

Lecturio

Retrieve to Retain: Applications for Modern Medical Education

December 8, 2021
Online Seminar

Seminar Learning Outcomes

1

Participants will be able to **gain an understanding** of retrieval practices, including active recall, the testing effect, and spaced retrieval.

2

Participants will be able to **interpret** cognitive science and neuroscience evidence that support retrieval-based strategies as effective educational tools.

3

Participants will be able to **identify** retrieval methods from an educator and student perspective and be able to **utilize** them in their medical curricula.

4

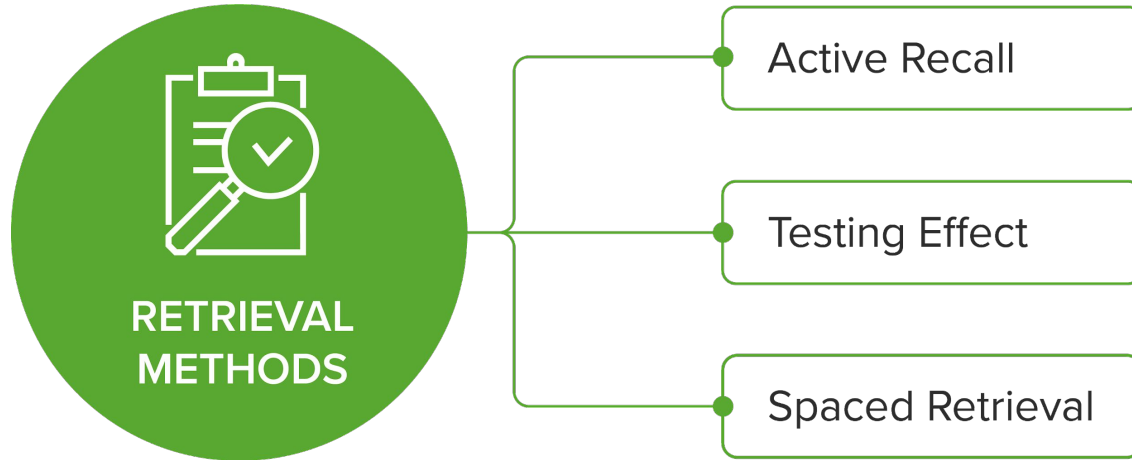
Participants will be able to **recognize** how technology can enhance the delivery and monitor the effectiveness of retrieval-based strategies.

Poll

2

Do you use retrieval-based strategies in your classes?

Retrieval-Based Strategies



Why Retrieval Works

Insights from cognitive science:

- Active retrieval enhances the ability to recall information when needed vs passive studying techniques which create an illusion of knowing.
- Spacing of retrieval greatly augments long-term recall.
- Retrieval with feedback may co-activate related information which enhances memory.

Insights from neuroscience:

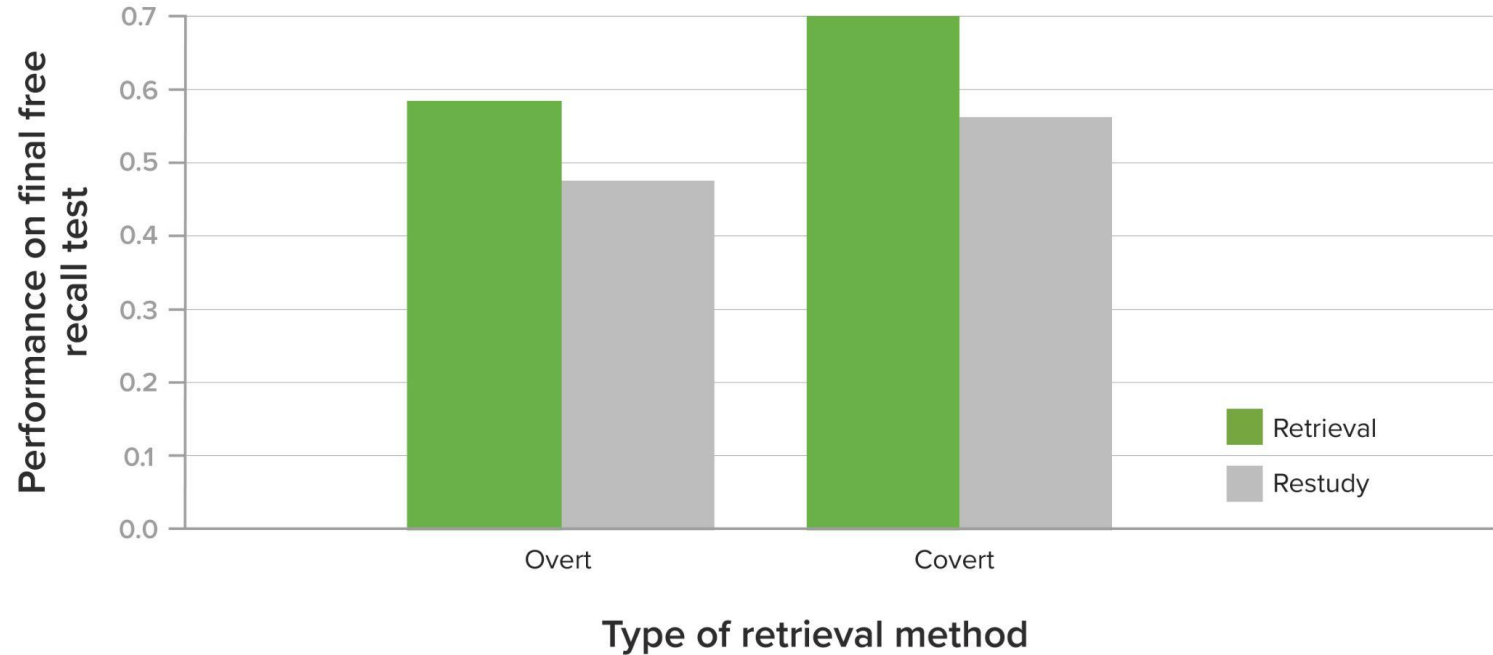
- As information is retrieved, neural pathways are strengthened by changes in several cellular processes.
- Spacing of retrieval events allows for consolidation of neural pathways.
- Retrieval with feedback helps establish effective neural cross linkages.



Active Recall



Overt and Covert Active Retrieval





The Testing Effect



There is More to Testing than Only Assessment



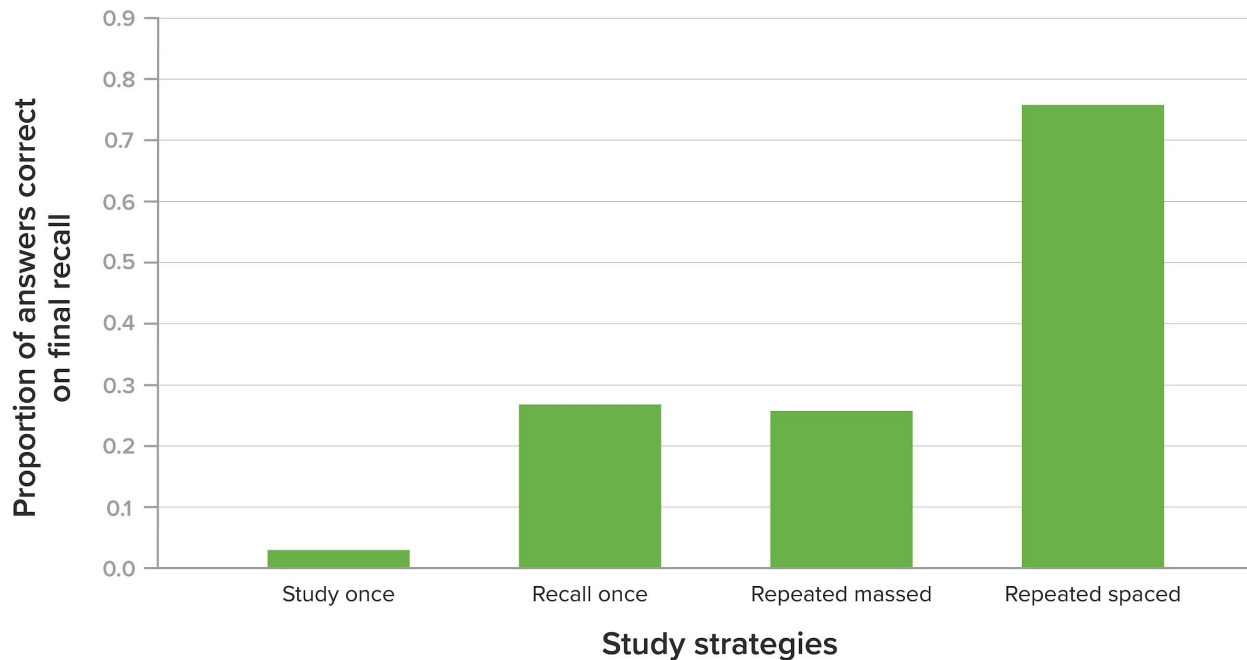
- The act of taking a test **strengthens memory and ease of retrieval.**
- Student test **anxiety** can be **decreased** by assigning **low-stakes assessments**, such as practice quizzes, which still improve memory and ease of subsequent retrieval.



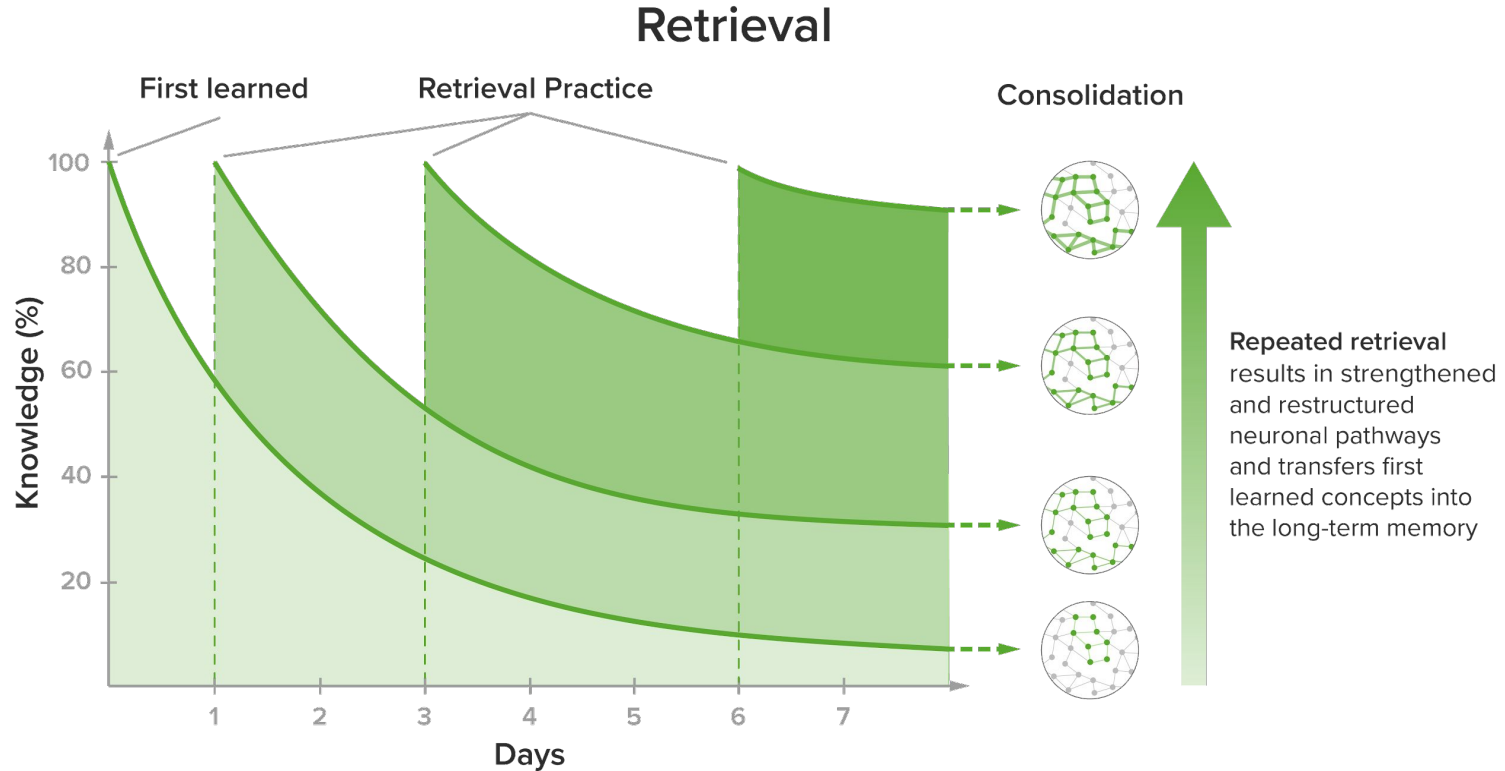
Spaced Retrieval



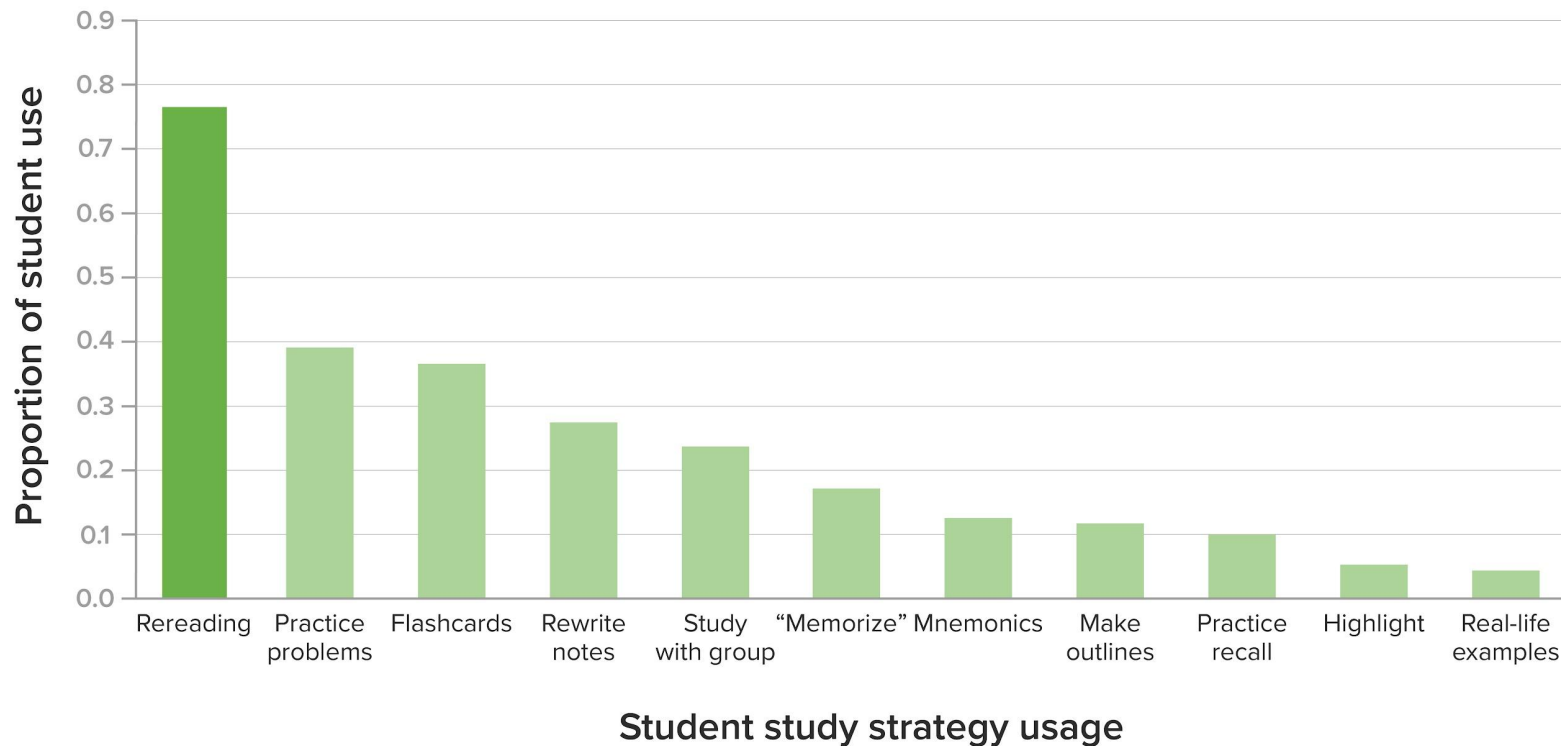
Spaced Retrieval Shows Superior Recall over other Methods



What Happens with Retrieval Usage and Why?



Most Students Choose Ineffective Studying Techniques





Medical Educator's Perspective



Experiences from a Former Student Turned Medical Educator

- Student surveys + review of medical educational literature showed concerns for student well-being and cognitive overload.
- More efficient learning = classroom time made interactive.

*Kelsey Dougherty MMSc, PA-C
Assistant Professor, University of
Colorado/ Denver*



Retrieval-Based Strategies Implementation

Active recall/testing effect examples:

- Required pre-work in the form of videos and articles relating to the upcoming week's content
- Monday assessments (low-stakes) recalling pre-work information

Spaced retrieval examples:

- Friday assessments (low-stakes) on content from that week + prior weeks/months/year
- Dedicated clinical cases every week
 - Requires learners to retrieve information and utilize skills from various courses

Implementation of Retrieval Methods – Recommendations

Educator's perspective:

- Utilize many low-stakes practice tests and other retrieval exercises.
- Educate students about metacognition bias and that the time investment in retrieval methods is the most efficient way to study.
- Make use of digital platforms and algorithms to take the guesswork out of spaced retrieval practice.

Student's perspective:

- Students need to recognize that passive studying techniques are inefficient methods for learning.
- Easy learning \neq effective learning.
- Avoid the illusion of competency.
- Use digital tools to assure durable learning.

Examples of Retrieval Strategies for Foundational Learning

Retrieval Strategy	Brief Description
Practice tests or quizzes	Instructors assign low-stakes practice quizzes/tests (paper pencil/digital). Feedback should be provided post assessment.
Power Ticket Template (from <i>Powerful Teaching</i>)	Instructors make a table “What Did We Talk About....” today, last week, last month, last quarter etc., and students summarize 3 facts in each cell.
Jot Strategies (from <i>Uncommon Sense Teaching</i>)	Students asked to put away resources and summarize information by “ jotting down ” what is recalled, sketches of anatomy, or recapping older material.
Think Pair Share	Instructors pose a question and students first think independently about the answer, then discuss answers with another student, and lastly share responses to the class.



Breakout Sessions





SUMMARY

- Active recall, the testing effect, and spaced retrieval are exceptionally effective learning strategies.
- Retrieval enhances long-term retention of memory.
- Leveraging digital learning platforms that utilize algorithms eases implementation of retrieval methods in medical curricula.

Are You Interested in Our Future Events?



Save the Date for Our Upcoming
Durable Learning Seminar

Active Learning: Augmenting Student Engagement and Understanding

January 26, 2022, 9:00 PST | 12:00 EST | 18:00 CEST

**Are you interested in contributing to Learning Science?
Join the Lecturio Learning Science team's
research endeavors!**

Contact us: lecturio-science@lecturio.com



Contact us

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