USC Center for Excellence in Teaching

# 12 principles of multimedia learning

## WHAT IS THIS RESOURCE?

A collection of 12 research-based principles for the design and organization of multimedia presentations, such as common PowerPoint slide decks.

## HOW DO I USE IT?

Review existing presentations with the principles in mind to determine changes that could make them more effective as learning tools for students or use the principles as a guide when designing new presentations. For assistance, [please contact CET](http://cet.usc.edu/).

In the book Multimedia Learning, Richard Mayer discusses twelve principles on the design and organization of multimedia presentations that make more effective course resources to support student learning. These principles inform the delivery of course content, whether flipped course resources meant for students to view outside of class time, such as recorded lectures, or in-class course resources typically used during traditional lecture time, such as slides.

### Coherence principle

People learn better when extraneous words, pictures and sounds are excluded rather than included.

### Signaling principle

People learn better when cues that highlight the organization of the essential material are added.

### Redundancy principle

People learn better from graphics and narration than from graphics, narration and on-screen text.

### Spatial contiguity principle

People learn better when corresponding words and pictures are presented near rather than far from each other on the page or screen.

### Temporal contiguity principle

People learn better when corresponding words and pictures are presented simultaneously rather than successively.

### Segmenting principle

People learn better when a multimedia lesson is presented in user-paced segments rather than as a continuous unit.

### Pre-training principle

People learn better from a multimedia lesson when they know the names and characteristics of the main concepts.

### Modality principle

People learn better from graphics and narrations than from animation and on-screen text.

### Multimedia principle

People learn better from words and pictures than from words alone.

### Personalization principle

People learn better from multimedia lessons when words are in conversational style rather than formal style.

### Voice principle

People learn better when the narration in multimedia lessons is spoken in a friendly human voice rather than a machine voice.

### Image principle

People do not necessarily learn better from a multimedia lesson when the speaker’s image is added to the screen.

### Resources

Mayer, R. (2001). Multimedia learning. Cambridge: Cambridge University Press.