Student self-testing earns high marks as study tool

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College students who pore over their notes again and again as they prep for finals could use their studying time more wisely, according to new learning research from Purdue University.

"We know that self-testing, which happens when students practice retrieving knowledge, drives learning," says Jeffrey D. Karpicke, an assistant professor of psychological sciences. "Students can really benefit from testing themselves as they study by using something as simple as flashcards. However, the key is to not drop a flashcard once you feel you have mastered the material. Keep it as part of your rotation and keep practicing retrieval of that information."

Karpicke found in his study that college students are more likely to invest their time in repetitive note reading, and those who do practice retrieval spend too little time on it.

"My research found that this happens because there is an illusion about how much a person is actually learning while they are self-testing," said Karpicke, who is a cognitive psychologist and memory expert.

The illusion takes root when students feel answers come to them easily as they practice testing. For example, students using flashcards to study may eliminate certain cards when they believe they know that material well.

"This is called retrieval fluency," he said. "If you practiced recalling

information even a few more times, it would produce big gains in learning and long-term retention. The reason people don't keep testing themselves is because they are tricked by retrieval fluency. The answer comes to mind so easily the first time that they think they know it and drop the card from further self-testing. But this is not a recipe for good long-term learning."

The research findings appeared in last month's [Journal of Experimental Psychology](): *General*. Karpicke conducted four experiments with 150 [college students]() in various studying situations on Swahili-English vocabulary words. Students in each experiment learned vocabulary words from a computerized flashcard format, and then the conditions were varied based on studying techniques assigned by Karpicke or selected by the participant. The students returned a week later for final testing.

No matter if the students selected their own studying strategy or it was assigned, they all learned better when self-testing all of the material from the electronic flashcard format. Students didn't do as well on the final test if they dropped material as they learned it during self-testing.

The students whose studying techniques were assigned received computer prompts on what to study and even how to study it at times. Some of the students in the experiment could select how they wanted to study, and they were likely to drop the vocabulary words they felt they knew well. As a result, many could not remember the words when they returned a week later for the final test.

"What is surprising is that we know practicing retrieval by self-testing is really powerful, and yet people don't use it, or don't use it well," he said. "These are college [students]() who are generally successful academically, so this just shows how powerful the illusion can be."

Source: Purdue University ([news](#) : [web](#))