Six-Step Assessment Process: Student Learning Outcomes

Assessment: Basics

10.31.19

Assessment is a big focus for WSCUC

Areas of Concern:
- Integrated strategic plan
- Assessment
- Student success
- Funding

2012 Reaccredited (7 yrs) → 2015 Interim Report → 2016 Mid-Cycle Report →

Assessment is more than accreditation

"Without data, you are just another person with an opinion."
– W. Edwards Deming

• To confirm, diagnose, and IMPROVE
  • To inform decision-making
  • To demonstrate effectiveness
  • To support accountability/compliance requirements

Where do we carry out assessment

WSCUC
• Core Competencies

University
• University Learning Goals
• Strategic Plan Goals

Program
• Program SLOs

Course
• Course Learning Outcomes
### SLOs at different levels

<table>
<thead>
<tr>
<th><strong>WSCUC</strong></th>
<th><strong>Quantitative Reasoning</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>University</strong></td>
<td>Graduates are able to apply quantitative reasoning to real-world problems.</td>
</tr>
<tr>
<td><strong>Program</strong></td>
<td>Students are able to use statistical tools to interpret data from research studies.</td>
</tr>
<tr>
<td><strong>Course</strong></td>
<td>Students are able to calculate and interpret a variety of descriptive and inferential statistics.</td>
</tr>
</tbody>
</table>

### Six-step assessment process*

1. **What do we want our students to learn and/or our units to accomplish?**
2. **How are we doing?**
   - Develop Student Learning/Program Performance Outcomes
   - Identify Methods & Measures
   - Plan & Execute Improvement Actions
   - Determine Criteria for Success
3. **How do we know?**
4. **What evidence do we need to know to determine whether we are successful?**
5. **How are we documenting the assessment AND improvement activities/results?**
6. **What changes are we making? Are the changes working?**
7. **How do we use data to confirm/improve our practices?**

*AEEC  Spring 2014
Step 1: Develop student learning outcomes

- A statement

- Significant and essential learning that students achieve at the end of a program

- What students should be able to accomplish at the end of a course, curriculum, or any educational experience

  - Example: “At the end of the Assessment Basics workshop, participants will be able to differentiate ‘indirect’ evidence from ‘direct’ evidence of learning.”

What is a SLO

Knowledge
- Facts
- Concepts
- Theories
- Principles
- ...

Skill
- Critical thinking
- Communication
- Teamwork
- Quantitative reasoning
- ...

Attitude
- Civic engagement
- Cultural competency
- Professionalism
- Life-long learning
- ...

Where do SLOs come from

- **WSCUC**
  - General vs. Discipline-specific
  - “Top-down” vs. “Bottom-up”
  - Adapt from existing “best practices”
  - Engage faculty
  - Involve important but often forgotten stakeholders (students, alumni, employers, etc.)

---

**Mission...Goals...Outcomes...Objectives...**

<table>
<thead>
<tr>
<th>Mission</th>
<th>Holistic vision of the values and philosophy of an institution/department/program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals</td>
<td>Broad, general statements about knowledge, skills, attitudes, etc. expected in students</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Clear, specific “operational definitions” of goals</td>
</tr>
<tr>
<td>Objectives</td>
<td>Intended instructional strategies or learning opportunities</td>
</tr>
</tbody>
</table>

Learner-centered

Instructor-centered
What are good SLOs

- Learner-centered, not instructor-centered
- Aligned with the mission and goals of WSCUC, university, college, program, etc.
- Focus on “high-priority learning”
- Real (not aspirational)
- Simple language
- Specific, clear and concise
- Demonstrable and measurable
- Discrete (no “double-barrel” statements)
- Manageable (more is not better)

Sound SLOs are Active

<table>
<thead>
<tr>
<th>LEVELS of SLOs</th>
<th>BLOOM’S TAXONOMY</th>
<th>EXAMPLE ACTION VERBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Assess, Conclude, Criticize, Justify, Value</td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td>Assemble, Create, Design, Produce, Reconstruct</td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td>Analyze, Compare, Differentiate, Experiment, Solve</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Apply, Demonstrate, Modify, Practice, Use</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td>Convert, Explain, Interpret, Paraphrase, Report</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Define, Describe, List, Name, Outline</td>
<td></td>
</tr>
</tbody>
</table>
## SLO examples

<table>
<thead>
<tr>
<th>ULG</th>
<th>SLO</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual literacy (ULG 1)</td>
<td>Students can describe and/or explain relevant theories, concepts and related research findings.</td>
<td>Child and Adolescent Studies, B.S.</td>
</tr>
<tr>
<td>Critical thinking (ULG 2)</td>
<td>Apply mathematics, chemistry, biology and/or physics to help clarify the mechanism behind major geological systems.</td>
<td>Geology, B.A.</td>
</tr>
<tr>
<td>Communication (ULG 3)</td>
<td>Communicate interpretations and conceptualizations of theatrical material orally, in writing, and through performance or other means of artistic expression.</td>
<td>Theatre Arts, B.A.</td>
</tr>
<tr>
<td>Teamwork (ULG 4)</td>
<td>Recognize and apply appropriate concepts and theories of motivation to achieve group and organizational goals.</td>
<td>Business Administration, B.A.</td>
</tr>
<tr>
<td>Community perspective (ULG 5)</td>
<td>Students will use sociological knowledge and skills to engage with local and global communities for the purpose of social justice.</td>
<td>Sociology, B.A.</td>
</tr>
<tr>
<td>Global community (ULG 6)</td>
<td>Students can describe and explain causes and consequences of change over time in and across different global regions.</td>
<td>History B.A.</td>
</tr>
</tbody>
</table>

## Curriculum mapping

<table>
<thead>
<tr>
<th>Course</th>
<th>SLO1</th>
<th>SLO2</th>
<th>SLO3</th>
<th>SLO4</th>
<th>SLO5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Introduced</td>
<td>Introduced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Introduced</td>
<td></td>
<td></td>
<td>Introduced</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>Practiced</td>
<td></td>
<td>Introduced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>230</td>
<td></td>
<td></td>
<td></td>
<td>Practiced</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>Practiced</td>
<td>Practiced</td>
<td></td>
<td></td>
<td>Practiced</td>
</tr>
<tr>
<td>350</td>
<td></td>
<td></td>
<td>Mastered</td>
<td></td>
<td>Mastered</td>
</tr>
<tr>
<td>401</td>
<td>Mastered</td>
<td></td>
<td>Practiced; Mastered</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Curriculum mapping example 1

Curriculum Map: Student Learning Goals, CAT-CORE Courses, and Year of Assessment

<table>
<thead>
<tr>
<th>Year</th>
<th>201</th>
<th>202</th>
<th>203</th>
<th>204</th>
<th>205</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>D/M</td>
<td>D/M</td>
</tr>
<tr>
<td>2</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>3</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
</tbody>
</table>

Legend:
- I: Introduced
- D: Developed
- M: Mastered

Curriculum mapping example 2

Table 2. Curriculum Map of Pop Culture Program (Oral Communication is Objective 4).

<table>
<thead>
<tr>
<th>Course/Learning Experiences</th>
<th>Obj 1 (Identification of 80s Components)</th>
<th>Obj 2 (Research Methodology)</th>
<th>Obj 3 (Writing Critically)</th>
<th>Obj 4 (Oral Comm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCUL201 (Introduction to the 80s)</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>PCUL301 (80s Music)</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>PCUL302 (80s Fads)</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>PCUL303 (80s TV and Movies)</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>PCUL304 (80s Technology)</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>PCUL361 (Methods and Analysis)</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>PCUL401 (80s Politics and Culture)</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>PCUL402 (Profiles of 80s Icons)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>PCUL403 (The Music Video)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PCUL404 (The 80s and Today)</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PCUL480 (Capstone)</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2. Curriculum Map of Pop Culture Program (Oral Communication is Objective 4).
Coverage of objective: 0 = No Coverage, 1 = Slight Coverage, 2 = Moderate Coverage, 3 = Major Coverage

Source: James Madison University
Step 2: Identify methods and measures learning

- We are *already* and *always* assessing student learning

- The evidence/measures already in place is NOT always the best place to start
  - Do the measures address the SLO?
  - What are the active verbs in the SLO?
Direct vs. Indirect

Direct
Student behaviors or products that demonstrate their mastery of SLO

- Exam/Quiz
- Paper/Presentation
- Project/Portfolio
- Recital/Exhibition
- Peer evaluation
-...

Indirect
Reported perceptions about student mastery of SLO

- Self-reflection essay
- Self-report survey
- Interview
- Focus group
- Report by alumni, employer, etc.
-...

Use as supplemental evidence

Direct evidence helps tell us “what”, and indirect evidence helps tell us “why”.

A bit more vocabulary...

Embedded
- Measures integrated into the regular curricular process
- Can be used to judge individual student performance in a course, AND can be aggregated to demonstrate mastery of SLOs for a program

Authentic
- Assessment measures that ask students to apply their learning to solve real-world problems, or meaningful tasks that replicate “real world” scenarios

Value-added
- Measures designed to capture the increase in students’ learning during a course or program
- More indicative of the contribution an institution/program/course make to student learning
Choosing the right measure

- **Valid**: Are you measuring the outcome?
- **Reliable**: Are the results consistent?
- **Actionable**: Do the results clearly tell you what students can or cannot do?
- **Triangulation**: Are there multiple lines of evidence for the same SLO?
- **Meaningful and engaging**: Are faculty engaged? Do students care?
- **Sustainable**: Can the process be managed effectively within the program context?

Triangulating direct and indirect measures

**Chemistry - B.S. program:**

**SLO**: Student can explain the fundamental chemistry principles.

**DIRECT**
- Final exam questions (Multiple-choice/Short-answer)
- Senior project (paper/presentation)
- ACS exam
- Concept inventory
- …

**INDIRECT**
- Graduation survey
- Alumni survey
- Employer focus groups
- …
Triangulating direct and indirect measures

Nursing - D.N.P. program:

SLO: Student are able to work effectively in a team.

- Scenario-based exam questions
- Team project score
- Team member peer evaluation
- Instructor observation
- ...

- Self-reflection journal
- Self-assessment survey
- Student interviews
- ...

GE program:

SLO: Student will analyze, interpret, and utilize verbal or numerical information.

- Signature assignment
- Capstone project
- Common exam (CLA+ or local)
- ePortfolio
- ...

- Student survey
- Student reflection essays
- Faculty focus group
- ...

...
Collect meaningful evidence in a feasible way

- We are already and always assessing student learning
- Grading is not assessment, but assessment could contribute to grading
- Prioritize embedded measures
- Look for capstone courses, culmination experiences, etc.
- Look for measures that yield multiple lines of evidence

What are rubrics

- Scoring guides that explicitly classify learning products/behaviors into categories that vary along a continuum.
- No one format - Flexible!
### A rubric example: Critical Thinking

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>A</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMATION ORGANIZATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriately present and organize supporting information</td>
<td>No communication of information from sources. The use of information is inconsistent or inappropriate so the intended purpose is not achieved.</td>
<td>Communication and organize information from sources. The information is not well synthesized.</td>
<td>Communication, organize and synthesize information from sources. The intended purpose is achieved, but could benefit from improved clarity.</td>
<td>Communication, organize and synthesize information from sources to fully achieve a specific purpose with exceptional clarity.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>SOURCE SELECTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose information from reliable, relevant and valid sources</td>
<td>Information taken from questionable and/or irrelevant sources.</td>
<td>Information taken from somewhat adequate and reasonable sources.</td>
<td>Information taken from adequate and reasonable sources.</td>
<td>Information taken from high quality and relevant sources.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>PROFESSIONAL ASSUMPTIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTICULATION PROCESS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis, evaluate or interpret information critically for accuracy, significance or sufficiency to support specific conclusion(s), argument(s) or relationship(s)</td>
<td>Poor evaluation or interpretation of the information.</td>
<td>Limited evaluation or interpretation of the information.</td>
<td>Proficient evaluation or interpretation of the information.</td>
<td>Sophisticated evaluation or interpretation of the information.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>VALUABILITY AND RENCHANCE OF ARGUMENT/CONCLUSION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose the value, validity and relevance of argument(s) and conclusion(s), and if applicable, acknowledge relevant personal perspectives</td>
<td>Arguments are unsupported or irrelevant to the assignment. Conclusions are unsupported, unsupported, or contradicted by the information presented.</td>
<td>Arguments are weakly supported. Conclusions are somewhat legitimate, but unpersuasive, biased or irrelevant.</td>
<td>Arguments are relevant to the assignment and supported for relevant patterns to emerge. Conclusions adequately follow from the information presented.</td>
<td>Arguments are relevant to the assignment and highly supported in a sophisticated manner, allowing for important patterns to emerge. Innovative conclusions follow from the information presented.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>CREATIVE APPLICATION OF KNOWLEDGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply prior academic knowledge to a new context</td>
<td>No application of prior learning or existing knowledge to a new context.</td>
<td>Limited or simplistic application of prior learning or existing knowledge to a new context.</td>
<td>Appropriate application of prior learning or existing knowledge to a new context.</td>
<td>Thoughtful or innovative application of prior learning or existing knowledge to a new context that reflects integration and synthesis of information, and complexity of the issue.</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Developed by the GE Faculty Learning Community (16-17)

---

**Case Study: Step 2**
Step 3: Determine criteria for success

• **A performance standard:**
  - What level of performance is good enough?
  - Pre-determined!
  - Supported by historical data, reasonable expectations, theoretical frameworks...

### Criteria for success examples

<table>
<thead>
<tr>
<th>Program</th>
<th>Method/Measure</th>
<th>Criteria for Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dance, B.A.</td>
<td>Annual Dance Major assessment of students’ demonstration of technical skills, application of performance concepts, and understanding of movement vocabulary</td>
<td>70% of students will receive a “meets expectations” or “exceeds expectations” using the grading rubric</td>
</tr>
<tr>
<td>Liberal Studies, B.A.</td>
<td>Exit survey on interdisciplinary connections</td>
<td>At least 80% of the students respond to the relevant exit exam question with options “high” or “very high”</td>
</tr>
<tr>
<td>Educational Leadership, Ed.D.</td>
<td>Student survey on self-perceived knowledge and competence</td>
<td>A minimum of 75% of candidates have an average rating of 3 or higher</td>
</tr>
</tbody>
</table>
Step 4: Collect and analyze data

- Sampling!
  - Relevant, Representative, and Reasonably sized
  - Determined by the outcome and program context
  - Moderate sample size is sufficient (e.g. “50-80” rule; 20-30%).
    - Very large sample size is rarely needed.
    - If homogenous student population, small samples are sufficient.

- Coordinate with other campus initiatives that can measure student learning

Case Study: Step 3 & 4
Step 5: Plan and execute improvement actions

- Review the assessment findings

- Types of changes:
  - Curriculum
  - Pedagogy
  - Faculty support
  - Student support
  - Resources
  - Assessment plan
  - More data collection?

- Don’t forget to re-assess the improvement actions!

NILOA (2014)

Improvement actions example

- Business Communication
  - Student writings of a case analysis were graded using the CLASS rubric, and found that students had the greatest deficiencies in “Strategy”.
  
  - Program 1) collected additional demographic data to narrow down weakness population; 2) offered faculty development workshop on case analysis; 3) emphasized use of topic sentences and supporting evidence; 4) provided sample professional documents for use in classroom and homework exercises.

- Writing communication scores improved 17% between 2009 and 2012
Step 6: Document assessment activities

New AMS in 2019

Tell a coherent story

Weigh the pig AGAIN

Case Study: Step 5 & 6
A multi-year assessment plan

• **What to plan for:**
  - Timeline
  - Process
  - Participants
  - Steps to turn assessment results into improvement actions
  - Self-evaluation/Reflection of the assessment process

A multi-year assessment plan  (cont.)

• **Guidelines:**
  - Limit to 5-7 SLOs
  - Determine a realistic assessment plan cycle, i.e. how long (e.g. 7 years) to complete meaningful assessment of all SLOs
  - Create a multi-year assessment plan that assesses 1-2 SLOs a year
  - Consider overlapping assessment (of new SLO) and improvement (of assessed SLO) activities
  - Make sure assessment involves the entire program/department
data@fullerton.edu

www.fullerton.edu/data