

Developing Learning Rockstars





the missing manual[®]

The book that should have been in the box[®]

the missing manual[®]

The (learning) book that should have been in the
(educator's) box[®]

Connie Hayek

School of Health Professions, Student
Retention

chayek@ccbcmd.edu

443.840.2020

Were you 'taught' how to learn?

As a student?



As an educator?

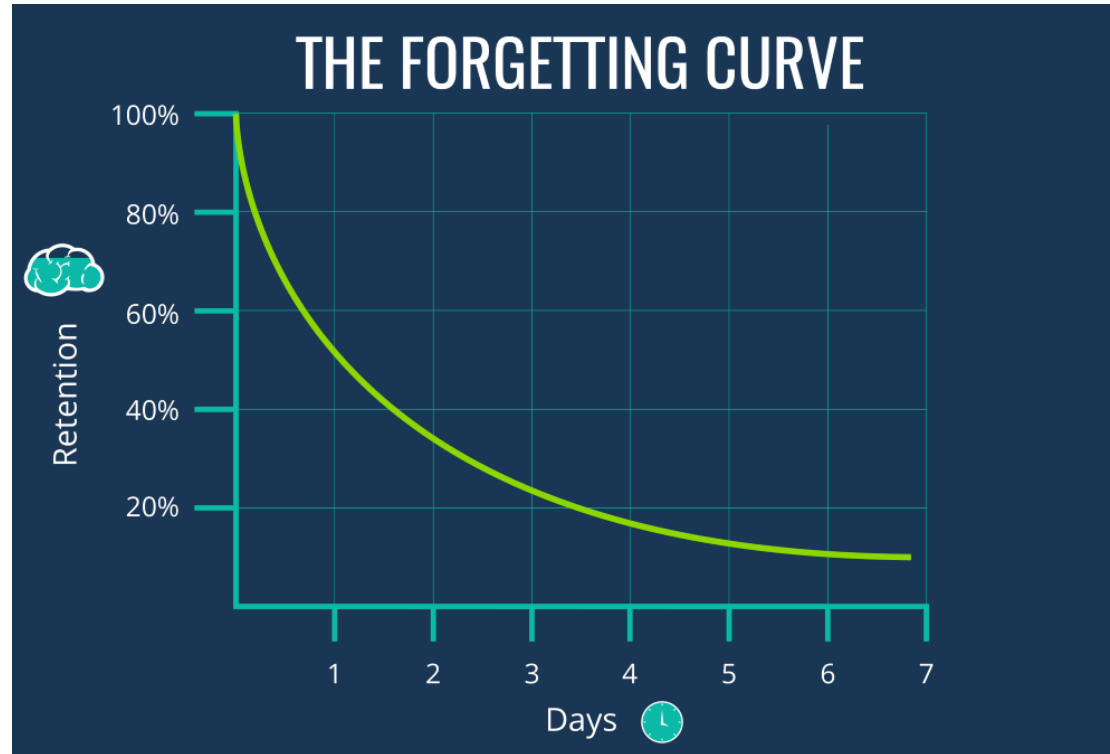


When Students are asked this question....

- Few say they were taught how to learn
- Those that were taught, say it was informal; often a teacher ‘made suggestions’
- No students have responded that they have been formally taught how to learn

Occasionally....

- ❖ A few students will mention the learning/forgetting curve
- ❖ Even fewer can explain it
- ❖ Rarely can students describe how to apply this to their learning/studying



The Science of Learning

- Implications for educators

Facilitate Connections

- Associations
- Start Early (Day One!)
 - ✓ Explain the ‘why’ of making associations
 - ✓ Give examples
 - ✓ Ask the question before giving the information to be learned
 - ✓ Check for understanding
 - ✓ “What does this remind you of?”
 - ✓ “How does this relate to...?”

First Exposure, Best Exposure

- The odds of students understanding and recalling information is greatest at the point of first contact
- Encourage questions
- Check for understanding
- Give students a reason to attend classes
 - ‘Pop’ quizzes
 - Provide ‘hints’, suggestions for focus of study

Testing as a Measure of Learning

► Pop quiz!

Tests are good for:

- (a) Assessing what you've learned;
- (b) Learning new information;
- (c) a & b;
- (d) None of the above.

- Help students to see testing as *part of the learning process*
 - *Testing as learning rather than an end result*
- Encourage students to test themselves daily
- Pop quizzes, low- or no-risk quizzes
- Study apps, flashcards, self-quizzing

Spaced Repetition

--Use the Curve of Forgetting to Promote Long-Term Recall

Study Apps: Not all are created equal

For languages: duoLingo, MemRise

For general learning:

Anki

CleverDeck

Quizlet

“Old School” Approach: Flashcards

In General:

- ✓ Visual memory is better than auditory
- ✓ Writing things out improves retention
- ✓ Multi-mode: incorporate a variety of learning approaches (read, hear, practice)
- ✓ Teaching others/explaining concepts improves recall
- ✓ Reorganizing material promotes understanding
- ✓ Reviewing information immediately after learning improves recall
- ✓ Practice improves recall

How to Study

- Like Learning, most students report they have not been ‘taught’ how to study
- Often students report using approaches that *are not effective*
- In some cases, students *know* their approaches are not effective (cramming)
- Other times, they *believe* they are using effective strategies (re-reading material)

Instruction as a Model for Studying

- Adapting instruction can provide a model for students on effective study strategies
- Incorporate science-based practices (association, quiz)
- Explain the rationale
- Incorporate active engagement (small group activities, discussion time)

Coaching Students

“Students who completed a 15-minute online exercise 7 to 10 days before an exam that prompted them to anticipate what would be on the test, name the resources they’d use to study, and explain how and when they’d use them, had average scores one-third of a letter grade higher on the exam compared with students who didn’t do the exercise, according to a 2017 [study](#) of 361 college students led by Patricia Chen, a former Stanford University researcher and assistant professor of psychology at the National University of Singapore.”

Other studies support the approach of talking about and/or writing out a plan for study strategies prior to testing.

Classroom Coaching

- Remind students regularly of upcoming tests
- Periodically ask students about associations; provide examples initially, until students demonstrate understanding
- Remind students of past learning by informally asking potential test questions throughout the semester
- Low- or no-risk quizzes
- Suggest proven effective study strategies

Proven Effective Study Strategies

- Spaced Repetition
- Chunking
- Self-Quizzing
- Re-organize, summarize material
- Teach/Explain to others
- Peer study groups
- Pomodoro Technique (immediate benefits)

Pomodoro Technique

- Developed by Francesco Cirillo in late 1980's
- Set a timer for 20-30 minutes
- Take a 5 minute break
- Repeat 4 times; then take a 10-15 minute break



Research on the Pomodoro Technique:

- Improves attention span and concentration
- Effective in dealing with procrastination
- Results seen in 1-2 days
- Reduces fatigue
- Promotes confidence
- Improves long-term recall
- Maximizes Focused and Diffuse Modes of Thinking/Learning

Focused/Diffuse Learning

- **Focused Mode:**
 - Concentrated Study
 - Promotes Short-term Learning
- **Diffuse Mode:**
 - Higher Order Thinking
 - ‘AHA’
 - Understanding Complex Concepts
 - Sheldon’s Epiphany <https://youtu.be/O1WpE5ntqbQ>

Individual/Small Group Coaching

- Encourage students to talk about their plan for studying/test-prep
- Ask students to write out their plan
- Share plan with someone else
- Encourage peer study groups (and provide information on “How To”!)
- Provide opportunities for reflection
- Suggest tools such as study schedules, learning apps, outside resources
- Give feedback
- Reinforce self-efficacy
 - Growth Mindset, Carol Dweck
 - Grit: The Power of Passion and Perseverance, Angela Duckworth

Learning Styles: Fact or Fiction

<http://learn2learnblog.com/the-powerful-secret-behind-your-learning-style/>

Questions? Comments?

Resources:

- MOOC: Learning How to Learn (Coursera)
- Discover the Science Behind Forgetting Infograph
 - <https://www.pluralsight.com/resource-center/infographics/discover-the-science-behind-forgetting-and-conquer-it>
- DeansForImpact.org
 - https://deansforimpact.org/wp-content/uploads/2016/12/The_Science_of_Learning.pdf
- Learn2LearnBlog.com (not the app)

Resources:

Books:

- Learn Like Einstein (Peter Hollins) 2017
- Make It Stick (Peter Brown, Henry Roediger III, Mark McDaniel)
- A Mind For Numbers (Barbara Oakley) 2014
- Moonwalking With Einstein: The Art & Science of Remembering Everything (Joshua Foer) 2011
- Small Teaching: Everyday Lessons from the Science of Learning (James Lange) 2016

Connie Hayek

School of Health Professions, Student
Retention

chayek@ccbcmd.edu

443.840.2020