

## Reliability for Teachers Activity: How can teachers increase their classroom tests' reliability?

This activity will help you answer the essential question:

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### Activity 4: How can teachers increase their classroom tests' reliability?

You may complete this activity individually or in groups

Read these three articles and then reflect upon or discuss the following:

1. What are the non-statistical attributes of reliable tests?
  2. Why are longer tests more reliable than short quizzes?
  3. What should be considered when writing test items to help ensure reliability?
  4. After reviewing this material how confident are you that your classroom testing practices are reliable?
  5. What can you do to improve your classroom testing tests to make them more reliable?
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#### I. IMPROVING TEST RELIABILITY

Adapted from: *What Teachers Need to Know About Assessment* by L. Rudner and W. Schafer (2002). Washington, DC: National Education Association. Available at: <http://echo.edres.org:8080/nea/teachers.pdf>. Retrieved March 7, 2012.

Developing better tests with less random measurement error is better than simply documenting the amount of error. Measurement error is reduced by writing items clearly, making the instructions easily understood, adhering to proper test administration, and consistent scoring. Because a test is a sample of the desired skills and behaviors, longer tests, which are larger samples, will be more reliable. A one-hour end-of-unit exam will be more reliable than a 5 minute pop-quiz. (Note that pop quizzes should be discouraged. By using them, a teacher is not only using assessments punitively, but is also missing the opportunity to capitalize on student preparation as an instructional activity.)

#### II. IMPROVING THE RELIABILITY OF CLASSROOM TESTS

Adapted from: *Test Reliability* by Lucy C. Jacobs, Ph.D., 1991. Available at: [http://www.indiana.edu/~best/test\\_reliability.shtml](http://www.indiana.edu/~best/test_reliability.shtml). Retrieved March 7, 2012.

The best suggestions for improving the reliability of classroom tests are:

Write longer tests. Instructors often want to know how many items are needed in order to provide reliable measurement. It is not easy to answer this question, because it depends on the quality of the items, the difficulty of the items, the range of the scores, and other factors. The best advice is to include as many questions as you think the students can complete in the testing time available. Around 40 multiple choice questions would seem an appropriate number for a regular class period.

Pay more attention to the careful construction of the test questions. Phrase each question clearly so that students know exactly what you want. Try to write items that discriminate among good and poor students and are of an appropriate difficulty level.

Start planning the test and writing the items well ahead of the time the test is to be given. A test written hurriedly at the last minute is not likely to be a reliable test.

Write clear directions and use standard administrative procedures.

Because students' grades are dependent on the scores they receive on classroom tests, teachers should strive to improve the reliability of their tests. The over-all reliability of classroom assessment can be improved by giving more frequent tests. The composite based on scores from several tests

and quizzes typically has higher reliability than the individual components. The positive and negative errors for individual students tend to even out over a semester.

### III. RELIABILITY CONCERNS FOR CLASSROOM SUMMATIVE ASSESSMENT

Adapted from: *Reliability Concerns for Classroom Summative Assessment* (Blog), by Naiku. May 25, 2011, Available at: <http://www.naiku.net/blog/reliability-concerns-for-classroom-summative-assessment>. Retrieved March 7, 2012.

What are the reliability concerns for classroom assessment? Nitko and Brookhart (2011) lay this out brilliantly in Chapter 4 of their book *Educational Assessment of Students*. Here's a summary of the reliability concerns and what you can do to address them from Nitko and Brookhart (2011).

1. For all assessments: consistency within each student (not that they always do the same, but that they consistently try to show what they know). To increase reliability, you should:
  - Encourage students to perform their best
  - Match the assessment difficulty to the students' ability levels
  - Have scoring criteria that are available and well understood by students before they start the assignment
2. For objective assessments like multiple choice tests: consistent performance from item to item. To increase reliability, you should:
  - Have enough items
  - Allow enough time for students to complete the test
3. For papers, essays, and projects: accuracy of rater judgment and consistency across forms (prompts or assignments). To increase reliability, you should:
  - Have clear enough directions for students that all are likely to produce work you can score
  - Have a systematic scoring procedure
  - Have multiple markers (scorers) when possible

Remember, as educators, part of our job is to assess what our students know and don't know (so that we can help them learn the things that they don't know). We can't really know our students if we don't assess them through reliable procedures or instruments. So teachers, how reliable are the inferences you're making about your students based the scores from your classroom assessments?

References:

- Nitko, A. J. & Brookhart, S. M. (2011). *Educational Assessment of Students* (6th Edition). Boston, MA: Pearson.
- Popham, W. J. (2006). *Assessment for Educational Leaders*. Boston, MA: Pearson.