CETL TIPS: Developing Effective Tests

With midterms behind us, you are still not free from the development of tests for your classes! It is important to align tests with course objectives, particularly when constructing final exams. This month, we offer tips for:

Developing Effective Tests

In-class tests are a common type of assessment for measuring what the students have learned in your class. Three common types of test questions are multiple choice, true/false, and essay questions. We discuss the basics of each, and tips for using each, below. Sample items by discipline can be found in Jacobs and Chase (1992).

When you design a test, it helps to review what you think are important things for your students to know. To help you in your review, you may want to go back to the course learning objectives, and decide on assessments that test those objectives.

Multiple Choice Items

Multiple choice items are the most widespread selection-type item in the college classroom. They are useful for testing a wide range of learning outcomes, and for use in large classes to minimize grading time. Sometimes multiple choice items can be confusing. To avoid confusing your students, Jacobs and Chase (1992) recommend instructors:

- Present the problem in the stem of the question clearly and precisely, without added material that does not add to the question.
- Avoid repeating information in each possible answer that could be stated once in the stem.
- Write the correct answer first, then the distractors. This will insure that the correct answer is the only correct and best answer to the stem.
- Avoid using "all of the above" or "none of the above". If a student recognizes just one option as correct or incorrect, then they can easily eliminate these former options.

In addition, when using multiple-choice questions, an instructor faces the risk of measuring only superficial learning–in a study of 17 University of Kansas faculty members' multiple-choice exams, 8.5% of the questions required the students to use complex skills, and the other 91.5% tested basic recognition or recall of facts (Jacobs & Chase, 1992). To construct multiple-choice items that challenge students, you could:

- Have students write a short explanation of why they eliminated the answers that they did.
- Have students mark all the correct answers, without specifying how many are correct.

True/False Items

True/False items are declarative statements that students judge to be either true, or not. The time to complete such items is less even than multiple choice, and still as easy to score. However, with 50/50 odds, students can often guess the answers to many questions and still do relatively well. One option to discourage students from guessing is to require them to explain, in one sentence, why an item is false if indeed it is. Some tips for writing True/False items are to (Jacobs & Chase, 1992):

- Attempt to test abstract knowledge rather than only constructing factual statements. Reviewing **Bloom's Taxonomy (http://www.coun.uvic.ca/learn/program/hndouts/bloom.html)** will be useful for this tip.

- Avoid using specific qualifiers, such as "all" or "always". These items are almost always false.
- Write True/False items using positive wording so that you assess students' knowledge rather than their skill in reading complex sentences.
- Construct a short description of a problem, and have students identify possible solutions by answering a series of True/False questions.

Essay Items

Essay items lend themselves easily to testing a student's ability to think critically about the course material. They are relatively easy to construct, go beyond assessing basic recognition, and virtually eliminate a student's ability to guess the correct answer. They are in some ways easier to construct than multiple choice or True/False items, but much more time consuming to grade than either, and also are more open to subjective grading. To minimize grading bias, some instructors choose to cover the name on essay exams. Some tips for improving essay questions are to (Jacobs & Chase, 1992):

- Only use essay items to test higher-level cognitive functions, not factual recall. Some formats to achieve the former include beginning with "compare and contrast…", "present arguments for and against…" and "describe an application of…"
- Limit the breadth of the question so that the student knows how many conditions need be mentioned to adequately answer the question.
- Include detailed instructions for the exam at the top, including style of writing, whether grammar or spelling mistakes will subtract from the grade, and whether organization or amount of supporting data is important.
- Indicate the importance of an item by listing either how long the question should take to answer, or how many points the question is worth.

Reference (available from the CETL library)

Jacobs, Lucy Cheser & Chase, Clinton I. (1992). *Developing and Using Tests Effectively: A Guide for Faculty.* San Francisco: Jossey- Bass Publishers.

Online Resources:

Bloom's Taxonomy (http://www.coun.uvic.ca/learn/program/hndouts/bloom.html)

Developing Test Questions (with an emphasis on levels of measurement) (http://www.internetraining.com/ID_Consult/8tests/8tests.htm)

Developing Example Test Questions (http://mdfaconline.org/modules/module_c07/module_c7.html)

Developing Definition Test Questions (http://mdfaconline.org/modules/module_c05/module_c5.html)

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