

Study: Seasoned profs prepare students for advanced learning

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Highly credentialed and experienced professors are better at preparing students for long-term academic success than their less-experienced counterparts, but that ability isn't necessarily reflected in their students' teaching evaluations. That's according to research by a pair of economists published in this month's *Journal of Political Economy*.

The study's authors, Scott Carrell of U.C. Davis and James West of the U.S. Air Force Academy, say their results raise questions about the value of student evaluations as measures of instructor quality.

Student evaluations are widely used by colleges in tenure and promotion decisions, but Carrell and West considered a different measure of instructor quality. They looked at how well instructors in introductory courses prepare students for more advanced courses in related subjects.

Their data come from Calculus I and follow-on classes at the U.S. Air Force Academy. All Air Force Academy students are required to take Calculus I, Calculus II, and nine math-based technical courses regardless of their majors, and professors in all sections of classes use an identical syllabus and give identical exams. That gives the researchers a chance to compare instructors on a relatively even playing field.

The study found that students' achievement in follow-on coursework was strongly influenced by their Calculus I instructor. Students who had a seasoned Calculus I professor with a Ph.D. tended to do better in follow-on coursework than students who had less-experienced and less-

credentialed Calculus I instructors. This happened despite the fact that students of seasoned professors tended to have lower grades in Calculus I. The results, the researchers say, suggest that less experienced instructors have a tendency to "teach to the test," while more experienced teachers produce "deep learning" of the subject matter that helps students down the road.

The findings weren't a result of newer professors being "easy-graders," because the Calculus I course was designed to remove as much instructor discretion as possible from their student's grades. Midterm and final exams are group graded, where one instructor grades a single question for the entire course to ensure uniformity of partial credit.

The deep learning produced by more-experienced instructors was not reflected in their students' teaching evaluations, the study found. Less-experienced instructors—whose students tended to do better in the short-term but worse in later classes—received higher ratings on student evaluations. For example, the instructor who ranked dead last in "deep learning" in the sample of 91 Calculus I instructors ranked sixth best in student evaluations.

Taken together, the findings imply that student evaluations give instructors—especially those who do not have tenure—incentive to teach in ways that "have great value for raising current scores, but may have little value for lasting knowledge," the authors conclude.

More information: Scott E. Carrell and James E. West, "Does Professor Quality Matter? Evidence from Random Assignment of Students to Professors." *Journal of Political Economy* 118:3 (June 2010).

Provided by University of Chicago

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