MYTHBUSTERS

study techniques

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One of the most common study techniques used by college students is highlighting. But just how effective is highlighting, underlining, or bolding important details when half of the text is marked or when professors want a recount of the big picture? A study recently published in *Psychological Science* reveals that some of the most popular tools students use may actually hinder rather than help performance. Read on to discover the truth behind study myths and to find out about habits that students may want to adopt instead.

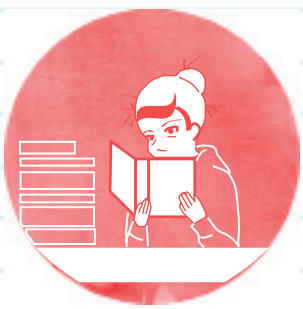
myth #1: highlighting and underlining help the brain to process information

Two of the most widely accepted methods used for memorization are highlighting and underlining text, as any student borrowing a course reserve from Powell could point out. However, the aforementioned study revealed that while **highlighting and underlining can draw attention to individual concepts, students using these methods were less likely to make connections across concepts and were prone to overmark.** In addition, the study showed that the two techniques could actually hurt performance on higher-level tasks that require inference making, or drawing conclusions from given data.

myth #2: keyword mnemonic devices are efficient

From learning PEMDAS (Parenthesis, Exponential, Multiplication/Division, Addition/Subtraction) in elementary school to Sohcahtoa (Sin=opposite/hypotenuse, cosine=adjacent/hypotenuse, tan=opposite/adjacent) in middle school, most students store tons of mnemonic devices to help them remember a variety of things, from the most simple of operations to the most complex foreign language vocabularies. But how useful are these fun phrases when students have to take the time to create their own? **In a 2007 study published in *Applied Cognitive Psychology*, researchers found that inventing mnemonic devices is not efficient in terms of the time required for generating and memorizing keywords to fit into the devices.** In foreign-language vocabulary tests, students who used mnemonic devices received significantly lower scores than students who took practice tests instead.

myth #3: rereading allows the student to digest the material better



In a 2009 *Memory* study, researchers found that rereading was the most frequently used technique by 55% of students at one university. Naturally, rereading should increase the total amount of information digested. However, **two different studies published in 1993 and 2009 in *Contemporary Educational Psychology* failed to find significant differences in results between students who read the given text once and students who read the same text twice when tested on application or inference-based questions.** Although there were some benefits when students were tested on recall-based memory measures, students utilizing this technique may not show improvement in comprehension.

myth #4: studying in the same place everyday is the most effective

Many students seem to have a special study spot that they prefer to go to--the back of the reading room in Powell or the window seat at that café in Westwood--where they spend several hours cramming in material for an impending midterm. However, in a 1978 experiment published in *Memory and Cognition*, **psychologists discovered that when given a list of 40 vocabulary words, college students who studied the list in two different rooms varying in cleanliness and location scored far better on a test than those who studied the list twice in the same room.**

ORIGINAL ILLUSTRATIONS BY KRISTEN SADAKANE

techniques to adopt instead:

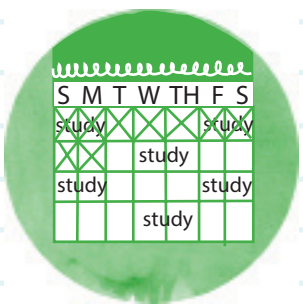
alternative #1: Teach the Subject to Peers

"To teach is to learn twice," revealed a 1998 study published in the *Archives of Pediatric and Adolescent Medicine*. Pediatric residents who were randomly assigned to teach about oral rehydration retained nearly two times as much of the information on the subject six weeks later as compared to those who were assigned to self-study or to attend a formal lecture. **The researchers discovered that preparing to teach motivated the students to actively engage with their material rather than just reading and listening to it passively.**

alternative #2: practice testing

Although most students prefer to take as few tests as possible, practice tests have proven to enhance learning and retention. A study published in 2008 in *Memory and Cognition* revealed that undergraduates studying Swahili-English translations who continued to take tests without additional studying scored substantially higher on a final test after one week (80%), than those who continued to study with no further testing (36%). **Practice testing could involve a number of methods: using actual or virtual flashcards, completing practice problems or questions included at the end of textbook chapters, or completing old exams handed down from previous students.**

alternative #3: distribute learning over time



Though many college students have fallen prey to pulling all-nighters and cramming in material before an 8 A.M. final, extensive research has proven that spreading out studying of content typically benefits long-term retention more than does massing learning opportunities back-to-back or in relatively close succession. In 1979, a study in the *Journal of Experimental Psychology* revealed that Spanish language learners who participated in six sessions in addition to an original lecture spaced one to thirty days apart tested superior to students who had six review sessions all in one day (*Journal of Experimental Psychology*). **So while cramming the information the night before may get a student through a test, the material will quickly fade from memory. Thus, it may be more effective to study the material at intervals over time.**

alternative #4: stay focused with StayFocusd

Believe it or not, a summary by the American Psychological Association in 2006 explains that there is actually no such thing as multi-tasking. So people who are scrolling their Facebook newsfeed, listening to music, and watching Youtube videos while studying are actually serial-tasking. Rather than engaging in these tasks simultaneously, the brain is working overtime to switch from one task to another in rapid succession and cannot actually entirely focus on any of them. **Eliminate distractions by downloading apps and extensions on your laptop such as StayFocusd, a free, popular Google Chrome Extension that blocks different websites after a certain allotted period.** For example, the program can limit Facebook usage to one hour a day or Youtube to thirty minutes to a day, thereby taking away the option of multitasking altogether.