‘Critical Thinking’ without Memorization? It Doesn’t Exist

To grow in knowledge, you need to have a foundation of memorized facts on which to build.

Think about the study of history. If you haven’t memorized certain important dates, or rulers and their reigns, or the years of major periods, it’s difficult to adequately situate new historical information or analyses that you encounter.

[*As the hilarious video below shows, there are pitfalls to not knowing historical dates*.]

Pepsi 1893: Columbus from Pitch on Vimeo.

Another example which many of you probably know all too well: a foreign language. You simply can't become more fluent in a language if you're constantly having to dive into a dictionary for a translation of the same basic vocabulary words.

And what's one of the best way to memorize facts in school? A test.

In recent years, it has become vogue to be down on testing as a learning tool. Much of the ill will for tests has a lot to do with the multiplication of standardized tests in schools. (And there's some validity to this ill will.) But there's also this notion out there that testing and memorization is somehow opposed to the buzz concept of "critical thinking."

However, a test is still an invaluable learning tool and a necessary component of critical thinking.

At least, that's? what Washington University professors Henry L. Roediger and Mark McDaniel concluded after 10 years of research. As reported in their bestselling book *Make It Stick: The Science of Successful Learning*, they consistently found

that students who were tested on material were able to recall it much longer than students who were not tested.

But, to be a useful learning tool, testing must be done right. According to Roediger and McDaniel, here's the right way to do it:

> *"To be most effective, retrieval must be repeated again and again in spaced out sessions so that the recall, rather than becoming a mindless recitation, requires some cognitive effort."*

In other words, one-and-done tests that are merely crammed for don't really help students learn that much. But repeatedly quizzing and testing them on material, and doing it in different ways, and making them have to think about it: that's what makes learning actually stick.

Take the example of a foreign language again. Many language teachers merely give students vocabulary quizzes of words that are never seen again on another quiz or test. As a result, after a short amount of time, students forget those words, and they end up instead wasting time developing their dictionary-flipping skills.

But if a student is repeatedly made to recall the meaning of these words on tests, and even better, the method of the testing practice varies—some written, some oral, some conversational, for instance—then it's likely that the student will remember these words for years to come. After all, that's essentially what takes place in language immersion.

And, of course, you don't have to be in school to constantly "test" yourself. You can do it through trying to recall key points of what you read the previous day, or bring up what you've recently learned in dialogue with others, for instance.

Today, many educators praise “creative thinking” and “conceptual learning” while denigrating testing and the memorization of facts. But, as the authors of *Make It Stick* remind us:

> *“Pitting the learning of basic knowledge against the development of creative thinking is a false choice. Both need to be cultivated. The stronger one’s knowledge about the subject at hand, the more nuanced one’s creativity can be in addressing a new problem. Just as knowledge amounts to little without the exercise of ingenuity and imagination, creativity absent a sturdy foundation of knowledge builds a shaky house.”*

Image credit: PoliFact/YouTube