

# MAYER'S PRINCIPLES OF MULTIMEDIA

Multimedia refers to an array of media types such as text, images, audio and video content, and is used to convey meaning and enhance learning experience.

## PRINCIPLES THAT REDUCE EXTRANEOUS LOAD

(Or the cognitive effort wasted on content that doesn't support the learning goals.)



**1. THE REDUNDANCY PRINCIPLE**  
Including narration, visuals and text all at once can be overwhelming for learners and distracts them from the main message. It splits their attention across viewing graphics and reading text, as well as finding discrepancies between narration and text. Rather include only narration and visuals. If adding text, use it sparingly and avoid reading long sentences off the screen.



**2. THE SIGNALING PRINCIPLE**  
People learn better when they're guided through multiple pieces of information on screen. Direct their attention to the relevant concepts as the video progresses by highlighting key words or using arrows.



**3. THE COHERENCE PRINCIPLE**  
Extraneous information, such as decorative images or additional information that's unrelated to the learning objectives, can distract from learning. Include only the necessary information and visuals that support the learning goals.



**4. THE SPATIAL CONTIGUITY PRINCIPLE**  
Setting correlating words and visuals far apart on screen adds to the cognitive load. Show related words and visuals close together so the connection is more easily made. For example, when referring to parts of a diagram, make sure the labels are placed near to the relevant section.



**5. THE TEMPORAL CONTIGUITY PRINCIPLE**  
People learn best when the narration and its corresponding animation are played at the same time, rather than one after the other. Time your animations to match the voiceover narration.



**6. THE SEGMENTING PRINCIPLE**  
People learn best when the multimedia content is segmented, rather than continuous, and when the lesson is self-paced. Chunk the learning material coherently and include customisable video settings that allow for learners to navigate the material on their own.



**7. THE PRE-TRAINING PRINCIPLE**  
People learn best when they have some knowledge of concepts and tools before beginning the multimedia lesson. That way they have the capacity to handle more complex topics and processes. Introduce learners to key terms and definitions before they learn about a new process in the multimedia lesson.



**8. THE MODALITY PRINCIPLE**  
People learn better from a combination of pictures and narration, rather than pictures and on-screen text. As much as possible, include spoken words and visuals only. This helps with what Mayer calls "modality offloading", as it shares the cognitive load across the learners' visual and verbal channels instead of overwhelming the visual channel alone.

## PRINCIPLES THAT ENHANCE GERMANE LOAD

(Or the cognitive effort required to understand and commit the learning into your long-term memory.)



**9. THE MULTIMEDIA PRINCIPLE**  
People learn best when they see visuals and hear narration, rather than when they only listen to narration or only read text on-screen without any visuals. Include images in your multimedia that align with and clarify the narrated message, rather than functioning as purely decorative.



**10. THE PERSONALISATION PRINCIPLE**  
Formal, overly academic language can limit understanding. Keep language conversational by using personal pronouns and matching the tone of your audience. This not only helps comprehension, but improves the learners' engagement with the content.



**12. THE IMAGE PRINCIPLE**  
Including a video of the speaker on screen doesn't necessarily improve learning. Rather include relevant visuals or text on screen to enhance the learning experience.



**11. THE VOICE PRINCIPLE**  
People learn best when listening to a human voice. Narration should be recorded by a human and not a computer so that the experience is more personable.



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