Changing assessment strategies to help improve student learning

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Abstract

For many instructors, student assessment means exams – typically multiple-choice exams. Unfortunately, multiple-choice tests often examine students’ ability to (a) take a test and (b) recognize terms, rather than assess the students’ full knowledge. In planning for a new course this semester, I included a variety of assessments, both graded and ungraded, for my mid-sized course (35 students). Along with a few multiple-choice exams in lecture, they have 2 short answer practical exams in lab, an essay, and a project that combines photography of microscopic samples with written descriptions. In class I incorporate ungraded assessment during the lecture by asking multiple questions within lecture and fostering student discussions in lecture and lab. A colleague also teaching biology to undergraduate students has been utilizing exam wrappers to help students self assess during exams. The goal of exam wrappers is to clarify for students how they are actually studying and help them identify study practices that can the students can change as the semester progresses. These diverse assessments provide options for students to engage in active learning and for me to verify the students understanding and learning.

Assessment Options

One of the most common assessments is multiple choice (multiple guess) exams. They are:
- Fairly easy to create exam
- Very easy to grade
- BUT not the best assessment. They
- Don’t often test student’s knowledge but more their ability to take exams
- Difficult to write good questions

Graded assessments:
- Summative results
  - Exams
  - Homework
  - Quizzes
- Critical feedback
  - Projects (individual or group)
  - Essays or papers
  - Oral exams
  - Homework

Ungraded assessments:
- Class discussion
- In-class question & answer
- Think-pair-share

New Class - What to do?

In planning & designing new course, I focused more on assessments that supported student learning. Assessments were closely matched with learning goals (reverse course design)

Lab Project

Active & collaborative learning

Students engage with prepared tissue slides - they view in microscope and search out structures needed to complete a project

Students actively identify structures and tissues discussed in lecture

Students collaborate and check identifications with classmates and the instructor

A mockup was provided to students to act as a template and which contained instructions for how to successfully create each page of their project

Throughout the semester, students were encouraged to have the instructor review pages as they were created for comments

Results of Exam Wrappers

Before the Exam:

Students are not spending enough time studying (especially in groups). You can monitor if their study time increases as the course progresses.

During the Exam:

Hunger, anxiety, fatigue and personal issues are common. Students can change their eat/sleep patterns or be tested for test anxiety.

After the Exam:

Many students indicate disappointment in their performance. Identifying these emotions can trigger a change in habits. On average, more than ½ of the answers changes result in going from the right answer to the wrong answer.

Overall Conclusion:

Students are honest on exam wrappers whether anonymous or not. The mean grade students expect to receive before the exam is a 70. This number drops several points during the exam and even further at the conclusion.

Exam Wrappers

The goal of exam wrappers is to identify how and how often students prepare for an exam. This allows an early intervention and modification of study habits.

Offers Potential Anonymity

Reduce the risk of future negative influences

Demonstrate to students that changing answers may not be the best idea.

Project impact on exam grades

Grade distribution of each exam show changes through the semester. The shift between exams 1 and 2 is possibly due to the active progress of students working on their projects.

Not shown here are trends in the grades of individual students. Students who were most active in lab with classmates, who came to office hours and who improved on their projects through the semester earned increasing exam grades through the semester. One student improved her grades from 64% to 74% to 83.3%. There was a similar but opposite trend in grades of students who did their work as quickly as possible, left early, and did not participate in group work.

Summary

Varied assessments help students learn better. Reduced weight of multiple choice exams puts less pressure on students. Qualitative feedback from students indicated that preparing individual pages for the project required them to consider the information presented in lecture and lab in a different light than they usually digested information which many claimed helped them on exams.

Alternate assessments may help to show student learning in ways that a single type of assessment does not.

References


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Grades impact on exam wrappers

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