

Using Retrieval Practice to Increase Learning

Strategies, tips & resources to help incorporate retrieval practice into your teaching.

What is Retrieval Practice?

- Retrieval practice is the strategy of recalling facts, concepts, or events from memory in order to enhance learning. A classic example is using flashcards as a study tool.
- Sometimes called the “testing effect,” retrieval practice is not limited to quizzes or exams and can include any exercise where students attempt to retrieve what they have learned from their memory.
- Evidence shows that retrieval practice is especially effective at increasing longer-term retention and generally outperforms more common strategies such as repeated studying. Research in classrooms shows retrieval practice is an extremely robust strategy across age groups and subject domains (McDermott 2021).
- Retrieval practice also aids in higher-order thinking; it’s not just for memorization. Students who use retrieval practice perform better on complex tasks and show improved metacognition (Pooja and Bain 2019).

Teaching with Retrieval Practice Tips

- Feedback lets the learner know about any errors they made and helps prevent accidentally encoding the wrong material into memory. It can also focus and motivate further study ([formative feedback](#)).
- Retrieval practice activities designed to engage every student in a class are more effective than those that primarily engage only a few students. For example, a writing activity where everyone writes works better than asking the class a question and calling on a single student for an answer because it engages all students in the retrieval activity
- Explaining to students that the goal of the activity is *learning* and not assessment can increase student buy-in.
- Not all activities need to be collected or graded, although sometimes collecting even ungraded tasks increases participation.

Three Ways to Use Retrieval Practice in During Class

1) Low-stakes Quizzes

- Frequent low-stakes quizzes are an easy way to incorporate retrieval practice. Quizzes can be free response, multiple choice, or another format. [In-class polling](#) works well too. Feedback can be automatic, from the instructor, or from peers.
- Questions should be not too hard nor too easy. The goal is to achieve “[desirable difficulty](#).”

2) Two Things Activity

- Ask students to recall and write down two things they learned today, last class or within a unit of your course. Feedback can come from peers (in pairs or groups), and/or class discussion.

3) Brain Dumps

- Ask students to write down what they know about a certain topic. Optionally, students can then contrast and compare their answers with peers in small groups or breakout rooms. A full class discussion can be used to provide instructor feedback.

References and Further Resources:

- Agarwal, Pooja K., and Patrice M. Bain. 2019. [Powerful Teaching: Unleash the Science of Learning](#). San Francisco, CA: Jossey-Bass.
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- Roediger, Henry L., and Jeffrey D. Karpicke. 2006. “[Test-Enhanced Learning: Taking Memory Tests Improves Long-Term Retention](#).” *Psychological Science* 17 (3): 249–55.