Example Strategies for Guiding Attention & Memory

Advance Organizer. List topics, questions, or learning objectives to give students a framework for situating new knowledge. This can include an agenda, a conceptual flowchart, or learning objectives shared at the start (and end) of a new unit.

Instructional Cues. Instructional cues help to point out key knowledge and make discrete steps explicit and transparent.

- "The main thing I want you to remember from what we talked about today is…"
- "The first thing we do to multiply two vectors is…"
- "These two algorithms are related because…"

Consider the "Invisible Gorilla" video! Some instructors show the video in class and then use gorilla icons on slides to emphasize and draw attention to important key ideas.

Use consistent notation, phrasing, and variables. Initially, everything (even notation) is new material. By maintaining consistency, you are lowering students' cognitive load so they can focus on what is new and make connections to knowledge they've already learned.

Keep text and visuals simple and relevant. Leverage media effectively by avoiding distractions, removing irrelevant detail, and creating space for students to cognitively engage with media shared (e.g., guided video questions, reflective writing activities).

Concept Maps. Students are provided a list or charged to brainstorm a list of concepts related to a particular topic and then diagrammatically show how the concepts are related, using connected words on arrows and lines that connect terms. Also called as a mind-map or flow-chart, concept maps help students to organize their knowledge.

Spaced Practice. Structure low-stakes assignments in a way that helps students pace their learning over an extended period of time. Students retain more information (and for longer periods of time) when they study material across many weeks and avoid "cramming" (e.g., preparing for an exam 24 hours before).

Prior Knowledge. Incorporate real-world examples to help students make connections between new knowledge and what they already know. Consider asking students to generate their own examples in small groups, and then discuss which examples most accurately represent the topic X and why. Students learn and retain more when they can connect new information to accurate and relevant prior knowledge.

Explicitly share strategies with students. Provide students with a peak behind the instructional curtain. Why are you using the approaches that you use? How will these approaches support student learning and enhance memory? What strategies might students use to practice on their own (e.g., studying using spaced practice or retrieval practice)?

Break up a lecture to help students refocus. Not only does a change of pace allow students to re-start their attention clock, which is on a ~15-20 minute attention curve, but attention can increase somewhat dramatically by utilizing other pedagogies in addition to lecture in balanced ways.

Consider the order. Before explaining or lecturing about a new idea or concept, begin with a short activity (or activities) to pique students' interest, elicit their prior knowledge, and allow for exploration. Implementing a learner-centered progression or sequencing of instructional elements is also referred to as a learning cycle approach (see Tanner 2010 for one example).