



# INNOVATION ABSTRACTS

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## To Go Over a Test or Not to Go Over a Test?

Testing is primarily used for assessment purposes. It is a way for a teacher to determine if students have mastered the required material. After exams are graded, they are often returned to students with the intention that they will review their incorrect answers and learn from their errors. In reality, most students just look at their grade and file the exam away. They never follow through to understand what they did wrong or to learn the concept they got incorrect.

Throughout my teaching career, I felt that it was my professional responsibility to go over every problem on a math exam when I returned it to my students. How else would they learn from their mistakes and continue to improve their math skills? I began to notice that reviewing exam questions with my students was not as effective as I originally thought. Students who did well on the exams were bored when we went over each problem and students who did poorly often were too upset or didn't care enough to even pay attention to what I was presenting.

The next method I tried required students to rework their exam errors on their own. I then rewarded their efforts with extra exam points. I lost confidence in this tactic because I realized that students were either copying exam answers from each other or finding the correct answers in other ways; the students weren't learning from their mistakes.

I applied a new strategy that addressed all errors made on the exams by creating an answer key that highlighted every mistake I found. The purpose of the answer key was to have students analyze common exam mistakes being made. This was very time consuming and few students used the answer key to review their mistakes. Consequently, I then decided to replicate what my colleagues were doing by providing students with an answer key to all of the exam problems with work shown. Once again, only a few students bothered to look at this answer key and learn from their past errors.

### A New Strategy

The search for an effective way to provide feedback after exams led me to a strategy that I have incorporated into my classes for the past four years. After I give tests back to students, I allow any student who scored below a 90 percent to sign up for a 20-minute appointment with me during my office hours. They must do this before the next test is administered to receive any points back on their exam grade.

During the individual appointments, we go over their tests, find their errors, discuss their thinking, and redo

the problems correctly. If I feel that they understand their mistakes during the session, I will add a few points to their test grade. The amount of points added varies, but generally I add between 5 to 10 percentage points to the grade. If I feel a student needs more practice, I assign him or her supplemental problems before the extra points are awarded. If a student's schedule makes it impossible for him or her to meet with me, I allow the student to take the test to the campus tutoring center, meet with a tutor, do the corrections on a separate paper, and obtain the tutor's signature; I then award the extra exam points.

I have found many benefits to using the one-on-one appointment strategy. Personally, I enjoy interacting with my students outside of class. We discuss their schedules, majors, and academic goals. I am also able to evaluate each student's mathematical foundation and whether or not he or she has any inefficient methods for working through problems. The 20-minute appointment is focused on the student and how I can assist him or her reach their class goals. It is easier for students to ask me questions during the appointments as opposed to in the classroom because they feel less judged and pressured than when they are around their peers. Students tend to see me in a different light during the appointments than in class and this leads to an increased comfort level inside the classroom.

Students have an opportunity to increase their grades, but the effort and understanding must be present. This opportunity creates student traffic into the faculty office area and makes for an effective way for me to spend office hours. The strategy requires time, but it is well worth it when you read students' comments on their course evaluations.

A few examples of what students wrote:

- *It was helpful to meet up with my professor to better understand the material and improve my tests grades.*
- *If I didn't do well on the test, I would meet up with my professor to get a better understanding of what I did incorrectly.*
- *My appointments with my professor helped me clearly understand the concepts of each problem by working through them together step-by-step.*
- *The professor is available to have a private session with you which helps bring up your grade.*
- *The professor gives you ample time to get back on track and get additional points when you fail a test.*

I have used the one-on-one appointment strategy largely in my developmental mathematics sections. However, I believe that this technique lends itself to any math course and discipline where similar problem-

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solving skills are involved. One-on-one appointments have proven to be effective in assisting students understand their problem areas, improve their grades, and increase their academic success. The added bonus for me is having a better connection to my students.

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