Design Principles for Multimedia Instruction
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Spatial Contiguity
Temporal Contiguity
Coherence Principle
Modality Principle
Redundancy Principle

Underlying Assumptions
Conditions of Multimedia Effectiveness

Dual Channel
Limited Capacity
Active Cognition
  Select ➔ Organize ➔ Integrate

Straw Man: Info delivery theory
Spatial Contiguity Effect

Proximity of words & images
Form of split attention
Search-and-match resources
Eye movement analysis
Retention: 42% gain
Transfer: 68% gain

Temporal Contiguity Effect

Timing
Simultaneous not successive
“Mesh” in Working Memory
Retention: Small gain
Transfer: 60% gain
Coherence Principle

Exclude Extraneity:
- Divert attention, Selection
- Disrupt Organization
- Inappropriate Integration

‘Interesting’ details; music; summaries
Largest Effect Sizes

“Coherence” & “Relevance”

Coherence vs. ‘Spice’

Arousal Theory & Info-Delivery Theory

“When things have to be made interesting, it is because interest itself is wanting. The thing, the object, is no more interesting than before.”

- Dewey, 1913
**Modality Principle**

Dual channel, limited capacity:
- Visuals + Pictures
- Spoken + Text

Efficiency ofNarrated Animations
Retention & Transfer
Dual-channel processing increases spare capacity
Reduce overload on one channel

NB: Sometimes words work well with images

**Redundancy Principle**

Channel overload
- Animation + Narration, vs.,
- Animation + Narration + Text

Capacity limitations
Concise Narrated Animations
“Learning Style Hypothesis” straw man

Differences: Coherence, Modality Effects