

Things I wish I knew in college about Learning



Material from:

Roddy Roediger, Washington University in St. Louis

Polly Parks, El Camino College

Puzzles

- We are life-long learners, so why do we often find learning so hard?
- Why do even good students often use ineffective strategies?
- What learning strategies work well?
- Why do we sometimes think we know a topic well, only to show later that we do not?
- Why are ineffective educational strategies so resistant to change?

Surveys Asking Students How They Study

reread material

highlight material

review (reread) notes from class

use strategies to memorize

outline material

use flashcards

study groups

Karpicke, Butler, & Roediger (*Memory*, 2009)

Question for Students

Ask them if they learn better from restudying material or testing themselves on the material?

Restudying is the preferred strategy, testing themselves produces better results.

Describe one experiment to illustrate my point.

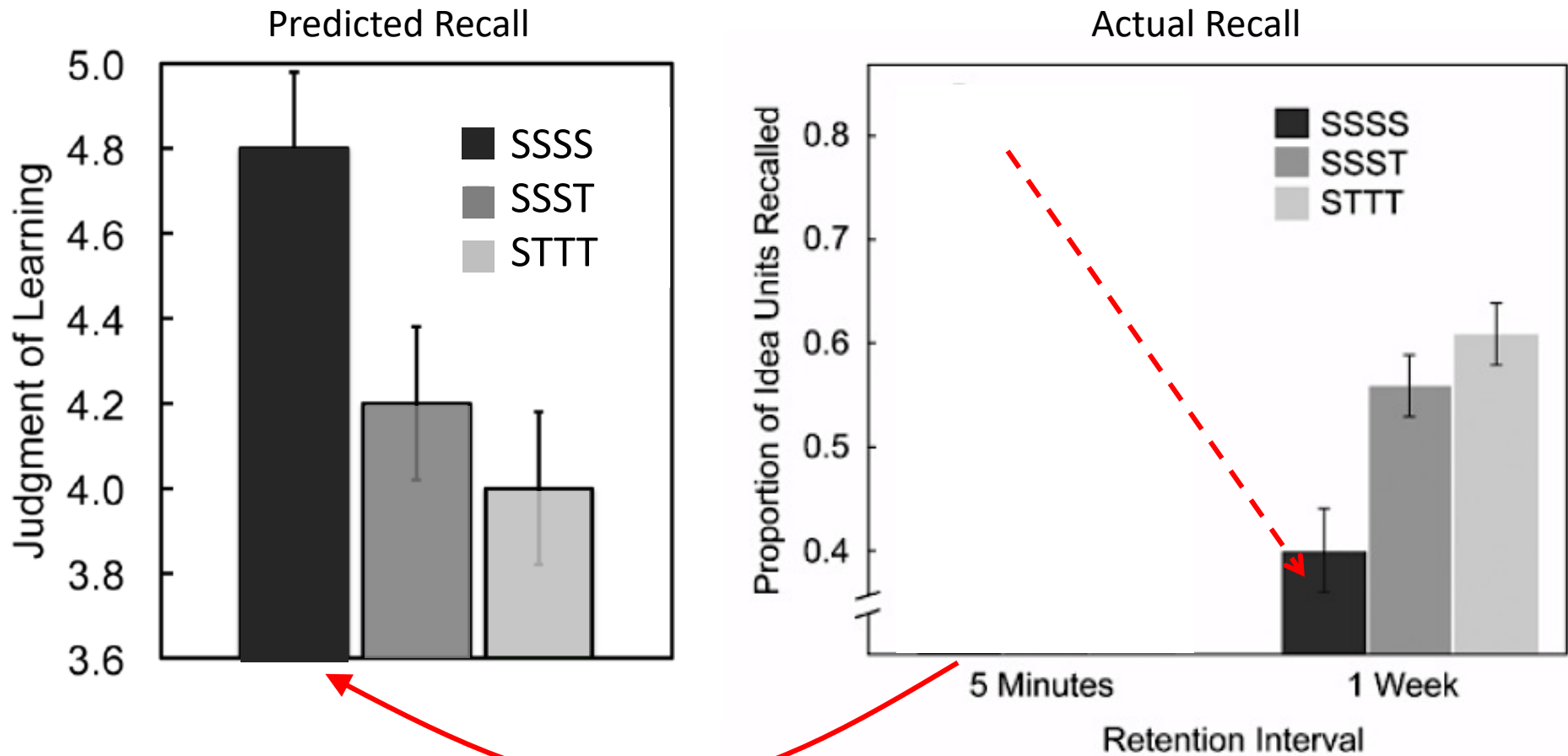
Judgments of Learning

*Task: Learn key ideas
in a 250-word prose passage, over 4 trials*

Pure Study:	S	S	S	S
One test:	S	S	S	T
Three tests:	S	T	T	T

“How well will you remember the passage in one week?”

Task: Recall key ideas in a 250-word prose passage



Illusion of mastery

The Retrieval Practice Effect (or the testing effect)

Retrieval from memory not only assesses what we know, but *changes* it:

- Strengthens retention, and
- Improves later performance

...more than additional study.

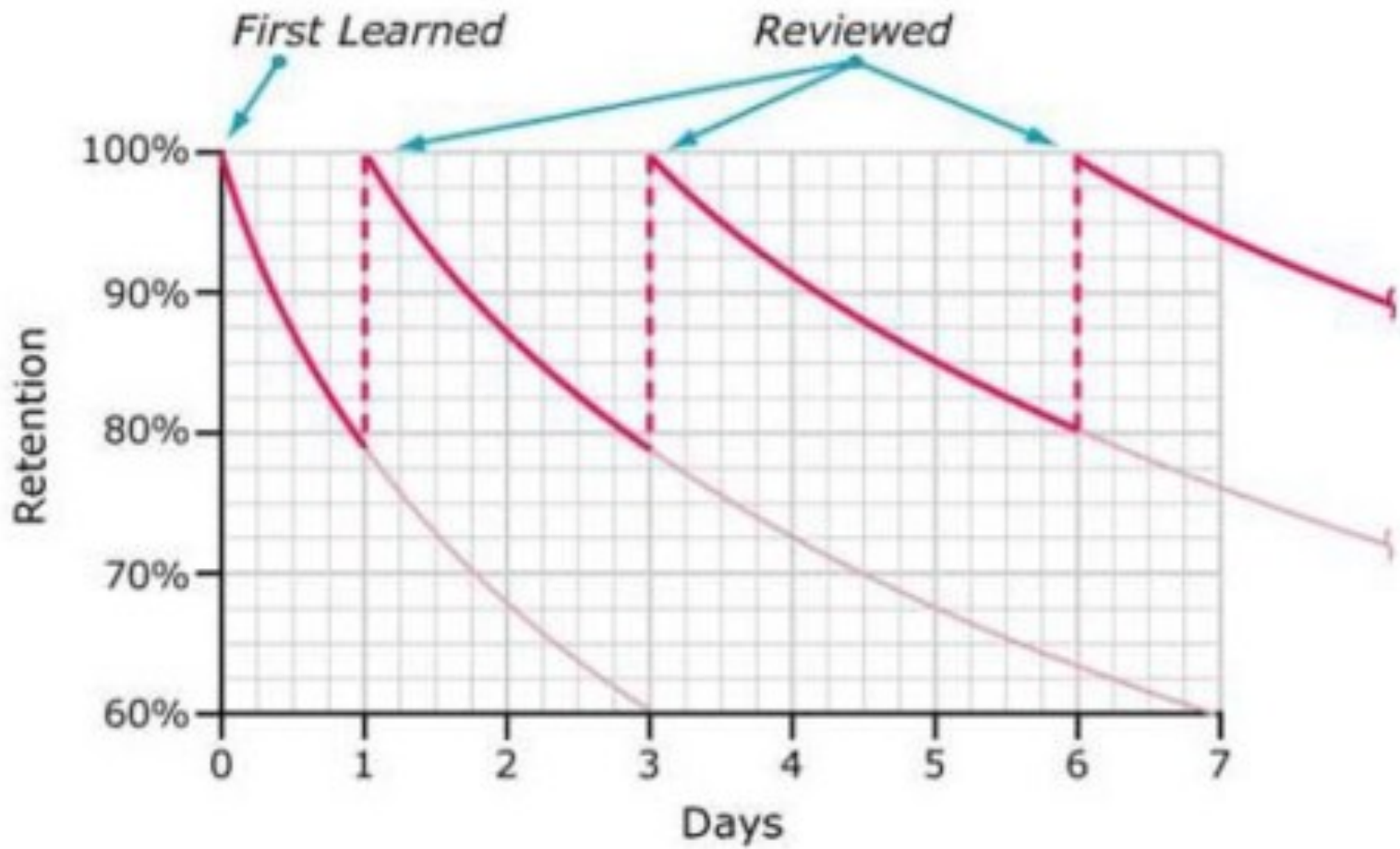
A basic problem we confront—as teachers and as learners ourselves:

- Conditions of learning that make performance improve rapidly often fail to support long-term retention and transfer,
...on the other hand
- Conditions of learning that appear to create difficulties for the learner, slowing the rate of *apparent* learning, often increase long-term retention of knowledge

Desirable difficulties in learning: Some practices that slow learning and make it seem harder actually produce more durable learning

- Using tests (rather than presentations) as learning events
- Varying the conditions of learning
- Distributing or spacing study or practice sessions
- Providing “mixed up” instead of blocked practice during learning

Typical Forgetting Curve for Newly Learned Information



What Kind of Mindset Do You Have?



I can learn anything I want to.
When I'm frustrated, I persevere.
I want to challenge myself.
When I fail, I learn.
Tell me I try hard.
If you succeed, I'm inspired.
My effort and attitude determine everything.

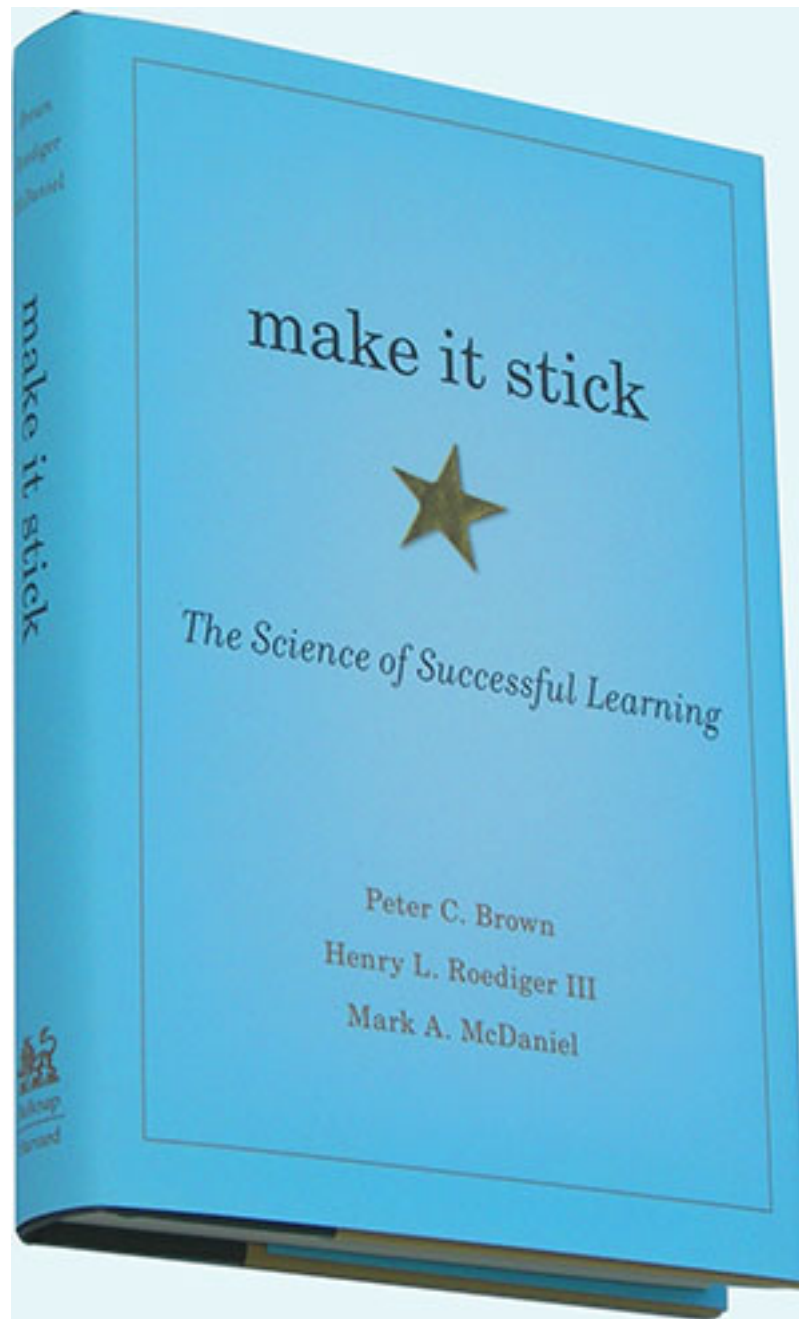


I'm either good at it, or I'm not.
When I'm frustrated, I give up.
I don't like to be challenged.
When I fail, I'm no good.
Tell me I'm smart.
If you succeed, I feel threatened.
My abilities determine everything.

To Make Learning Stick

- Practice getting it *out* vs. getting it *in*
- Space and mix up practice
- Try to figure it out before being shown how
- Elaborate:
 - Connect new learning to what you already know
 - Restate it in your own words
 - Find layers of meaning and cues for retrieval
- Form mental images, create a narrative

April, 2014



What is mindfulness?

- Act of being in the present moment focusing on one's feelings, thoughts, and body sensations
- Taking time and space to practice calming the mind and re-connecting to the body
- Noting our natural inclination to move and think without really thinking

- Does not require lots of time, closing eyes, or humming
- Is not spacing out or running away
- Not religiously affiliated (although, many religions do practice this)
- There is no right or wrong way to practice

Benefits of mindfulness

- Research shows that practicing mindfulness can
 - *Improve attention*¹
 - *Increase performance on objective tasks*²
 - *Helps regulate emotions*³
 - *Reduce stress*¹

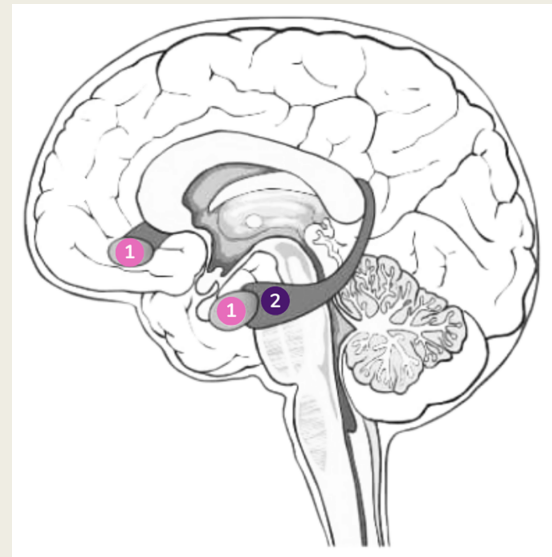


<https://mk0buddhaweeklygoftb.kinstacdn.com/wp-content/uploads/2016/11/Buddha-Weekly-Mindfulness-Benefits-calms-body-reduces-anxiety-decreases-stress-Buddhism.jpg>

How mindfulness affects learning

1. During strong emotions like fear, the amygdala is activated. Mindfulness practices can lead to lowered activation.⁴

2. Mindfulness practices activate the hippocampus, which regulates the amygdala and is critical to learning and memory.^{5, 6}



<https://www.mindfulschools.org/about-mindfulness/research-on-mindfulness/>