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Strategies to Assess Large Classes

Carol Kominski

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Strategies to Assess Large Classes

Carol Kominski, Ph.D.

Assessment Specialist

Center for Learning and Development

Learning Outcomes

- Understand the differences between formative, summative, and blended assessment.
- Select techniques for formative assessment in large classes even when MCQs are the primary summative assessment.

Assessment Types

- Formative
- Summative
- Blended

Formative Assessment

- Provides feedback
- Facilitates course corrections
- Lets students focus efforts
- Does not require test security
- Examples
  - Course exam items discussed in class
  - Comments and suggestions for improvement on written products
  - Peer review of presentations

Summative Assessment

- Provides course grades
- Certifies competency
- Determines passage to next level
- Usually necessitates test item security
- Examples
  - Midterm and final examinations
  - Term papers
  - Professional board exams

Blended Assessment: The Best of Both Worlds

- Formative assessments
  - Prepare for and model summative assessments.
  - Improve summative assessment performance.
  - Reveal strengths and weaknesses to both students and instructors.
- Summative assessments
  - Present no surprises because they're similar to formative assessments.
  - Can provide feedback to instructor on class strengths and weaknesses.
  - Typically conceal details from students because of test security needs.

Seven Principles of Good Feedback Practice

- Provides clear goals, criteria, and standards
- Facilitates reflection
- Delivers high quality information to students
- Encourages teacher/peer discussion re. learning
- Encourages positive motivation and self-esteem
- Provides opportunities to improve performance
- Provides teacher with information to reshape teaching

Source: Nicol, D.J. & MacFarlane, Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles of good feedback practice. *Studies in Higher Education*, 31, 2, 199-218.

So how in the world does one do formative assessment AND provide feedback to large classes?

Ideas for Providing Feedback When Multiple Choice Tests Are the Norm (1)

- Student construction of MCQs with peer feedback
- Confidence marking
- Peer instruction and interaction
- Low stakes frequent online MCQs with immediate feedback to student and instructor

Source: Nico, David. (2007). E-assessment by design: using multiple choice test to good effect. *Journal of Further and Higher Education*, 31, 1, 53-64.

Ideas for Providing Feedback When Multiple Choice Questions Are the Norm (2)

- Ask students to
  - Give reasons for MCQ responses.
  - Give pros and cons for each option rather than pick just one.
  - Indicate degree of confidence in answer given.
  - Create MCQs as part of presentations using EVS.
  - Create MCQs for use in tests.
- Use brain-teasers for peer discussion using electronic voting systems (EVS).

Source: Draper, S.W. (2009) Catalytic assessment: understanding how MCQs and EVS can foster deep learning. *British Journal of Educational Technology*, 40, 2, 285-293.

Student Constructed MCQs

- Students are likely to think deeply and meaningfully about material. In other words…
  - Students need to have clear understanding of content.
  - Students need to explain solution to other students so they must be able to express concepts clearly.
  - Having to think of alternatives makes them think of incomplete knowledge and plausible errors.

Source: Reilly, A.L. and Denny, Paul. (2010) Constructive evaluation: a pedagogy of student-contributed assessment. Computer Science Education, 20, 2, 145-167.

PeerWise: Support System for Student MCQs

http://peerwise.cs.auckland.ac.nz/

"supports students in the creation, sharing, evaluation, and discussion of assessment questions."

Confidence-Based Marking aka Certainty-Based Marking

- Students are more likely to go beyond superficial and think deeply by….
  - Engaging in self-assessment.
  - Receiving rewards for correct answers of which they are justifiably confident.
  - Receiving penalties for incorrect answers which they say they are confident are correct.

Source: Gardner-Medwin, A.R. (2006) Confidence-Based Marking – towards deeper learning and better exams in C. Bryan & K. Clegg (Eds.) *Innovative assessment in higher education* (London, Taylor, & Francis).

More about Confidence/Certainty-Based/Marking

http://www.ucl.ac.uk/lapt/

Site links to lots of questions related to confidence-based marking, especially in medically-related areas. See below.

http://www.ucl.ac.uk/lapt/laptlite/sys/options.htm

Peer Instruction with Electronic Voting System (EVS)

- Concept question given to whole class.
- Students take 1-2 minutes to answer individually.
- Students see how class has answered but are not shown correct answer.
- Students engage in peer instruction to convince neighbors that his/her answer is correct.
- Students have opportunity to revise answers to question.
- Students see how class has answered.
- Instructor summarizes and explains "correct" response.

Sources: Mazur, E. (1997) *Peer instruction: a user's manual* (Englewood Cliffs, N.J., Prentice Hall).

Crouch, C.H. & Mazur, E. (2001) Peer instruction: ten years of experience and results, *American Journal of Physics*, 69, 970-77.

More on Peer Instruction

The Re-engineering Assessment Practices in Scottish Higher Education (REAP Project) is a large project and this page links to some excellent resources. Peer instruction and interaction is a big focus.

http://www.reap.ac.uk/reap/resourcesEVS.html

Class-wide Discussion with Electronic Voting System (EVS)

- Concept question given to whole class.
- Small groups discuss the concept question for 3-5 minutes.
- Students provide individual or group responses.
- Students see how individuals or groups have responded.
- Students explain answers in a class-wide discussion and listen to others' explanations.
- Instructor summarizes and explains "correct" response.

Source: Dufresne, R.J., Gerace, W.J., Leonard, W.J., Mestre, J.P., & Wenk, L. (1996) Classtalk: a classroom communication system for active learning, *Journal of Computing in Higher Education*, 7, 3-47.

Frequent online self-testing

- Make available throughout course term, e.g., 5 per term staggered over 2-3 week period.
- Relate material to material covered since last test.
- Provide immediate feedback to students on each question.
- Provide data to instructor on student performance to enable "course correction."

Source: Bull, J. & Danson, M. (2004) Computer assisted assessment (CAA) *York, Learning and Teaching Support Network*.

More Support Needed

- Contact Center for Learning and Development (CLD) for
  - Assessment Design (Carol Kominski Ext. 2942)
  - Instructional Design (Kun Huang Ext. 2941)
  - Blackboard (AZ Bashet Ext. 2943)
  - Psychometric analysis (Kevin Kalinowski Ext. 2543)
  - Other support (Director Vanneise Collins Ext. 5056)