

MAKE IT STICK: The Science of Successful Learning - A Summary

Here, we examine the insightful findings within:
"MAKE IT STICK - The Science of Successful Learning" by
Peter C. Brown - a magnificent story teller-
and two accomplished cognitive scientists:
Henry L. Roediger III and
Mark A. McDaniel. It is a 2014 Belknap Press (of
Harvard University Press) publication (Cambridge,
Massachusetts; London, England).

After examining the book, one can say that, in short, this
masterpiece calls for
actively taking control of your learning through
continuous critical thinking (thinking about thinking) and
"spaced practice." The latter requires pausing to ask
questions, deeply reflecting and periodically quizzing yourself
to systematically detect areas of weakness.

"Make It Stick" is a wonderfully written book - quickly
dispelling widely used learning methods (e.g. re-reading);
methods based on the "practice makes perfect" edict - one
requiring refinement; methods that are highly ineffective and
that far too often lead to or contribute to a false "illusion of
mastery." Just because a method makes us feel like we're

progressing (e.g. re-reading), doesn't mean the method is effective. Massive re-reading, for example, is NOT effective.

After "revealing" the above, the book immediately sheds light on very effective methods - methods that are supported by solid research.

Nothing can replace reading this magnificent - well written - book.

It's a must read!

Go out and buy two copies - one for you and one for a friend.

With that said, the following is a very brief summary of the main points in "Make It Stick."

First, limit your re-reading.

Did you know that re-reading is the primary learning strategy employed by most learners? Did you know that it is supremely ineffective? Some re-reading is necessary to properly absorb some basics (e.g. concepts, principles and terminology), but re-reading is NOT sufficient. What then should one do?

First, we must all be VERY suspicious of "methods for easy learning."

Real meaningful learning is not easy. It takes work. It often doesn't feel good. To not accept these familiar truths is tantamount to denying the laws of physics and mathematics. How so?

How one views learning is important. We all know that misaligned or distorted expectations can cause great grief.

Most of us have experienced the yucky feelings that come with such misalignment. This is human. While this theme of "unrealistic or misaligned expectations" was addressed in great detail by ancient stoic philosophers such as Epictetus and Seneca, it is one very familiar to us all - one that we must confront and tackle everyday.

We all know that sometimes learning can even feel awful!

(Why? We may not be too motivated. We may not understand why the material is important. We may not possess sufficient background. The C in the prerequisite course may be coming back to haunt us. Or, we may just be going about learning in a bad way. Our learning by method may stink. We might not really have a "learning method!")

What then should we do?

How do we get people to not give up early on; to move forward with an unshakable confidence that it will all work out?

Any decent treatise on learning should argue that:

Having proven time-tested methods that you believe in - backed by solid research and strategies for employing the methods - can make all the difference and provide you with that essential fuel to propel you forward toward your goals with great determination and ferocity!

What then should learners strive for? Systematic planned and "effortful" active learning is what we must all strive for!

No more cramming.

Cramming is stressful and very ineffective - leading, at best, to modest short-term results. Unsurprisingly, studies have shown that cramming leads to poor long-term memory/learning. What then should learners be pursuing? Here is what the authors of "Make It Stick" propose.

The key to successful learning is carefully spaced focused quiz-based practice - allowing for some "in-between rust building & forgetting" - to practice the retrieval of information. Such practice increases brain connections and strengthens the knowledge.

Quiz-based "calibration" helps to realign and consolidate learning.

It helps one focus on central precepts, identify weaknesses, arrest forgetting and pursue mastery.

Spaced retrieval practice challenges you to remember and forces you to recreate the information. This strengthens brain connections and the learning.

Interleaving of related topics -mixing it up, reviewing a mixture of problems/topics rather than blocked practice - helps better prepare for the real exam just like random pitches during batting practice helps one better prepare for hitting during a real game.

Elaboration involves

explaining what you've learned in your own words to yourself or others,
relating new material to what you already know and your personal life,
developing visual models, mnemonics, and
large summary sheets
help you figure out and build additional
connections/associations.

Generation involves
trying to solve problems before being exposed to solutions,
reading before class,
experiential learning,
wrestling with course content on your own before going over it in class,
flipped/reversed classroom concepts, etc.

Reflection involves
asking yourself questions about what has been done,
how to do it better,
what you know and don't know,
and general thinking about your thinking (i.e. critical thinking).

Join testing groups
rather than study groups;

Make the best of setbacks.
Setbacks can provide the key ingredients for a substantive reset, critical reflection, and redirection leading to forward success and true mastery.
This important "glass half-full" philosophy dates back to ancient stoicism.

Learners should strive to climb to the top of Bloom's cognitive learning taxonomy pyramid (1956):

Remember

Understand

Apply

Analyze

Evaluate

Create