

Ensure Students Are Learning: Faculty Descriptions of Innovative Teaching Practices

Creating a Culture of Learning: Assigning Homework Quizzes in Pre-Algebra and College Algebra

Innovative Teaching Practice Description:

Homework Quizzes

The instructor provides students with a quiz that contains five problems included in the homework completed for that day's class meeting. Based on the results from the homework quiz, the instructor can determine if students are learning from the homework. The instructor prefers to administer homework quizzes than assign homework grades because this way students are not just focused on obtaining a certain letter grade or earning points. The instructor has also found that assigning homework grades has led students to cheat in order to obtain points. Homework quizzes, therefore, are alternate small performance tasks that provide a better understanding of whether or not students actually understand the course content. The instructor notes that the homework quiz is also a form of external motivation for students to complete their homework, as doing their homework will help them to do well on their quiz.

Students take the homework quizzes at the start of every class. Having students take the quizzes in class minimizes the chances of cheating. After students complete the quizzes, the instructor then grades them in class. The instructor intentionally selects simple problems that do not take long to answer and provides students a short amount of time to complete the

quizzes (e.g., five questions to answer in 10 minutes) so that they can be graded quickly. One quiz problem is selected from each concept covered in the homework—if a student does not know one concept well and there are two questions related to that concept on the quiz, then the student will get two problems incorrect. The instructor typically takes about 15 minutes to grade all of the quizzes, with the entire process taking about 25 minutes.

While the instructor is grading, the students work on a pre-test of the content for the section of the course being covered that day; the pre-test assesses what students already know about the subject before the instructor starts the lecture. After the students complete the pre-test and the instructor distributes the graded homework quizzes, the students discuss their results from the quiz in class. The instructor immediately adjusts the instruction if several students got the same problem incorrect and reteaches the topic in class that day. If only a few students got an answer incorrect, the instructor talks with those students after class about their results from the quiz.

Test Corrections

For some courses the instructor teaches, students have multiple choice tests. After students receive their graded tests, the instructor gives the students a form to complete if they missed questions and want to earn

missed points back. On this form, students have to rewrite the problem they missed just as it is written on the test; the instructor notes that this is a useful activity, as many mistakes come from students not reading test questions carefully. After students rewrite the test question, they have to give a reflective analysis of what their thinking was when they answered the question. Points are not awarded for statements such as, “I rushed;” therefore, many students need coaching on the reflective portion, as they are often not used to reflecting on their own thinking. This coaching allows the instructor to give students specific feedback on what they are doing wrong; the instructor may do this by asking students probing questions such as “What about the problem is unclear to you?” or “What about the homework did you not understand?”

Students then have to write about how they are going to approach the problem differently. The test corrections encourage students to think of the tests as “not the end,” as they have additional opportunities to learn through the test corrections. Through this practice, students also begin to understand how their homework helps them on tests. Students can make up 50% of the points they have missed, but they have to correct every problem that they missed. Test corrections are considered extra credit, and there is a time limit for completing them. There are no test corrections on the final exam.

How to Prepare for This Innovative Teaching Practice:

Homework Quizzes

The instructor should select problems from homework assignments that (a) can be completed within 10 minutes, (b) are easy for students to answer if they read the chapter content, and (c) allow the instructor to easily identify any mistakes that students may have made when they answered the questions.

The instructor noted that works by the following authors helped develop and refine these activities: Jo Boaler, Robert Marzano, and Robyn Jackson.

Notes From the Instructor About This Innovative Teaching Practice:

“I have seen a dramatic increase in the number of questions from the class on homework problems. Students also have an opportunity to make test corrections, which allows them to make up 50% of the points they have missed. The bulk of the makeup points come from their assessment of what concept they had gotten wrong and what steps they took to understand the error. Since instituting this practice, final exam scores average about 84% (up from 62%).”

“I try to create a culture of learning in my classroom. In my courses, I explain the applicability of math and how students may use the content elsewhere (both inside and outside of class). So many people find that their self-worth is tied to their performance in school. I actively remind students that it is not. I tell students to ask themselves ‘What did I do and what do I need to change?’ I provide this system of feedback so that it depersonalizes the results. It is important to create a culture in your classroom that is depersonalized from performance.”