1. [opening slide for Teaching with Audio and Visuals Part 2 -

2. Our brains are hard-wired to take in visual information and to notice difference. In an earlier presentation, we looked at how using the design principles of proximity, alignment and contrast can help students master concepts more easily. Now, we turn to a problem that plagues many content presentations… Having too much text on a single screen when you are going to talk to an audience.

3. Talking over a lot of text is a problem for learning because of a phenomenon called cognitive load. Cognitive load theory describes the mental energy needed to think about or process information. Attention to cognitive load is a critical concern for designers of instruction because our brains will generally take in visual information first and audio input second. So, when there are words on a page, students will try to read that. And, if you are talking at the same time, they probably won’t hear you. See what happens to you in the next slide…

4. Reading the slide

5. Cognitive overload happens in the face-to-face classroom as well. Professor of Theater Alan Wade tells the story of a professor who put a detailed assignment up on a screen and then began talking. Halfway through his comments, the professor said that anyone who raised their hand would not have to do the assignment… Only about a third of the students raised their hands. The rest were still reading the assignment instructions.

6. Simply put, it’s difficult for us to read and listen at the same time. In addition to concerns about split attention between reading and listening, research shows that viewers have short attention spans for attending to important information. Online this processing challenge is amplified because students are generally sitting alone in front of a computer screen, as you are doing now.

7. Generally, students will pay attention to online lectures presented in segments that are no longer
than 10 to maybe 15 minutes at a stretch.

8. The beauty of recording is that if you need more time, you can simply produce multiple segments.

9. Post these recording files in listening order in an online course and you have segments that students can listen to singly or as a group. Added benefits of short segments are students can find and review content more easily and they are easier for you to update. You have in essence, a more modular content set which can be moved and adjusted as needed. For the design of these presentations, there are a set of best practices that can help reduce cognitive load and improve student learning.

10. But First, decide whether you really need to present everything that you would normally talk about in a face-to-face classroom. Good presentations are a lot of work. Also, because of the challenges of holding student attention online, presentations are not always the best vehicle for conveying information. Perhaps you have a reading that will do just as well.

11. Would it work to have a verbal explanation without any visuals? Audio is easy to produce and is quite powerful as radio broadcasts and audio books demonstrate.

12. Also, resist the urge to use slides as notes, either for yourself or students. Notes slides are generally text-heavy because they need to be read. You don’t need them to organize a lecture, as you might in the in-person classroom, because you can create a narration script. For students, you can create notes in a Word file or PDF and post it alongside a presentation file. So, make sure you’re not exacerbating cognitive overload by confusing slides for notes with slides for online presentation.

13. Of course, there will be many content elements you want to present in your teaching of an online course. Whether to elaborate, emphasize, personalize, connect, or demonstrate…

14. Now, I want to call your attention to the fact that narrating a presentation impacts how the content
should be presented visually. Let’s look how deciding to narrate a presentation changes what you put on the visual screen.

15. Take for example the information about eye-brain processing. We could narrate over the words on this slide. There isn’t too much text on a page to create cognitive overload.

16. We can use visual design principles to add alignment and contrast. But what if...

17. We turn these slides into something more visual. This was made quickly in PowerPoint using the Smart Art feature. The differently sized and colored boxes are meant to underscore the memory process, as information goes from the smallest lightest figure for lightning-fast sensory memory, to the slightly larger and darker box for short-term memory, to the largest and darkest box for long-term memory.

18. Or we can take this illustration from Stephen Few’s book and talk about it with an audio recording. We can now point out how the two processes Sensation and Perception, represented by the large arrows at the top, relate to the physical and cognitive elements pictured below. We can explain and draw out concepts that would be hard for students to understand from readings or discussion alone, just as in a face-to-face lecture… and the cognitive load is lessened because we aren’t just talking over text.

19. In a GW example, economics professor Joseph Pelzman developed a graduate course on the digital economy for online delivery in 2010. One challenge, out of many, was how to make sure students understood the order and logistics systems for an online company, or e-business, as represented by this diagram. Students could certainly read about the process in an article. However, Professor Pelzman believed most students would have difficulty grasping the full meaning of the process without some added explanation and elaboration. Therefore, as the following slide shows, adding narration was one way of letting Prof. Pelzman explain this
process. It’s up to you how much of the next slide you listen to, but listen to enough to get a feel for how the narration adds to the content presentation.

20. [narrated version of a visual diagram]

21. To focus more on the diagram’s process, Professor Pelzman was able to make the flowchart even more engaging by adding animation. One of the best ways to get a feel for how different types of content can be presented visually and then, perhaps, with audio is to watch a lot of stuff. Watch it with an eye toward what grabs your attention in a presentation and when you find your mind wandering. Also, review tips for presentations included in our online resource.

22. An issue that you will want to consider in preparing online presentation is Accessibility for all students. All images should have ALT (or ALTERNATIVE TEXT) tags for all visuals and presentations should provide captioning or a written transcripts. See the Accessibility section of this website for details.

23. In closing, when you decide what is important to talk to students about in an online course, think about how to take as many words as possible off the screen and into your audio script. Make sure you’re not talking over so many words that you are creating cognitive overload for the viewer. Also, search out strong visuals and combine them with our PAC design principles of proximity, alignment and contrast to create content presentation that engage your students.

24. [credits]