

## **TEN STRATEGIES FOR IMPROVING RETENTION AND RETRIEVAL OF LEARNING**

### **I. Focus attention**

- ❖ *Introduce lecture or laboratory with short outline or summary*
- ❖ *Describe the gap in knowledge/understanding that you are trying to fill*
- ❖ *Increase curiosity by starting with a controversy, challenge, case, example ( the “hook” or “lead”)*
- ❖ *Use an image, video, etc to capture attention*
- ❖ *Start with a personal story or struggle to personalize and capture attention*
- ❖ *Use humor, but ideally the concept to be understood should be the focus of the joke*

### **II. Promote practice at retrieval**

- ❖ *Ask questions periodically to check understanding*
- ❖ *Ask why students chose their answer*
- ❖ *Return to key concepts at several points in the lecture or course*
- ❖ *Relate material to previously covered concepts, previous lectures or courses*
- ❖ *Point out connections between concepts and other materials, applications*
- ❖ *Provide cues for recall, with examples, context, or mnemonics*
- ❖ *Space out quizzes, tests for optimal long term retention*
- ❖ *Send email “quizzes” and ask for the answer at the next class*

### **III. Require learners to take information presented in one format and re-represent it in another format**

- ❖ *Consider providing skeletal outlines or diagrams of the lecture for students to fill in on their own at times*
- ❖ *Ask students to rephrase a concept or to explain it to each other*
- ❖ *Create tables or charts for students to fill in – to categorize or make contrasts between key concepts*
- ❖ *Ask students to predict an outcome or diagnosis*
- ❖ *Ask students to write a test question about what they perceive as an important concept*
- ❖ *Ask students to compare or contrast concepts*
- ❖ *Ask students to think of a real world application of a concept*
- ❖ *Consider role playing scenarios to probe understanding*

**IV. Vary conditions under which learning takes place**

- ❖ *Change the format of class time periodically*
- ❖ *Use different methods during laboratory times*
- ❖ *Use computer based instructional methods or for assignments and “field trips”*
- ❖ *Point out relevant clinical cases in the hospital if possible*

**V. Recognize underlying assumptions and prior knowledge and experience (“right” or “wrong”)**

- ❖ *Use pre-surveys or pre-tests*
- ❖ *Ask for predictions or “guessing” to learn about prior assumptions*
- ❖ *Ask students to make lists regarding an upcoming topic*

**VI. What students recall soon after learning influences what they learn later**

- ❖ *Provide self-assessment quizzes*
- ❖ *Ask for a one-sentence or one-minute summary of a concept*
- ❖ *Ask about the key concepts from the previous lecture material at the beginning of the next class*
- ❖ *Provide a brief summary of key points at the end of class (or create with students)*

**VII. Remember less is more for long term retention and transfer**

- ❖ *Reassess your core goals for the class*
- ❖ *Have a clear plan for each lecture, lab period, etc.*
- ❖ *Slow down during lecture for better processing*
- ❖ *Use strategic enthusiasm on key points*
- ❖ *Allow yourself time to go back to key concepts*

**VIII. Create “doing” activities (ideally to do at midpoint of lecture)**

- ❖ *Case exercises*
- ❖ *Dissection*
- ❖ *Writing exercises*
- ❖ *Charts or diagrams to fill in*
- ❖ *Demonstration or debates*

**IX. Integrate material with prior experience, future context**

- ❖ *Learn what is taught in prerequisite courses*
- ❖ *Provide examples of applications (cases, surgical procedures, research investigations, public health problems, herd problems)*
- ❖ *Use analogies and metaphors*
- ❖ *Use selected extreme examples to make a point*

**X. Promote self-assessment of knowledge learned**

- ❖ *Self-quizzes*
- ❖ *Study questions*
- ❖ *Computer based assignments*
- ❖ *Other classroom assessment techniques*

**References:**

DeWinstamley PA, Bjork RA (2002). Successful lecturing: presenting information in ways that engage effective processing. *New Directions for Teaching and Learning*, no. 89. San Francisco: Jossey-Bass, pp. 19-31.

Halpern D, Hakel MD et al. Applying the science of learning to the university and beyond. Teaching for long term retention and transfer. *Change* July/August 2003, p. 36-41.

Angelo TA, Cross KP (1993). *Classroom Assessment Techniques*, 2<sup>nd</sup> ed. San Francisco: Jossey-Bass.