

[Why Teachers Challenge Students, Ask Them To Summarize, and Give Tests]

.....For example, Bjork studies how teachers can improve students' test performance while ensuring that they actually understand and can synthesize course material. Too often, she said, students memorize facts without understanding their context or implications. To help instructors avoid such pitfalls and improve student learning, Bjork and other psychologists suggested they:

Introduce "desirable difficulties" into their undergraduate classes to propel students to think hard about material to understand it and prevent passive and short-lived absorption of facts. For example, teachers can vary the conditions of learning by using different lecture methods, grouping students to discuss material and giving short bursts of lecture punctuated by practice exercises and testing, Bjork said.

"We tend to think of human memory as a recording mechanism that you can write information on," she said. "But actually, the nature of memory couldn't be further from that model."

Encourage effective study methods like self-tests and summarizing information. Teachers can help students expand upon their typical, naturally chosen study methods of rereading texts and lecture notes, said psychologist Mark McDaniel, PhD, of Washington University in St. Louis. For example, when students recall information in its context, also known as elaborative rehearsal, they reduce the arbitrary nature of information and learn more than if they'd only reviewed the facts, McDaniel said.

As evidence, his research has found that students benefit from asking themselves questions about the context of facts. In one study of people who read and understood the fact, "The first apple orchards were in Nova Scotia, Canada," 43 percent later recalled it. But of people who read and understood the fact and then asked themselves "why," 73 percent remembered.

Use testing as a way to force elaborative rehearsal. If students have to synthesize material they have just learned into arguments for one answer over another, they are more likely both to understand and to remember, said McDaniel.

"The more you demand of the retrieval process, the more learning that takes place," he said.

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