Cognitive Load and Multimedia 2 (Intrinsic)

DESCRIPTION

Cognitive load theory relates to the capacity of working memory and its effect on long-term memory schema acquisition. Cognitive load is divided into three categories: intrinsic load, extraneous load, and germane load. Intrinsic cognitive load stresses the capacity of learners' working memory. Since this type of cognitive load is dependent on the content to be learned, it cannot be reduced without reducing learning. It can, however, be managed. The following multimedia instructional methods outlined in *Digital design to manage intrinsic cognitive load* are both tested and actionable (Mayer, 2009).

1. Segmenting
2. Pre-training
3. Modality

The cognitive theory of multimedia learning has three underlying assumptions: the dual channel assumption (Clark & Paivio, 1991; Paivio, 1986, 2006; Baddeley, 1992, 1999); the limited capacity assumption (Baddeley, 1992, 1999; Sweller, 1994, 2005; Chandler & Sweller, 1991); and the active-processing assumption (Chambliss & Calfee, 1998; Cook & Mayer, 1980).

LEARNER IMPACTS

- Self-regulation
- Achievement

CAPABILITIES

- Assessment: Software simulation
- Instruction: Player + item
- Instruction: Multimedia active reading

SAMPLE DESIGN IMPLEMENTATIONS

- Robust Technology: Software simulation
- Simple Technology: Standalone instructional multimedia with assessment items
- Content Support: Instruction/practice of designing multimedia

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SELF-ASSESSMENT INSTRUMENT

Principle Criteria	Integration (4-5 points)	Exploration (2-3 points)	Consideration (1 point)	Not Applicable (0 Points)	Total Points
Definition	Strong application of multimedia methods to manage or reduce stress on the working memory capacity of learners	Some application of multimedia methods to manage or reduce stress on the working memory capacity of learners	Poor application of multimedia methods to manage or reduce stress on the working memory capacity of learners	Does NOT use effectively or is not a related activity	= _____
	Strong use of objective multimedia instructional methods	Some use of objective multimedia instructional methods	Poor use of objective multimedia instructional methods		
Segmenting	Strong presentation of multimedia in appropriately sized chunks	Some presentation of multimedia in appropriately sized chunks	Poor presentation of multimedia in appropriately sized chunks	Does NOT use effectively or is not a related activity	= _____
	Strong presentation of multimedia in user-paced segments	Some presentation of multimedia in user-paced segments	Poor presentation of multimedia in user-paced segments		
Pre-training	Strong pre-training on the names of main concepts	Some pre-training on the names of main concepts	Poor pre-training on the names of main concepts	Does NOT use effectively or is not a related activity	= _____
	Strong pre-training on the characteristics of main concepts	Some pre-training on the characteristics of main concepts	Poor pre-training on the characteristics of main concepts		
Modality	Strong presentation of audiovisuals together, rather than text with visuals	Some presentation of audiovisuals together, rather than text with visuals	Poor presentation of audiovisuals together, rather than text with visuals	Does NOT use effectively or is not a related activity	
	Strong presentation of narrated animations, rather than text with animations	Some presentation of narrated animations, rather than text with animations	Poor presentation of narrated animations, rather than text with animations		= _____
	Strong presentation of audiovisuals that capitalize on multiple sensory channels, rather than overloading any one channel	Some presentation of audiovisuals that capitalize on multiple sensory channels, rather than overloading any one channel	Poor presentation of audiovisuals that capitalize on multiple sensory channels, rather than overloading any one channel		