Assessing the Quality of Assessment Practice

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SPECIAL THANKS TO ALLISON AMES, PH.D.
JAMES MADISON UNIVERSITY'S CENTER FOR ASSESSMENT AND RESEARCH STUDIES

Special Thanks to Allison Ames
Workshop Objectives

- As a result of this workshop, participants will be able to:
  1. Describe a general, six-step assessment model
  2. Navigate JMU’s meta-assessment rubric
  3. Practice using JMU’s meta-assessment rubric to evaluate first three steps of an assessment report
  4. Provide feedback to your home institution about meta-assessment

Purpose & Background

Goal: Help academic degree and certificate programs make decisions to improve student learning.

How do we assess the quality of 120+ academic program assessment plans?

- Trained raters evaluate and provide diagnostic comments to individual academic degree programs about the strengths and weaknesses of their assessment reports and practice.
- Our hope is that programs respond to this feedback, making their assessment process stronger and more useful for decision making about student learning.
Why do assessment?

Three reasons:

Intrinsic Reasons

1. Improve the effectiveness of a program, particularly as it pertains to student learning

Extrinsic Reasons

2. Accountability to stakeholders
3. Justify programmatic changes and resource allocation

Assessment Quality: Two Big Questions

When evaluating assessment, we ask ourselves two big questions:

1. **What criteria are used by academic programs regarding the validity of inferences made from their assessment results?**
   - These criteria are based on an “assessment cycle”
   - Connects all the main stages of a comprehensive assessment plan with quality indicators for each stage

2. **Were these assessment results used logically to improve the program?**
   - Because the end goals are program improvement and student learning, assessment plan should also include logical, actionable improvements
The Assessment Cycle

Assessment practice can be thought of as a cycle. It is not just the test or score, but a system. Before we get into rating these stages, let's look at the details of each.

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Stage 1: State Student Learning Objectives

Student Learning Objectives (SLOs) are what students should know, think, or do as a result of an academic program.

**Specific and observable student learning and/or developmental objectives**
- They define the knowledge, skills, behaviors, or attitudes that students are expected to achieve as a function of your program.

**High Quality Indicators:**
- Student-centered objectives
- Specify what type/level of student
- Use clear verbs (avoid understand and know)
- Clarify knowledge, skill, or ability (KSA)

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The Assessment Cycle

1. State Learning Outcomes
2. Map to Courses
3. Select Methods
4. Analyze and Interpret Results
5. Report to Stakeholders
6. Use Results for Improvement

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Stage 2: Mapping SLOs to Courses

Identify courses in which students should be learning knowledge/skills articulated in SLOs
Program theory: how the design of the program should theoretically affect students
Opportunities to learn

High Quality Indicators:
- Clear mapping helps interpret results
- Each objective should map to at least one element of the program or curriculum
- Be specific!
  - To what extent is the objective covered in that class?
  - What specific components of the activity or items on the test address the objective?

The Assessment Cycle

1) Define Learning Outcomes
2) Map to Courses
3) Select Methods
4) Analyze and Interpret Results
5) Report to Stakeholders
6) Use Results for Improvement

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Stage 3: Selecting Assessment Methods

Many different types of instruments
Existing, or new
- Rubrics
- Questionnaires
- Tests (multiple-choice and open-ended)
- Behavioral Observations
Direct vs. indirect measures of learning

High Quality Indicators:
- Match instrument to SLO
- Choose direct and/or indirect measures
- Establish criteria for success
- Select data collection method
- Collect additional reliability and validity information

The Assessment Cycle

1) State Learning Outcomes
2) Map to Courses
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Stage 4: Analyze and Interpret Results

What did you find, and what does it mean in relation to each SLO?
How did results compare to your criteria for success?
Did your analysis reveal any obvious strengths or gaps?
Are the findings unique this year or are they part of a trend?
How trustworthy are your results?

High Quality Indicators:
- Organize results and map back to SLOs
- Use appropriate analyses
- Interpretation must flow logically
- Link findings back to objectives and other parts of the process

The Assessment Cycle

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Stage 5: Reporting to Stakeholders

Identify stakeholders and what they want and need to know.
- Faculty in the program
- University administration
- Students
- Accrediting bodies and external boards

Provide timely and appropriate information

High Quality Indicators:
- Identify best mode(s) of communication
- Avoid jargon
- Make sure all faculty within the program receive information
- Share results outside of program/department

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The Assessment Cycle

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Stage 6: Using Results for Improvement

Program improvement based on solid evidence is the main purpose of assessment

**High Quality Indicators:**
- Take curricular or pedagogical actions based on results and interpretation
- Specific
- Provide information about improving future iterations of assessment
- Including a timeline of events for proposed changes to a program

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**The Assessment Cycle**

1) State Learning Outcomes
2) Map to Courses
3) Select Methods
4) Analyze and Interpret Results
5) Report to Stakeholders
6) Use Results for Improvement
Scoring

Now we know:
- What assessment is and is not.
- What “good” assessment practice looks like.

But how do we systematically and consistently assign scores to these APT reports?
- The APT Rubric

Assessing Quality: Assessment Evaluation Rubric

- The rubric has a section for each stage of the assessment cycle.
- Some stages have multiple quality indicators
- 14 total elements to rate (we’ll rate just a few today)

- Beyond numeric ratings, diagnostic feedback
Assessing Quality: Assessment Evaluation Rubric

The indicators of quality are mapped onto a rubric:
- Recall: Stage 1 is about stating student learning outcomes
- Student-centered, specific, clear, and describe the KSA
- The rubric has two parts for Stage 1: clarity/specificity, and orientation

<table>
<thead>
<tr>
<th>1. Student-centered learning objectives</th>
<th>2. - Developing</th>
<th>3. - Good</th>
<th>4. - Exemplary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clarity and Specificity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The objectives stated.</td>
<td>Objectives present, but with excessive verbs (e.g., learn, understand), vague descriptions of essential skills or intended domain, and not specific to whom should be assessed (e.g., &quot;students&quot;).</td>
<td>Objectives generally contain precise verbs, rich descriptions of the context, skills or intended domain, and specification of whom should be assessed (e.g., &quot;graduating seniors in the Biology B.A. program&quot;).</td>
<td>All objectives stated with clarity and specificity; including precise verbs, rich description of the context, skills or intended domain, and specification of whom should be assessed (e.g., &quot;graduating seniors in the Biology B.A. program&quot;).</td>
</tr>
</tbody>
</table>

| 2. Orientation                          |                 |           |               |
| No objectives stated in student-centered terms. | Some objectives stated in student-centered terms. | Most objectives stated in student-centered terms. | All objectives stated in student-centered terms (i.e., when a student should learn, what, and how). |

The report clearly states what level of student is being assessed. This is a component of Element I.A.

This statement also indicates that the following learning objectives apply to students. Using student-centered objectives is a component for Element I.B.

Assessment Progress Template - Example: Computer Information Systems

I&II. Objective, course/learning experience

Students graduating with a BBA in Computer Information Systems will achieve the following objectives:
The program objectives are written using a rich description of the content/skill/attitudinal domain. Using these rich descriptions can help guide decisions further in the assessment process. Description of the domain relates to Element I.A. of the APT rubric.

<table>
<thead>
<tr>
<th>Assessment Progress Template - Example: Computer Information Systems</th>
</tr>
</thead>
</table>

**Programming**
Students will demonstrate proficiency in the programming of object-oriented, GUI, event-driven, database-enabled applications in at least two modern programming languages. Programming proficiency will include conceptual design, elegant and efficient coding, complete testing/debugging, and meaningful documentation.

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This objective could be improved by using a more precise verb. It is difficult to assess “understanding.” An alternative phrasing might be: “Students will describe database concepts and develop effective data models...” assuming the program wants to assess students ability to describe database concepts.

<table>
<thead>
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<th>Assessment Progress Template - Example: Computer Information Systems</th>
</tr>
</thead>
</table>

**Database Management Systems**
Students will demonstrate understanding of database concepts, and proficiency in developing effective data models, designing and implementing relational databases, and manipulating data using SQL.

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I&II. Objective, course/learning experience

Students graduating with a BBA in Computer Information Systems will achieve the following objectives:

Programming
Students will demonstrate proficiency in the programming of object-oriented, GUI, event-driven, database-enabled applications in at least two modern programming languages. Programming proficiency will include conceptual design, elegant and efficient coding, complete testing/debugging, and meaningful documentation.

Database Management Systems
Students will demonstrate understanding of database concepts, and proficiency in developing effective data models, designing and implementing relational databases, and manipulating data using SQL.

<table>
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<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No objective met</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective partial, but with major gaps in achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective partially met: partial fulfillment of the outcomes and no specification of what should be measured (e.g., &quot;undergraduate in the Biology B.A. program&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective partially met: partial fulfillment of the outcomes and no specification of what should be measured (e.g., &quot;undergraduate in the Biology B.A. program&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All objectives met with clarity and specificity including positive variances in the description of the outcomes and no specification of what should be measured (e.g., &quot;graduating seniors in the Biology B.A. program&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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This chart shows what courses map to which objectives. In addition, the chart also indicates the degree to which the objectives are covered in each course.

Including the degree of alignment between the student learning outcomes corresponds to Element II of rubric.
### Computer Information Systems:
**Coverage of Objectives**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Major</th>
<th>Moderate</th>
<th>Slight</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 204</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>CS 211</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CS 301</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>CS 304</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Criteria**
- **Major**: Major in Information Systems
- **Moderate**: Moderate coursework
- **Slight**: Slight exposure
- **None**: No coverage

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### III. Evaluation/Assessment Methods

The BBA program in Computer Information Systems uses several methods for its assessment. This table summarizes the process involving these methods. More detail about the methodology follows the table.

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Corresponding Objective</th>
<th>Type</th>
<th>Data Collection</th>
<th>Expected Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Day Test</td>
<td>2 (programming)</td>
<td>Direct</td>
<td>Examination of all junior and senior CS majors on assessment day</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
<tr>
<td></td>
<td>2 (database)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 (SAQ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embedded assessment in CS225</td>
<td>1 (programming)</td>
<td>Direct</td>
<td>Based upon final exams/Course embedded</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
<tr>
<td>Embedded assessment in CS331</td>
<td>1 (programming)</td>
<td>Direct</td>
<td>Based upon final exams/Course embedded</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
<tr>
<td>Embedded assessment in CS414</td>
<td>3 (Systems Analysis and Design)</td>
<td>Direct</td>
<td>Based upon selected problems on quizzes</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
<tr>
<td>Embedded assessment in CS520</td>
<td>4 (Architecture)</td>
<td>Direct</td>
<td>Based upon selected problems on quizzes</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
<tr>
<td>Embedded assessment in CS320</td>
<td>5 (Telecommunication)</td>
<td>Direct</td>
<td>Based upon selected problems on quizzes</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
<tr>
<td>Writing rubric: CS 454</td>
<td>6 (Writing)</td>
<td>Direct</td>
<td>Based upon selected problems on quizzes</td>
<td>Evaluate student ability to apply knowledge to practical situations</td>
</tr>
</tbody>
</table>

The table summarizes what measures will be used and important information about each. Explicitly indicating the alignment between objectives and measures relates to Element III. A.

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III. Evaluation/Assessment Methods

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<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Corresponding Objective</th>
<th>Type</th>
<th>Data Collection</th>
<th>Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Assessment Day Test</td>
<td>1 (programming) 2 (database) 3 (OS) 4 (Architecture) 5 (Telecomm)</td>
<td>Direct</td>
<td>Examination of all junior and senior CS majors on assessment day</td>
<td>Major revisions were done to the test this year. A preliminary analysis was done for this report. Results will be further analyzed over the summer and reported next year.</td>
</tr>
<tr>
<td>B Embedded assessment in CS5221</td>
<td>1 (programming)</td>
<td>Direct</td>
<td>Based upon final exams/Course embedded</td>
<td>70% of students will be proficient based upon redesign of course in 2010 and additional hands-on activities in Spring 2012</td>
</tr>
<tr>
<td>C Embedded assessment in CS5335</td>
<td>1 (programming)</td>
<td>Direct</td>
<td>Skills and concepts based upon quizzes. Development skills based upon programming assignments. Course embedded.</td>
<td>70% of students will be proficient based upon changes made in Spring 2010.</td>
</tr>
<tr>
<td>D Embedded assessment in CS5454</td>
<td>3 (Systems Analysis and Design)</td>
<td>Direct</td>
<td>Based upon all problem solving problems on the three exams</td>
<td>70% of students will be proficient based upon changes in Fall 2011</td>
</tr>
<tr>
<td>E Embedded assessment in CS5102</td>
<td>4 (Architecture)</td>
<td>Direct</td>
<td>Based upon selected problems on the final exam</td>
<td>70% of students will be proficient based upon redesign in 2011-2012.</td>
</tr>
<tr>
<td>F Embedded assessment in CS 520</td>
<td>5 (Telecomm) 6 (Interpersonal skills)</td>
<td>Direct</td>
<td>Based upon selected problems on the final exam. Based upon peer evaluations on a group project</td>
<td>70% of students will be proficient based upon improvements in teaching writing throughout curriculum</td>
</tr>
<tr>
<td>G Writing rubric: CSI 454</td>
<td>6 (Writing)</td>
<td>Direct</td>
<td>Random sample of students based upon 1 writing assignment. Course embedded.</td>
<td>70% of students will be proficient based upon improvements in teaching writing throughout curriculum</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Assessment Type</th>
<th>Methodology</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Self-Assessment</td>
<td>Individual</td>
<td>Students submit self-assessment forms at the end of each course. These forms include questions about their understanding of the course material.</td>
</tr>
<tr>
<td>Peer Evaluation</td>
<td>Team</td>
<td>Students rate each other's performance and contributions in class discussions and group projects.</td>
</tr>
<tr>
<td>Instructor Observation</td>
<td>Direct</td>
<td>Instructors observe students' performance in class and provide feedback on their progress.</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Written</td>
<td>The final exam is administered at the end of the course and covers the entire curriculum.</td>
</tr>
</tbody>
</table>

Table: Systematic method for evaluating program objectives

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defining</td>
<td>Identify objectives and measures</td>
</tr>
<tr>
<td>Developing</td>
<td>Design and implement assessment instruments</td>
</tr>
<tr>
<td>Validating</td>
<td>Apply and refine assessment instruments</td>
</tr>
<tr>
<td>Reporting</td>
<td>Analyze and report results</td>
</tr>
</tbody>
</table>

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Providing Comments

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Why Are Comments Important?

To provide formative feedback
- Programs should be able to use comments to improve their assessment process ← **Primary goal**

To explain/justify numerical ratings
- Comments should provide detail as to why the program obtained a specific score

To show that the APT has been carefully read/rated
- APTs are difficult and time-consuming to create. We want to respect the coordinators time by showing we carefully read each document

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Logistics

**How does JMU use this rubric?**
- JMU has approximately 120 academic programs, and each academic program submits an assessment report
- Graduate students, faculty, and staff from across campus rate these reports (14-20 total raters)
- Two full days of training
  - Half-day on uses of assessment, assessment cycle, “Assessment 101”-type material
  - One and a half days on calibration to the rubric
Logistics

- **What happens after the training?**
  - Raters rate in pairs: Independently, then adjudicate
  - Approximately 6 days total to complete
  - Rigorous quality control process to ensure:
    - Comments provide diagnostic feedback
    - Scores are consistent and valid
Logistics

Do we have evidence that the feedback is being used, and used in a way such that assessment plans are improving?

On average, scores have increased significantly since this process began in 2008/2009.

Individual elements have shown even more change – for example, IIld (data collection design and integrity) has shown considerable improvement.

Re-Cap

- As a result of this workshop, participants will be able to:
  1. Describe a general, six-step assessment model
  2. Navigate JMU’s meta-assessment rubric
  3. Practice using JMU’s meta-assessment rubric to evaluate first three steps of an assessment report
  4. Provide feedback to your home institution about meta-assessment
A Closing Thought....

Using Results to Improve Student Learning

In general, institutions seem to be good at collecting data...

...but not so good at using the results to improve student learning.

Want more information?
Visit JMU and CARS’ assessment website:
http://www.jmu.edu/assessment/Visitor/AssessmentResources.shtml#APT

Contact Program Assessment Support Services (PASS):
programassessment@jmu.edu
Questions?

References


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Thank you!