Learning vs. Retention: Implications for Educators
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No Disclosures

Objectives
By the end of the lecture, the audience will be able to:
• define learning and retention.
• differentiate between rote and elaborative rehearsal.
• apply the principles of Primacy-Recency to his/her teaching episode.

How The Brain Learns

Primacy-Recency Effect
Remember best = 1st part
Remember 2nd best = Last part
Remember least = just past middle
Known since the 1880’s (Hermann Ebbinghaus)
**Primacy-Recency Effect**

1st items in working memory – reach functional capacity

![Image](http://imgarcade.com/1/full-bucket-of-water/)

**Primacy-Recency Effect**

Later info exceeds capacity and is lost

![Image](http://newsbite.it/index-id-news-zk-14648.html)

**Primacy-Recency Effect**

At end of learning episode, items in learning memory are sorted or chunked

![Image](http://chicago.shine.fm/lisa/ice-cube-trays-aid-weight-loss/)

**Primacy-Recency Effect**

Additional processing of arriving final items

![Image](http://www.bbbpress.com/2014/01/drama-game-bucket-of-water/)

**Primacy-Recency Effect**

New Information should be taught first

![Image](https://devongeography.wordpress.com/2012/06/08/effective-learning-episodes-primacy-and-recency/)
Primacy-Recency Effect

Practice or review during down-time

Closure at Prime-Time-2

Closure: For the next 30 seconds try to recall the important findings of a lateral patellar dislocation. I’ll ask you how those findings relate to the mechanism of injury.

Closure does not necessarily mean review.

Learning
Learning
206-555-1234
23-44-67
The customer’s name is Mary Smith

Learning
Differential Diagnosis for an MRI finding
Causes of Nephrocalcinosis
Muscles that make up the quadriceps mechanism

Retention
Retention
Retention
Retention
Retirement: Factors
Rehearsal
Repeat again what you hear; for by often hearing and saying the same things, what you have learned comes complete into your memory
- from the Dialexeis
Rote and Elaborative Rehearsal

Rote Rehearsal = store information EXACTLY as it is entered into working memory

- Multiplication tables
- Telephone numbers
- Procedural steps

Elaborative Rehearsal = Associate new learning with prior knowledge via relationships

More complex process that assigns meaning to the new information

A student uses rote rehearsal to memorize the various tendons that attach to the ischial tuberosity. She uses elaborative rehearsal to correctly interpret a hamstring avulsion injury.

If a student receive insufficient training in elaborative rehearsal, he will resort to rote rehearsal for nearly all processing.

DDx for child with limp. Foot, ankle, knee, hip, back, etc.

Does that help a child who comes into the ER with multiple bruises and refusal to bear weight.

Rehearsal is necessary but not sufficient for long-term storage. (No long-term retention without rehearsal).
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Thank You
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References

• Thomas, E. 1972. The variation of memory with time for information appearing during a lecture. Studies in Adult Education. 57-62.