

## The 12 Principles of Multimedia Learning

Whether you are designing a PowerPoint presentation, developing an online module, or preparing a flipped classroom, educational design plays a crucial role in how students engage with the material—especially in the absence of traditional face-to-face interaction. In his book *Multimedia Learning* (Cambridge University Press, 2001), Richard E. Mayer introduces twelve evidence-based principles that support the design and organization of instructional materials. These principles are grounded in how people process information and offer valuable guidance for creating learning experiences that are clear, engaging, and cognitively effective.



1. **Coherence Principle** – People learn better when extraneous words, pictures and sounds are excluded rather than included.

2. **Signaling Principle** – People learn better when cues that highlight the organization of the essential material are added.

3. **Redundancy Principle** – People learn better from graphics and narration than from graphics, narration and on-screen text.

4. **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.

5. **Temporal Contiguity Principle** – People learn better when corresponding words and pictures are presented simultaneously rather than successively.

6. **Segmenting Principle** – People learn better from a multimedia lesson is presented in user-paced segments rather than as a continuous unit.

7. **Pre-training Principle** – People learn better from a multimedia lesson when they know the names and characteristics of the main concepts.

8. **Modality Principle** – People learn better from graphics and narrations than from animation and on-screen text.

9. **Multimedia Principle** – People learn better from words and pictures than from words alone.

10. **Personalization Principle** – People learn better from multimedia lessons when words are in conversational style rather than formal style.

11. **Voice Principle** – People learn better when the narration in multimedia lessons is spoken in a friendly human voice rather than a machine voice.

12. **Image Principle** – People do not necessarily learn better from a multimedia lesson when the speaker's image is added to the screen.

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