Measuring What Students Know: Writing Effective Essay and Oral Tests
What Can Student Assessments Do?

- Communicate important content and skills
- Provide basis for grading, passing, graduation
- Identify students with inadequate knowledge
- Identify areas of inadequate knowledge for remediation
- Motivate students to master content and skills in school and promote life-long learning in practice
Implications of Assessment

• Assessment is a critical tool in meeting curriculum goals
• Thus, there should be clear mapping between:
  Assessments;
  Knowledge, skills, and performance to be mastered;
  Course goals and objectives; and
  Curriculum goals and objectives
Basic Test Item Formats
Two General Categories

• Constructed-response formats
  • Short-answer Items
  • Essay Questions
  • Oral Exams
• Defined response formats
  • True/False
  • Multiple Choice Questions
  • Pick-N
  • Extended matching
Constructed-Response Formats
Short-Answer Items

• Strengths
  • Less cueing than defined-response formats
  • Don’t have to come up with distractors

• Weakness
  • Stem must be very clear and unambiguous (can’t rely on the choices to clarify the question)
  • Typically must be hand-scored
Rules for Writing Short-Answer Items

• State item so only a single, brief answer is possible
  • Harder than you think
  • Requires precision in wording
  • Have a colleague or student review
Rules for Writing Short-Answer Items

• Start with a direct question, switch to incomplete statement if greater conciseness is possible
  • What is another name for true-false items?
  • True-false items are also called_____________?
Rules for Writing Short-Answer Items

• Leave only one blank and make it the main point
  • In terms of type of response, the __________item is not like the ______________item.
  • In terms of type of responses, which item is most like the matching item?
    _______________
Rules for Writing Short-Answer Items

• Place the blanks at the end of the statement
  • ____________is likely to increase when a test is lengthened.

• When a test is lengthened, reliability is like __________.
Rules for Writing Short-Answer Items

• Avoid extraneous cues to the answer

• The constructed response item used to measure the ability to organize and integrate material is called an__________

• Constructed response items used to measure the ability to organize and integrate material are called________________
Rules for Writing Short-Answer Items

• For numerical answers, indicate degree of precision expected and relevant units
  • What is the typical retailer mark-up from the wholesale price for a Canon D60 SLR camera (to the nearest whole percent)?__________
Essay Questions

• Best suited to higher level cognitive skills (synthesis, analysis, creativity)
• Least cueing of correct answer
• Clear question becomes critical (ambiguous question can largely negate the value of an essay question)
• Most difficult to score
  • Hand scoring
  • Defining ‘model’ answer is difficult
Rules for Writing Essay Questions

• Use essay questions to measure complex learning outcomes only
• Relate questions to intended learning outcomes as directly as possible
• Formulate questions that present a clear task
• Suggest a time limit for each question
Outcomes and Terms for Question Construction

• Comparing: compare, classify, describe, distinguish between, explain, outline, summarize

• Interpreting: convert, draw, estimate, illustrate, interpret, restate, summarize, translate

• Inferring: derive, draw estimate, extend, extrapolate, predict, propose, relate
Outcomes and Terms for Question Construction

- Creating: compose, design, devise, draw, formulate, make up, present, propose
- Synthesizing: arrange, combine, construct, design, rearrange, regroup, related, write
- Generalizing: construct, develop, explain, formulate, generate, make propose, state
- Evaluating: appraise, criticize, defend, describe, evaluate, explain, judge, write
Outcomes and Terms for Question Construction

• **Applying:** arrange, compute, describe, demonstrate, illustrate, rearrange, relate, summarize

• **Analyzing:** break down, describe, diagram, differentiate, divide, list, outline, separate
Scoring Essays

- Evaluate in terms of learning outcomes
- Develop a model answer
  or
- Define criteria for rating answer quality
- Grade all responses to a question before grading the next question
- Blind the identity of the student
- Have another person grade the same answers
Oral Examinations

• One of the earliest examination formats (at least back to the medieval universities)
• Largely replaced by defined-response formats
• Strengths
  • Assesses higher level cognitive skills
    • synthesis, analysis of alternatives, etc.
  • Permits flexibility and probing
Oral Examinations (cont’d)

• Weaknesses
  • Less thorough than written forms of examination
  • Possibility of favoritism/interpersonal biases
  • Judging the ease or difficulty of the questions is questionable
• Renewed interest in improved versions of oral format
Rules and Scoring Oral Examinations

• See those for essay questions

• Unless audio/video recorded, there is no permanent record
  • Scoring is in real time
  • Multiple scorers need to be there -> scheduling logistics