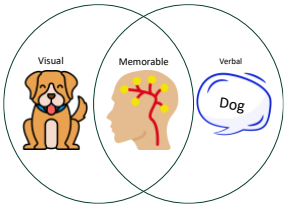

Visual + Verbal = Better Learning
The Power of Multimodal Design[1]

UDL 3.0 Consideration 2.5: Illustrate through multiple media — Provide alternatives, especially illustrations, simulations, images, or interactive graphics, to support comprehending and retaining information.

What is it?

Dual coding theory suggests that people learn best when information is presented in both visual and verbal formats. The human brain processes information through verbal (linguistic) and visual (non-linguistic) channels. Barriers arise when course materials rely too heavily on text alone. Presenting information in both verbal and visual formats creates two separate representations of the information in the brain, enhancing comprehension and retention.

Why do it

Applying dual coding theory to the design of learning experiences leverages the human brain's ability to process information more effectively. A dual coding approach engages learners' verbal and visuospatial processing systems by integrating textual and visual elements. Multimodal strategies enhance four crucial aspects of learning: (a) initial engagement with material, (b) comprehension of new concepts, (c) retention of information in memory, and (d) transfer of knowledge to new contexts.

How to do it

Here are some suggestions for implementing dual coding in your practice.

- **Present key concepts in multiple formats.** Adopt multimodal strategies, incorporating illustrations, diagrams, tables, models, videos, comic strips, storyboards, photographs, animations, or physical/virtual manipulatives alongside textual information.
- **Provide graphic organizers.** Visual tools such as concept maps, Venn diagrams, and timelines help learners understand relationships between ideas while supporting both visual and verbal processing.

[1] Content developed with AI, based on the CAST UDL Guidelines™, scholarly sources, and web resources. Icons courtesy of *Flaticon.com* contributors and others.

- **Create multimodal assignments.** Develop activities and assessments that allow learners to demonstrate their understanding through various media combinations, honoring multiple ways of knowing and making meaning. Examples include having students create infographics for science concepts, podcasts for literature analysis, or an oral presentation with a timeline of historical images.
- **Encourage learners to create their own visuals.** Support learners in constructing their own visual representations (e.g., diagrams, mind maps, infographics, digital media) alongside written explanations, fostering active engagement with content.

Essential Factors for Applying Multimodal Strategies

While the UDL 3.0 Guidelines emphasize the importance of illustrating through multiple media to support comprehension and retention of information, effectively implementing dual coding requires careful attention to several key factors.

- **Avoid simultaneous verbal overload**: Avoid presenting written text and spoken words simultaneously, as they compete for the same cognitive channel.
- **Ensure visual relevance**: Only use meaningful and relevant images that directly support learning objectives and avoid decorative visuals that add unnecessary cognitive load.
- **Manage information density**: Limit the total amount of information presented simultaneously, even across different modalities, since both visual and verbal channels have capacity limits.
- **Integrate rather than separate**: Present visual and verbal information closely together instead of having students split their attention between distant sources.
- **Consider learner expertise**: Adjust dual coding strategies to match students' prior knowledge levels, as advanced learners may be limited by supports essential for novices.
- **Test effectiveness**: Regularly evaluate if your dual coding approach enhances learning outcomes instead of assuming that more modalities lead to better results.
- **Consider your workload:** Begin with small steps and gradually expand by adding, testing, and evaluating the efficacy of one multimedia element at a time.

Summary

Dual coding theory is powerfully aligned with UDL 3.0's commitment to creating inclusive learning environments that honor learner variability. By presenting information through multiple media, we remove barriers that text-heavy materials can create while enhancing comprehension, memory, and engagement for all learners. This approach recognizes that offering multiple representations makes learning more accessible and supports diverse ways of processing and understanding information.

Resources

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