Cognitive Load-Reduction Methods to use in Multimedia Instruction

Overload Scenario	Scenario Description	Multimedia Principal	Fixes
Essential processing in visual channel > cognitive capacity of visual channel	Visual channel is overloaded by essential processing demands	Modality -- Best use of visual and auditory channels – present words as narration rather than on-screen text	Off-load-- Move some visual content to auditory channel
Essential processing (in both channels) > cognitive capacity	Both channels are overloaded by essential processing demands	Segmentation -- Small bites with time in between Pretraining -- Components training first	Segment -- Cut it up and allow time in between. Give learners control to move on when ready. Pretrain –- Introduce components names and characteristics before systems.
Essential processing + incidental processing (caused by extraneous material) > cognitive capacity	One or both channels overloaded by essential and incidental processing (attributable to extraneous material)	Coherence -- Less is more Signaling -- Cue key steps in narration	Weed -- Get rid of the nice; keep the necessary Signal -- Provide visual and verbal cues to point to the important
Essential processing + incidental processing (caused by confusing presentation) > cognitive capacity	One or both channels overloaded by essential and incidental processing (attributable to confusing presentation of essential material)	Spatial contiguity -- Best placement of words and pictures—put text near graphics Redundancy -- Best use of text and audio—avoid identical streams of printed and spoken words	Align -- Place text near graphics Eliminate Redundancy-- Avoid reading on-line text. Choose animation and narration over animation, narration, **and** on-screen text.
Essential processing + representational holding > cognitive capacity	One or both channels overloaded by essential processing and representational holding	Temporal Contiguity -- Best sequencing of words and pictures Spatial Contiguity -- Best placement of words and pictures—some learners have high spatial ability and others lower.	Synchronize -- Present simultaneously rather than successively Individualize -- Best use of prior knowledge – know your learner and design accordingly