

Unit 7

Assessment and Grading

Objectives

- Understand the purposes and kinds of assessment.
- Indicate how you will use assessment in your courses.
- Know the different grading systems available.
- Design a grading system for your course.
- Relate assessment and grading to your teaching philosophy.

How do you know that your students have learned what you want them to learn? How do you report that information? Teachers traditionally use tests and assignments to answer the first question, and assign grades to answer the second question, but doing either of these things is not as simple as it may appear. The process of determining viable course objectives, designing related assessment assignments, formulating standards for assigning grades, and then coping with the ramifications of assigning said grades can represent a pitfall-laden and stressful process for teachers.

The importance of comprehending the relationship between grading and assessment of learning goals cannot be overestimated. Learning requires knowledge of results (KoR); students need to know what they have done right so they can do that again, and what was wrong so they can correct it. However, learning does not require that KoR come with a grade. In fact, for some students a bad grade may create an emotional reaction that discourages further learning. For other students, grades serve as powerful reinforcement for learning-related behaviors.

This unit will focus on two topics: assessment and grading. The word, assessment, is more inclusive than the word testing. Assessment describes the various activities that help students and teachers track the learning process. The importance of aligning assessment with the learning objectives cannot be over emphasized. Assessment often “may determine what and how students learn more than the curriculum does” (Biggs & Tang, 2007, p. 169). Students learn what they think they will be tested on. This has been referred to as ‘backwash.’

Some assessment is *formative*, which means that it is used during the learning process as an indicator of progress. Based on the results, teachers might use different strategies or additional activities designed to help students achieve objectives deemed important by their instructor.

Because formative assessment is non-judgmental, these types of assessment strategies help teachers to shape, refine, and/or revise how they teach and what students learn.

Classroom Assessment

Angelo and Cross (1993) have developed a compendium of classroom assessment techniques (CATs) that mostly serve formative purposes. One of the most popular of these is the "one-minute paper," one version of which asks students to write a paragraph on "the muddiest point" in the day's class. Reading through these papers helps a teacher identify material that is confusing to a substantial proportion of the students and that requires additional work in subsequent classes. Another exercise asks students to write a summary of the main points in a lecture at the end of a class. Teachers hope, often erroneously, that student ideas regarding the main points discussed across each class match their own ideas. When assessments yield less than ideal results, teachers possess evidence to help them to alter their instructional strategies and then re-measure how students are progressing following the alteration. This [link](#) will lead you to five examples of CATs.

There are many additional options for formative assessment that one might pursue. For example, asking students to write drafts of papers provides an opportunity for formative feedback. In our experience, it is much more rewarding to help students develop their ideas than simply to critique and grade the final product. You may actually see learning happen! In contrast, little learning takes place following the presentation of the final grade.

Formative assessment strategies can be crafted in creative ways that not only provide information about student progress but also appeal to students. For instance, Jason typically sets up a *Jeopardy* program pertaining to material in his courses and creates competitions among students within and between class sections. Surprisingly, with only a prize of two extra credit points and a picture of the winners framed outside of Jason's office on his "wall of fame," he has found that students will study for these types of events, look forward to class, and strive to be

victorious. Further, such activities give teachers a chance to step back, see how students are doing with the course material overall, and then decide on whether pedagogical changes are required for the course.

Summative assessment refers to the final product, an examination, final lab report, project or paper. There may be feedback other than the score or grade if the exam is discussed in class or if there are comments written on the paper, but the context is much different than it is in formative assessment. With summative assessment, the outcome is decided, whereas with formative assessment the “final” learning outcome is still evolving and potentially changeable.

In many courses, summative assessment is the only kind that is used. This is another example of where one's teaching philosophy comes into play. Teachers who see themselves as "facilitators of learning" might be more likely to use formative techniques, while those who believe "students should discover how to learn on their own" may prefer to use only summative techniques.

Activity:

Using the syllabus you designed in Unit 3 or a syllabus you used for a course you have already taught, list assessments that you included that are summative, such as exams, papers, and graded assignments. Now list where and how you use or could use formative assessment techniques. Is the balance between formative and summative techniques consistent with your teaching philosophy?

Assessment varies on an *objective-subjective* dimension that is related to the type of test or assignment. Generally, multiple choice tests and solving math problems are objective, while

essay exams are more subjective. We will discuss shortly strategies for reducing subjectivity and increasing reliability of various assessment methods. For now, you should recognize that the objective-subjective dimension of assessment is not a clear-cut dichotomy. Rather, it is related, in part, to the amount of teacher effort that goes into the design and grading of the test. It takes a lot of time to write good multiple choice test items, but very little time to score those items. The reverse is true for essay tests; writing the questions may not take much time, but it takes a lot more time to grade them, especially if the teacher includes comments on the paper. Item writing time can be reduced somewhat if the teacher uses the test banks of multiple-choice or essay items that come with many textbooks. However, the quality of these items is highly variable; in fact they often require extensive re-writing to be useful.

Remember that our assessment goal is to find out if students have learned what we want them to learn, and this takes us back to the course objectives. The way we state course objectives should be related to our assessment decisions. Consider this example:

Objective: students will be able to describe the structure and function of parts of the nervous system.

Test item A: draw a diagram that shows what happens when a nerve impulse is transmitted from one neuron to another.

Test item B: When a nerve impulse travels from one neuron to another it crosses the (a) axon, (b) dendrite, (c) synapse, (d) myelin.

Test item A asks the student to describe, but item B asks for recognition and at a more specific level. Ease of test preparation and scoring may not be the most important considerations if you try to create assessments that are consistent with your course objectives. The question then

becomes whether you will change your methods of assessment or change your course objectives when the two are not consistent.

Activity:

This activity should prove particularly valuable for anyone who has never written test items. It will provide insight into how difficult the process may be while giving you some items to critique.

- Pick an objective from your syllabus.
 - Think of a content area from your course.
 - Write two multiple choice items, two essay items, and two different type items (e.g., short answer or matching), all related to the objective that you selected.
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A good test is one that is reliable, valid, standardized, and has norms. Most teachers do not know if their tests qualify as good in this sense and rarely take the time to find out.

If precise assessment of students is a high priority for you, then you need to develop knowledge and skills in the area of educational measurement. If that is not your top priority, you still have the responsibility to provide reasonable tests. According to students, fairness is one of the most important characteristics of a good teacher (Buskist, Sikorski, Buckley, & Saville, 2002), so you should take realistic steps to make your tests reliable. Tests should have some face validity, that is, they should look like the objectives you want to assess. Further, your tests should have content validity, which means that the test adequately samples the material in the course or unit. You might ask a colleague who is teaching the same course to look at your exams to help determine if they have face and content validity.

Developing a standardized test can be very time consuming. You not only have to write good questions, but also develop a strategy to maintain security so that the questions do not get out. More importantly, because our courses change as we develop new content and methods, we need to revise the old test or develop a new test every time we made changes to the course.

It follows that we cannot have norms for our tests in the way the Educational Testing Service (ETS) can, but we can keep records of student performance over the years to help us make judgments about the relative difficulty of our assessments each year. A good enough test then, is a test that can be judged as fair by students and other teachers because it possesses signs of reasonable reliability and validity, and performance could be compared to that of students taking similar tests in comparable courses.

A number of useful resources are available to help you with the basics of test development. *Tools for Teaching* (Davis, 2009), chapters 41 and 42, and *Lessons Learned* (Perlman, McCann, & McFadden, 1999) chapters 8 and 9 contain useful information on test construction, especially for multiple-choice tests. You may also find these two IDEA papers: No. 16, "[Improving Multiple-choice Tests](#)," and No. 17, "[Improving Essay Tests](#)" helpful.

In addition to traditional forms of assessment, you may want to experiment with methods that are used less frequently, including oral examinations, performance assessment, and portfolio construction. A good overview of some of these methods is available in *Teaching Tips* (McKeachie & Svinicki, 2006, pp. 79-85). .

An important aspect of successful formative assessment is helping students become “test-wise”. Your tests will have greater validity if you can level the playing field by giving less experienced students helpful advice on test-taking strategies for both multiple choice and essay tests. Part of this preparation could include giving a practice test that students grade themselves

in class. *Teaching Tips* (McKeachie & Svinicki, 2006, p. 107-111) contains a good discussion of test-taking strategies.

Even with your advice, some students may have serious test anxiety. A classroom climate of respect and openness should help alleviate this distress, but serious cases should be referred to your school's counseling service.

Grading

One cynical educator referred to a grade as, "an inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite material" (Dressel, 1983 quoted in Hanna & Cashin, 1988, p. 1). Unfortunately that is true in many cases, but it does not need to be. Our colleges and universities expect us to take grading seriously, and students and their parents obviously think grades are important. It often appears that our students' view of assessment and grading might be characterized as follows:

Success in life depends on getting into medical school, which depends on my overall GPA, which depends on my grade in this course, which depends on my grade on this exam, and that depends on getting specific items right or wrong.

We may wish that students were not so grade-oriented and operated under other motives, but grades remain a central fact of academic life. Not only are high grades rewarded in the academic world (*summa cum laude*), but grades often are factors in students' career choices.

As a teacher, your grading must be consistent with the college's grading policies and practices. Some colleges permit pass-fail grading; some allow pluses and minuses with the letter grades while others specify criteria about grade distributions. Most, however, give considerable latitude to the individual instructor, so you will want to develop a grading process that is consistent with your teaching philosophy. You may not wish to grade on a curve if your philosophy says that you want to help all students achieve their full potential, in your course.

Following a review of the college policies on grading and your unique teaching philosophy, you should work hard to develop a grading system that is fair and clear. This applies to both the grading of individual examinations and assignments, and to determining final course

grades. Fairness may mean different things to you and your students. Every student should have the same chance to do well in your course and irrelevant variables should not influence grades. For example, a student who often disagrees with the teacher should not have a disadvantage when graded. Students often think of fairness in relation to workload and difficulty. As one student adeptly put it to Jason, "this isn't my only course, you know?"

Does fair mean the same thing as objective? Is there so much subjective bias in grading essay exams and papers that it is impossible to be fair? Not if our grading process is clear to us and to our students in a statement in the syllabus that is reviewed before every exam and assignment. One way to increase fairness in grading is to indicate how each examination and assignment will be graded. For instance, on an essay or short answer question that has multiple parts, indicating the number of points each sub-section is worth might help students to make a decision regarding whether to pursue this particular essay, if they have the choice to earn points by completing a different essay (e.g., Complete one of the following three essays). This same level of detail and "fairness" is required when a student's final course grade is determined. A good syllabus will provide this information at the beginning of the semester.

Grading Exams and Assignments

Each examination and assignment should be related to the course objectives. More specifically, every exam item and the elements of each assignment should have a clear relationship to the objectives. When we look at strategies for computing final grades, we will see that one common way is to assign some percent of the final grade to each assessment, e.g., exams = 60%, paper = 25%, group project = 15%. This system gives a weight to the different items assessed, but it also assigns a weight to the various course objectives. You will want to keep the importance of each objective in mind when you design and grade assignments and

assessments instruments. The weights that you assign during assessment should reflect how important you believe each objective to be. Often we wind up doing much more assessment of factual knowledge than of the objectives that we view as more important.

If we want students to achieve course objectives, then it is important to be clear about our expectations. Students are concerned with what they will have to do and know. Questions such as "What do you want?" "Will it be on the test?" are often an indication that requirements and expectations have not been made clear to the students. Providing a study guide for examinations, showing students the criteria or rubric that you will use to grade papers and other assignments are two frequently used strategies for clarifying requirements.

Grading Papers and Projects

In many subjects, writing assignments are often the best way to assess higher-level cognitive objectives. The 1-2 page paper can demonstrate critical thinking on a specific issue, and the longer "term paper" can assess students' ability to integrate material and evaluate content. In other subjects, designing and implementing a final project that requires students to apply what they have learned is the norm. Regardless of whether you use writing assignments or projects, you have the responsibility to make your grading as objective as possible. Objectivity will be enhanced if you have criteria (a rubric) to guide your grading. In Appendix 7A we provide an example of a set of criteria for evaluating longer research papers; one can modify these criteria to suit other kinds of writing assignments. You should give a copy of your criteria to students as part of the assignment.

Making a global comment ("Nice work.") with a grade does not provide the student with information to understand why you believe it is good work. It is far more meaningful for the learner if you make specific comments on the student's ideas as you read the paper, for example:

“Your conclusion does not follow from the statements in your last paragraph.” “These sources provide good support for your criticism.” At the end of the paper consider writing a summary statement of strengths and problems in the paper. Often a faculty member might believe that putting such effort into comments is a waste of time; that students don’t bother reading comments. One strategy to promote student reading of comments is to require students to identify questions or specific areas where they would like feedback with their assignment. This might be in response to a prompt asking them to indicate what aspects of the assignment they found particularly challenging. This is also a strategy that might be used in the peer review process (Weimer, 2011).

Activity

Modify the writing assignment that you developed in Unit 6 based on what you have learned about grading.

Determining Final Course Grades

Determining course grades may seem like a totally mechanical process, but this process relates to your philosophy of teaching. Walvoord and Anderson (1998) make this clear in their presentation of models for calculating course grades. Each model makes assumptions that reflect your values and tells students what you think is most important.

- Model 1: Weighted letter grades, e.g., 3 unit tests count 45%, term paper 15%, oral report 10%, final exam, 30%. This teacher places three times as much value on the objectives measured by exams compared to written and oral presentations.

- Model 2: Accumulated points, e.g., tests 0-150 points, paper 0-50 points, oral report 0-20 points, final exam 0-120 points, total points available in the course 0-340 points. Then, letter grades are determined by taking a percent of the total, (e.g., A = 90% or 306 points). Here a student can compensate for poor performance in one area by doing well in another area, so the system allows students to make educated decisions about how they should balance their limited time in studying for the course.
- Model 3: Definitional system. This model is used less frequently. "To get a particular course grade, you must meet or exceed the standards for each category of work" (Walvoord & Anderson, 1998. p. 96). All areas are equally important and students cannot compensate for poor performance.
- Model 4: Mastery grading. This model sets criteria for performance, such as getting 85% correct on all examinations, then allowing students to retake different forms of each exam until they reach the criterion for mastery, or rewriting drafts of a paper until an acceptable version is produced. The assumption is that although students have different learning strengths, they all have the ability to achieve the objectives and should have the opportunity to do so.
- Model 5: Contract grading. This model places even more value on individual differences in students' learning preferences and their responsibility for their own learning. Teachers negotiate learning tasks and methods of assessment. The important thing is to help all students achieve the course objectives, although they may choose to do that in different ways.

Tools for Teaching (Davis, 2009), Chapter 44, contains more information on calculating and assigning grades.

Activity:

What statements in your teaching philosophy can provide guidance in determining how you will determine final grades in your courses? Will that depend on which course you are considering? Consider the assumptions related to the grading approaches that were discussed. Which of these are consistent with your teaching philosophy?

Use the syllabus that you designed in the section on course planning to design assessment assignments and construct a grading system for that course. How will you make this system clear to your students? Allow for a significant amount of time to complete this activity.

Looking Ahead

At this point, you have used your philosophy to design a course and develop a plan for teaching the course. The next Unit will introduce you to strategies to help gather information to determine if your plan was successful.

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- (Available: <http://www.facultyfocus.com>)

Appendix 7A

Term Paper Evaluation

[Modified from a table provided in a personal communication to Jim Korn by Barbara Nodine.]

Use a 5-point scale to evaluate the extent to which a student meets each of the criteria, with 1 = low and 5 = high. You may want to give more weight to the primary criteria. Rather than simply adding numbers to get a final score, you may want to use the criteria to guide your overall, global evaluation.

A. Primary Criteria: The Problem and Its Analysis.

1. Statement of the problem.

- a. Is the problem appropriate for this assignment?
- b. Is the question studied formulated clearly?
- c. Is the relation of the question to the topic clear?

2. Evidence.

- a. Is the type of evidence to be used well defined?
- b. Is the evidence reviewed well, with the relevant aspects of method and results emphasized?

3. Conclusion.

- a. Are the conclusions clearly stated?
- b. Are conclusions supported by the evidence?
- c. Do the conclusions relate to the question asked?

4. Implications.

Are the implications of the conclusions for theory, applications, and future research presented clearly?

B. Secondary Criteria: Presentation.

1. Quality of the writing: sentence structure, transitions from idea to idea, comprehensibility, and readability.
2. Organization: structure of paragraphs, section headings, logical ordering.
3. References: style (APA or other), completeness, use of quotation marks where required.

4. Quality of manuscript: spelling and typographical errors, cleanness of copy, formatting.

C. Overall Evaluation.

The author has:

1. thought about and analyzed the problem clearly and logically,
2. developed a good understanding of the issues involved,
3. formulated a clear question or issue,
4. assembled and critically examined the evidence and observations bearing on the question,
5. been creative in integrating findings and drawing conclusions, and
6. written clearly and effectively.