Using Lessons From Visual Design to Make Better Materials for Students

Short bullet points, well-designed slides, and relevant images can keep students engaged and help them remember more.

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Brain-Based Learning

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We all have guilty pleasures. Fun fonts. Rainbow colors. Moving clip art. Patterned borders. But when does design support memory and learning, and when does it get in the way? Slide design, Bitmoji classrooms, learning management system banners, document layouts, and more can all benefit from basic design theory to reinforce learning rather than disrupt it.

More Than Decoration

My students regularly share challenges they face using teacher-created learning materials. Materials can be

“wordy,” “confusing,” “hard to read,” and “boring.” But when teachers’ materials are well designed, they are “engaging,” “helpful,” “interesting,” and “easy.”

More than making things pretty, design supports learning. Use of color and images increases memory and engagement. Studies of social media use report that Twitter posts with images are three times more likely to be engaged with than messages with only text. And color can improve retention and increase the willingness to read by up to 80 percent. At the same time, it can get in the way, distracting learners from what’s important and overwhelming their brains.

Support Working Memory

Our brains can handle only so much at one time. The false belief that “more is better” often turns into “more is just more.” Following the mantra of Steve Jobs, focus and simplicity, can help manage student overwhelm in our designs.

Working memory, or our brain’s ability to hold on to

information long enough to use it and transfer it to long-term memory, has limited capacity. Considering the three types of cognitive load in every step of our design helps maximize working memory for students.

Extraneous load: Unnecessary bells and whistles, challenging navigation, and too much stuff can distract from learning. Help learners focus on what they're supposed to learn and do by keeping your design simple, clear, and consistent.

- Use bullets over paragraphs.
- Reinforce with relevant images versus "decorative" images.

Intrinsic load: Some subjects and tasks are just hard. But simplicity, chunking, and moving through tasks one step at a time can help manage intrinsic load for students. Reducing the extraneous load helps manage intrinsic load.

- Give learners bite-sized chunks of information (versus paragraphs of text, few to no examples or illustrations, and long multistep assignments without feedback).
- Break down tasks using simple rubrics and checklists.
- Provide multimodal resources such as videos alongside readings.

Germane load: Connecting learning to things we know and

creating patterns in our head are the schema that help us make sense of things. Maximizing germane load increases working memory. To maximize germane load in design,

- focus on learning outcomes and paring down until you can't trim anymore,
- use color in meaningful (and readable) ways to reinforce patterns,
- share clear instructions,
- use headings to chunk information that goes together, and
- share exemplars and review them together.

According to Jobs, "*Simple* can be harder than complex: You have to work hard to get your thinking clean to make it *simple*." Our hard work as teachers to simplify design will benefit our learners' working memory in the end.

Visual Reinforcement Improves Memory

In his multimedia principle, psychology professor Richard Mayer stated, "People learn better from words and pictures than from words alone." Forget learning styles. We all need images. But images need to be meaningful (even clip art!) and reinforce and illustrate key ideas rather than confuse or distract learners. We don't want images to get in the way of working memory. When designing slides, announcements, newsletters, or online learning modules, follow these

practices:

- Use consistent icons to trigger recall for key learning tasks.
- Choose a meaningful illustration over text (yes, we remember things better with images, even without text!). Check out this example from the Ohio Department of Health.
- Focus on your core message when choosing images and visual elements.
- (Sparingly) use signals (arrows, circles, etc.) to draw learner attention.

Simple Tips to Improve Design

When designing and building your digital materials, consider the contrast, alignment, repetition, and proximity, or C.A.R.P., principles:

- **Contrast:** Contrast in color, size/weight, direction, etc., can draw our eye to what is important. For example, headings are often bold and a different size than the rest of the text. Contrast also makes for easier reading (dark text on light background).
- **Alignment:** Alignment provides clear organization and helps our eyes go from left to right (how we read in the United States). It creates flow. We can align images, graphics, text, etc.

- **Repetition:** We can build a theme and expectations by repeating colors, icons, words, or formatting. It can also help organize information.
- **Proximity:** Putting things that go together near each other makes more sense to our brain. It also helps us remember. Putting two things near each other shows a relationship versus disconnecting them.

These slide examples show you how some quick fixes using these principles can improve slide design to manage cognitive load and support memory.

Free Templates and Tools to Get You Started

Genial.ly provides a robust platform with a wide range of interactive templates. See an example of a genial.ly for learning about World War II here.

Slides Carnival provides Google Slides and PowerPoint templates with customizable icon sets.

Google Slides offer customizable templates.

Slides Mania provides prebuilt Google Slides and PowerPoint templates with more options for teachers beyond presentations.

SlidesGo offers Google Slides and PowerPoint templates with customizable icon sets.

Adobe Spark provides templates for images, webpages, and videos. While this tool gives you limited options, you'll have just enough to do what you need to do.

Flaticon and Insert Icons offer add-ons for Google Slides and Docs to provide simple, clean, consistent icon sets to reinforce structure, processes, and learning.

Wrap Up

More than just making things pretty, teachers' attention to design detail communicates volumes—most important, what we care about, including our students. If we put a little time into learner-centered design and apply simple design principles, we can not only improve engagement and learning but communicate that we care.

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