Identifying Measures for Program Assessment

Thomas Nelson Assessment Academy
3 October 2014

Concurrent Session 3a
Group Exercise

• Is the measure appropriate, why or why not?
  ◦ Business Leadership program assesses student’s ability to synthesize information in the intro level BLS course via a written essay
  ◦ The capstone course in the Culinary Arts program uses a multiple choice test to assess the student’s knowledge base
  ◦ Engine disassembly and reassembly is used in the Automotive program to assess student’s ability to diagnose engine issues
  ◦ The Veterinarian Program assesses all learning outcomes through graduate and employer surveys
Outcomes

- Identify types of measures for program assessment
- Design aligned measures that assess student learning outcomes
- Laugh… a little
DISCLAIMER
Assessment at a Glance

Goals of Assessment
1. Improve student learning
2. Inform students of performance
3. Fulfillment of College mission

3 Steps of Assessment
1. Goals/Outcomes
2. Gather Evidence/Interpret
3. Improvement

Assessment at a Glance
Learning Outcomes Hierarchy

Big Picture

- Institutional/System-wide Outcomes (Gen Ed Core Competencies)
- Program Learning Outcomes
- Course-level Learning Outcomes

AAS in Computer Arts

- Critical Thinking
- Apply aesthetic judgments/critical thinking skills to art and graphics
- Demonstrate proficiency in creating video production from conception to final edit/apply ethics of video/film production
Outcome Connections

- **Student Assessment**
  - Documents the accomplishment of outcomes by individual
  - Focuses on student improvement

- **Program Assessment**
  - Documents achievement of outcomes by the overall program (aggregate scores)
  - Focuses on program improvement
Guiding Questions

- **What do we want to know?**
  - Level of mastery/development
  - Efficacy and viability

- **What is being assessed?**
  - Skill level; Knowledge base; Behavior or attitude

- **Who is being assessed?**
  - Students, but at what level?
    - Focus on program completers/graduates
Everyone’s favorite guy...

Revised Bloom’s Taxonomy

Bloom’s Taxonomy
Guiding Principle

• Alignment:

  ◦ By aligning assessment methods with outcomes one can increase the possibility of collecting information that answers significant questions or leads to improvement. Too often, however, instead of allowing key educational questions to drive the choice of instrument or method, off-the-shelf instruments have been allowed to shape assessment questions. Early attention to the goals, criteria, and rubrics that influence the selection of methods will help ensure the collection of direct, relevant, useful evidence of student learning.

  • Andrea Leskes and Barbara Wright in *The Art and Science of Assessing General Education Outcomes* (emphasis added)
Don’t be the Pointy-Haired Boss

AND OF COURSE WE’LL ASSESS OUR PROGRESS ALONG THE WAY.

WILL YOU BE USING AN ENHANCED ASSESSMENT METHODOLOGY?

I HOPE THAT MEANS SOMETHING. ALL I DID WAS STRING TOGETHER SOME WORDS I HEARD IN THE HALLWAY.

UM... I’LL BE ASSESSING... BY MEASURING... AND UM...

I’D BETTER GET IN ON THIS.

I CAN’T SUPPORT THIS PROJECT UNTIL I SEE YOUR ADVANCED ASSESSMENT METHODOLOGY PLAN.

I’LL HAVE IT IN TEN MINUTES, ASSUMING YOU DON’T KNOW WHAT IT’S SUPPOSED TO LOOK LIKE.

VERY GOOD.

I’LL BE IN THE SHOWER TRYING TO WASH MY SOUL.
Properties of Good Measures

- **Valid**—directly reflects the learning outcome being assessed
- **Reliable**—especially inter-rater reliability when subjective judgments are made
- **Actionable**—results help faculty identify what students are learning well and what requires more attention
- **Efficient and cost-effective** in time and money
- **Engaging to students and other respondents**—so they’ll demonstrate the extent of their learning
- **Interesting to faculty and other stakeholders**—they care about results and are willing to act on them
- **Triangulation**—multiple lines of evidence point to the same conclusion
Measures Defined

- Direct
  - Demonstration of Learning

- Formative
  - Improves what is being assessed

- Qualitative
  - Expressive, open-ended

- Indirect
  - About Learning

- Summative
  - Evaluative summary

- Quantitative
  - Numeric scoring
Types

- Locally developed Tests*
  - Test blueprints
- Published Tests*
- Portfolios*
  - Rubrics
- Surveys*
- Self-Reflection Exercises
- Competence Interviews
- Focus Groups
- Capstone Courses
- Others?
Choosing a Measure

- Why are you giving students this assignment?
- What is its purpose?
- What do you expect students to learn by completing it?
- What should be included in the completed assignment?
- What does the completed assignment look like?
- How will the assignment be scored or graded?
Common Locally-Developed Test Formats

- Completion
- Essay
- Matching
- Multiple-choice
- True-False
- Knowledge of topics (e.g. fill in the blank)
- Higher-order thinking skills (e.g. argumentative essay)
- Knowledge of topics (e.g. column A to B)
- Measure of multiple concepts
- Knowledge of topics
<table>
<thead>
<tr>
<th>Locally-Developed Test Strengths and Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Strengths</strong></td>
</tr>
<tr>
<td>• Can provide direct evidence of student mastery of learning outcomes.</td>
</tr>
<tr>
<td>• Appropriate mixes of essay and objective questions allow faculty to address various types of learning outcomes.</td>
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<tr>
<td>• Students generally are motivated to display the extent of their learning if they are being graded on the work.</td>
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<tr>
<td>• If well-constructed, they are likely to have good validity.</td>
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<tr>
<td>• Because local faculty write the exam, they are likely to be interested in results and willing to use them.</td>
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<tr>
<td>• Can be integrated into routine faculty workloads.</td>
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<tr>
<td>• The evaluation process should directly lead faculty into discussions of student learning, curriculum, pedagogy, and student support services.</td>
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</tbody>
</table>
Directions: Read the following comments a teacher made about testing. Then answer the questions that follow by circling the letter of the best answer.

“Students go to school to learn, not to take tests. In addition, tests cannot be used to indicate a student’s absolute level of learning. All tests can do is rank students in order of achievement, and this relative ranking is influenced by guessing, bluffing, and the subjective opinions of the teacher doing the scoring. The teacher-learning process would benefit if we did away with tests and depended on student self-evaluation.”

Outcome: Identifies relationships. Which one of the following propositions is most essential to the final conclusion?

a) Effective self-evaluation does not require the use of tests.

b) Tests place students in rank order only.

c) Test scores are influenced by factors other than achievement.

d) Students do not go to school to take tests.
Published Tests

- Examples:
  - Madison Tests
  - Test of Everyday Reasoning
  - SAT, ACT, GRE

- Benefits?
- Negatives?
<table>
<thead>
<tr>
<th>Published Test Strengths and Weaknesses</th>
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<td><strong>Potential Strengths</strong></td>
</tr>
<tr>
<td>Can provide direct evidence of student mastery of learning outcomes.</td>
</tr>
<tr>
<td>They generally are carefully developed, highly reliable, professionally scored, and nationally normed.</td>
</tr>
<tr>
<td>They frequently provide a number of norm groups, such as norms for community colleges, liberal arts colleges, and comprehensive universities.</td>
</tr>
<tr>
<td>Online versions of tests are increasingly available, and some provide immediate scoring.</td>
</tr>
<tr>
<td>Some publishers allow faculty to supplement tests with their own items, so tests can be adapted to better serve local needs.</td>
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</table>
Authentic vs. Traditional Tests

- Single-complex tasks
- Direct evidence of mastery of concepts
- Scoring requires subjective judgment
- Provides formative feedback
- Encourages deeper learning
- Cooperative learning
- Create solutions to real-world problems
- Variety of examples may be acceptable

- Items to not relate to one another
- Indirect evidence of mastery
- Mechanical scoring
- Provides summative feedback
- Encourages memorization
- Students complete the test individually
- Recall or recognize answers
- One correct answer
Portfolios

- Developmental
  - Illustrate student progress
  - Compare and contrast with early to late stages of student career

- Showcase
  - Demonstration of student’s learning by showcasing best work
Commercial Break... Rubrics

When to use Holistic Rubrics:
- There is no single correct answer/response to a task (e.g., creative work).
- The focus is on overall quality, proficiency, or understanding of a specific content or skills
- the assessment is summative (e.g., at the end of a semester or Major)
- You are assessing significant numbers (e.g., 150 Senior portfolios).

When to use Analytic Rubrics:
- Several faculty are collectively assessing student work. Descriptions promote consistent scoring.
- Outside audiences will be examining rubric scores. Substantial feedback to students or faculty is desired.
- Profiles of specific strengths/weaknesses are desired. (Suskie, p. 129).

Table 1: Template for Holistic Rubrics

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Demonstrates complete understanding of the problem. All requirements of task are included in response.</td>
</tr>
<tr>
<td>4</td>
<td>Demonstrates considerable understanding of the problem. All requirements of task are included.</td>
</tr>
<tr>
<td>3</td>
<td>Demonstrates partial understanding of the problem. Most requirements of task are included.</td>
</tr>
<tr>
<td>2</td>
<td>Demonstrates little understanding of the problem. Many requirements of task are missing.</td>
</tr>
<tr>
<td>1</td>
<td>Demonstrates no understanding of the problem.</td>
</tr>
<tr>
<td>0</td>
<td>No response/task not attempted.</td>
</tr>
</tbody>
</table>

http://pareonline.net/getvn.asp?v=7&n=25
Surveys

- Examples:
  - Community College Survey of Student Engagement
  - Thomas Nelson Student Experience Survey
  - Noel Levitz

- Benefits?
- Negatives?

5. During the current school year, how much has your coursework at this college emphasized the following mental activities?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very much</th>
<th>Quite a bit</th>
<th>Some</th>
<th>Very little</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Memorizing facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form</td>
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<tr>
<td>b. Analyzing the basic elements of an idea, experience, or theory</td>
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<tr>
<td>c. Synthesizing and organizing ideas, information, or experiences in new ways</td>
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<tr>
<td>d. Making judgments about the value or soundness of information, arguments, or methods</td>
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<tr>
<td>e. Applying theories or concepts to practical problems or in new situations</td>
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<tr>
<td>f. Using information you have read or heard to perform a new skill</td>
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</table>
# Course-Embedded Assignments

## Embedded Assignments and Course Activities

### Strengths and Weaknesses

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>• Can provide direct evidence of student mastery of learning outcomes.</td>
<td>• Requires time to develop and coordinate.</td>
</tr>
<tr>
<td>• Out-of-class assignments are not restricted to time constraints typical for exams.</td>
<td>• Requires faculty trust that the program will be assessed, not individual teachers.</td>
</tr>
<tr>
<td>• Students are generally motivated to demonstrate the extent of their learning if they are being graded.</td>
<td>• Reliability and validity generally are unknown.</td>
</tr>
<tr>
<td>• Can provide authentic assessment of learning outcomes.</td>
<td>• Norms generally are not available.</td>
</tr>
<tr>
<td>• Can involve CSL or other fieldwork activities and ratings by fieldwork supervisors.</td>
<td></td>
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<tr>
<td>• Can provide a context for assessing communication and teamwork skills.</td>
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<tr>
<td>• Can be used for grading as well as assessment.</td>
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<tr>
<td>• Faculty who develop the procedures are likely to be interested in results and willing to use them.</td>
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</tr>
<tr>
<td>• The evaluation process should directly lead faculty into discussions of student learning, curriculum, pedagogy, and student support services.</td>
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</tr>
<tr>
<td>• Data collection is unobtrusive to students.</td>
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</tbody>
</table>
Implementation

- Create a rollout plan
  - All sections? Specific classes? Random sample? Graduation requirement?

- Determine the appropriate population
  - Then, select the appropriate sample size
    - 20% minimum

- Triangulate
  - Use multiple assessments to assess the same learning outcome
  - Mix of direct/indirect measures
Exercise

- Design 3 measures (to include a mix of direct/indirect) for the following learning outcomes:
  - Students will be able to demonstrate effective written communication related to leisure services
  - Identify the concerns of leisure service systems for diverse populations and service.

- Criteria:
  - What do we want to know?
  - What is being assessed?
  - Remember the guiding principle - alignment
Exercise

- Last year faculty in the Pharmacy Technology program implemented a locally developed exam as a graduation requirement for students. The multiple-choice test focused on 3 major categories: Drug Procurement, Drug Dispensing, and Dosages.
  - The annual assessment plan outlined that the ability to process and adjudicate insurance claims for third-party payers would be assessed through the exam.
  - As external reviewers, what detailed feedback would you provide to the program faculty about the assessment measure?
Exercise

- Program faculty in the Biotechnology program want to assess students' ability to explain the fundamental concepts in biotechnology
  - BOT 203 has a midterm exam with three parts. One part addresses DNA/RNA structure and DNA replication
  - In BOT 277 students complete an essay on human genetics, immunology, and cell biology

- Can these course embedded examples be used to assess the learning outcome?
  - Design an assessment tool that aligns the embedded measures to the learning outcomes
Conclusion

- Major Takeaways?
- If you cannot clearly define, you must align!

- Questions? Helpful comments/tips?
Sources and Resources