Mayer's 12 Principles of Multimedia Instruction

Five Principles for Reducing Extraneous Processing

1. ***Coherence Principle:*** People learn better when **extraneous material** such as words, pictures and sounds are excluded from a lesson.

2. ***Signaling Principle:*** People learn better when **essential words are highlighted**.

3. ***Redundancy Principle:*** People learn better from animation with narration than from animation with narration and text except when the onscreen text is short, highlights the key action described in the narration, and is placed next to the portion of the graphic that it describes.

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 narration and animation are presented simultaneously rather than successively (i.e. the words are spoken at the same time they are illustrated in the animation).

Three Principles for Managing Essential Processing

1. ***Segmenting Principle:*** People learn better when a narrated animation is presented in learner-paced segments rather than as a continuous presentation.

2. ***Pre-training Principle:*** People learn better from a narrated animation when they already know the names and characteristics of essential components.

3. ***Modality Principle:*** People learn better from graphics with spoken text rather than graphics with printed text.

Four Principles for Fostering Generative Processing

1. ***Multimedia Principle:*** People learn better from words and pictures than from words alone. This allows people to build connections between their verbal and pictorial models.

2. ***Personalization Principle:*** People learn better from a multimedia lesson when words are in conversational style rather than formal style. If people feel as though they are engaged in a conversation, they will make more effort to understand what the other person is saying.

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

4. ***Image Principle*** – People do not necessarily learn better from a multimedia lesson when

5. the speaker's image is added to the screen

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