counter-intuitive finding, example/case that demonstrates a knowledge gap, etc., that stimulates the attention of the listener
- ☐ *Concrete* – Includes meaningful examples drawn from authentic contexts that clarify abstract ideas and permit the learner to connect new knowledge with previous knowledge, primarily through interactivity
- ☐ *Credible* – Creates conditions to deepen learner believability through data, persuasive arguments, and/or connections to audience experiences
- ☐ *Emotional* – Links the content to something that the audience cares about; shared goals motivate attention and interest
- ☐ *Stories* - Includes a relevant story that sharpens attention on the core message; storytelling of relevant, real-life events draws an audience into a presentation and deepens understanding.

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[1] *Nine* Ways to Reduce Cognitive Load in Multimedia Learning, R. Mayer and R. Moreno, *Educational Psychologist*, 38(1), 43-52, 2010

[2] *Made to Stick: Why Some Ideas Survive and Others Die*, C. Heath and D. Heath, Random House, 2007

[3] How the Design of Presentation Slides Affects Audience Comprehension: A Case for the Assertion-Evidence Approach, J.K. Garner and M. P. Alley, *International Journal of Engineering Education,* 29(6), 1564-1579, 2013; and https://www.assertion-evidence.com/

[4] Teaching for Understanding in Medical Classrooms Using Multimedia Design Principles, N. Issa, R.E. Mayer, et al., *Medical Education*, 47, 388-396, 2013.

[5] *The Cognitive Style of PowerPoint*, E.R. Tufte, Graphics Press, 2004

Keep this resource for creating effective PowerPoint presentations on your smart phone or browser favorites:
http://goto.unm.edu/pptjitl

Need to learn more?

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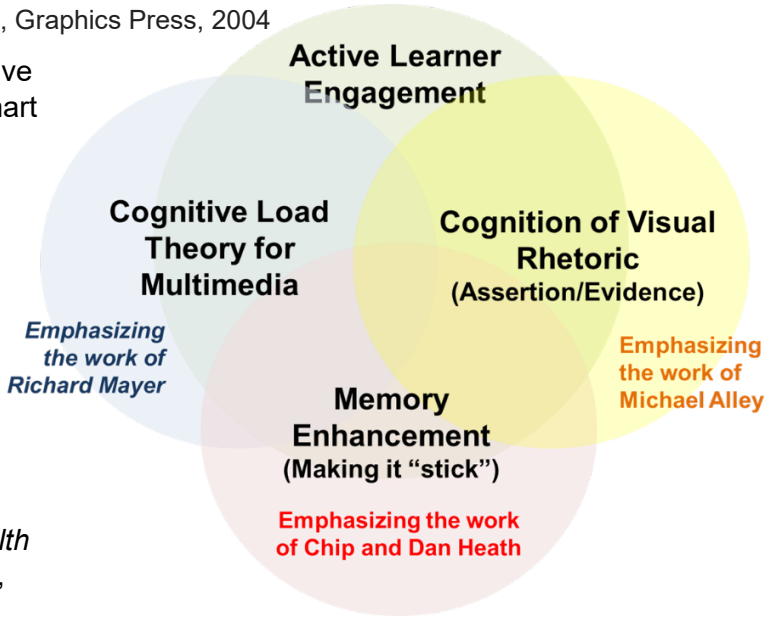
Research-Based Practices to Improve Your Didactic Presentations

More Power, Fewer Points: Evidence-Based Presentation Slide Design

Healthy Presentations: How to Craft Exceptional Lectures in Medicine, the Health Professions, and the Biomedical Sciences, by Emily P. Green, Springer, 2021



Effective Learning Requires Thinking, Not Just Listening

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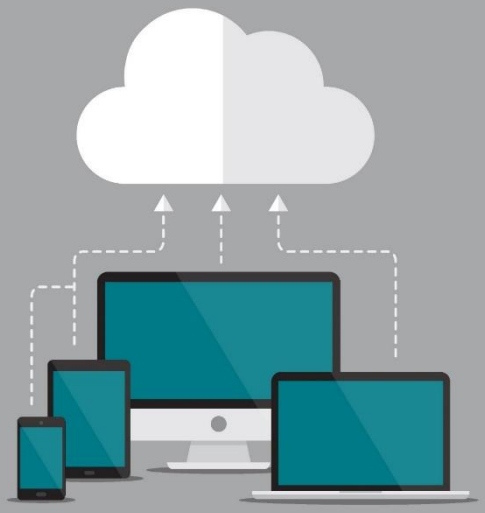

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