ANONYMOUS QUIZZES

An Effective Feedback Mechanism

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Short-term teaching goals ("Did my students learn?") are typically evaluated using homework, quizzes, exams, and projects. Each of these assignments must be graded, and they reflect many factors external to instructional quality, such as the quality of the text, the effort exerted by students outside class, study partners, and social conflicts. By the time the instructor realizes that students are misunderstanding key points, the (bad) grades have already been recorded and the class has moved on to new topics that build upon the misunderstood material.

Long-term teaching performance ("How well do I teach?") is typically evaluated through standardized forms that are filled out by students near the end of the term and sealed away until final course grades have been completely processed. Under this system, an instructor may not discover significant weaknesses in his or her teaching methods until halfway through the following term—far too late to help the original group of students and barely in time to help the next group. While this timing may be sufficient to maintain the quality of experienced instructors, it does little to develop the skills of new instructors who are in most need of student feedback.

There are several methods that good instructors use to improve the evaluation and feedback process. One approach that is highly acclaimed by Richard Felder, James Stice, Sudhir Mehta, Charles Bonwell, and numerous other educators[1-4] is *active learning,* in which students are expected to participate actively during every class period. This activity may involve answering questions aloud or with flash cards, working on problems in small groups, "two-minute drills," or other variations. Students benefit from these methods by taking an active role in the educational process, and both students and educators get a rapid appraisal of how well the material is understood.

ANONYMOUS POP QUIZZES

I recently tried a slightly different approach, which I found to be simple, fast, and effective: the *anonymous pop quiz.*

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Several times during the semester I would reserve the last few minutes of the period for a pop quiz. The first time I did this, the students were aghast—until I announced that the quizzes would be anonymous and that they were NOT to place their names on the papers.

On these anonymous quizzes I would ask three types of questions. The first type would relate to the current class material and was designed to measure understanding, not simple memorization. This question would either be a simple mathematical exercise or a short essay-type question targeted at the higher levels of Bloom's Taxonomy.[5]

The second type of question would be a specific question relating to the course instruction. The question might address the effectiveness of the class handouts, it may ask for a comparison of overhead transparency versus chalkboard presentations, or ask whether the coverage of a particular topic seemed appropriate. In this particular case, the course itself was undergoing redevelopment,[6] so there were several questions relating to course content and procedures.

The final type of question was an open-ended "Please add any other comments you wish regarding this course." In many cases, this question produced the most extensive responses, as students would go into lengthy discussion regarding some topic that was of particular concern to them. Other students would routinely leave this part blank.

STUDENT RESPONSE

Overall, student response was favorable, and it improved as the semester progressed. Early semester responses re-

quested more examples in class and a lighter workload. Later on in the semester, students expressed concern over grading policies and a poster presentation requirement that had not been announced until mid-semester. Students responded that they liked the anonymous quizzes, course handouts, and general course content. The final course evaluations closely paralleled the comments on the later pop-quizzes.

BENEFITS

The main benefits of the anonymous pop quizzes are ease of use and rapid response time. Because the papers are anonymous, they do not have to be rigorously graded or handed back, there is no arguing over points, and nothing has to be recorded. A quick flip through the stack will instantly inform an instructor whether the students have understood the material and will quickly identify any common misconceptions. The instructor then has ample time to adjust the next lecture to account for any problems that are revealed. Other long-term and short-term benefits to be gained from this method are:

- *If a significant portion of the class has misunderstood a key point, then this point can be clarified before moving on to other topics that build upon the misunderstood material. (If the pop quiz is given at the beginning of the period, TAs can go through the pile during lecture and address the class at the end of the same class period.)*
- *By briefly addressing some of the students' comments in class, the instructor lets the students know that he or she cares about delivering quality education and is attentive to their needs and concerns. Where students have conflicting comments (as invariably occurs in a large class), announcing both sides can help students understand the compromises being made by the instructor to balance the needs of all students.*
- *If the instructor has any serious deficiencies in teaching methods or style, these can be identified early in the semester, in time to make adjustments that will benefit the current group of students. Prompt adjustments can be particularly beneficial to beginning professors who need to refine their teaching skills rapidly in their quest for tenure.*
- *The comments can be retained by the instructor for use in a teaching portfolio, or to be included in a tenure application package. Comparing comments from current students with those of previous classes can give instructors a good measure of long-term development.*

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CAUTIONS

There are a few potential drawbacks associated with extensive student feedback. One is that many students will accept almost anything an instructor does if it is presented in an unyielding format. Requesting student opinions opens the door to discussion and debate of the instructor's methods and abilities. A second concern is that while some students will respect an instructor who solicits their opinions and responds to their educational needs, other students will view such as instructor as soft and wishy-washy.

There will also be some negative, and even insulting, comments. The instructor must be prepared for these and not be excessively discouraged or influenced by negative feedback. (Which is not to say that negative comments should be discounted, particularly if they are prevalent or repeated.)

Student participation in a voluntary activity that does not directly affect their grade may be less than desired. Increased participation can be encouraged by repeating one or more of the pop-quiz questions on an exam, either directly or slightly modified. Note also that unhappy students are more likely to respond than those who are doing well and are satisfied with the course.

CONCLUSIONS

I feel that this is an effective technique and intend to use it again in future courses. For the course in which I first implemented the technique, instructor and course rankings improved significantly from the previous year. While most of this improvement is attributed to extensive course revisions,[6] I do not believe that those revisions would have been as effective without a timely feedback mechanism in place with which to evaluate them. Note that I do not recommend using this technique during every class period, or for every class. I used it three or four times during a semester, which was appropriate for the class involved.

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