Six-Step Assessment Process: Student Learning Outcomes

Assessment: Basics

09.18.18
Get ready for WSCUC

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

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

Fall 2018 Self-Study Due → Spring 2019 Off-Site Review → Fall 2019 On-Site Visit
Where do we carry out assessment

WSCUC

University

Program

Course

Alignment

Core Competencies

University Learning Goals

Strategic Plan Goals

Program SLOs

Course Learning Outcomes

- Required by WSCUC

- Near or at graduation
## SLOs at different levels

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

*Adapted from Mary Allen workshop (2006)*
Six-step assessment process*

What do we want our students to learn and/or our units to accomplish?

How are we doing?
How do we know?
What evidence do we need to know to determine whether we are successful?

How are we documenting the assessment AND improvement activities/results?

What changes are we making?
Are the changes working?

How do we use data to confirm/improve our practices?

Develop
Student Learning/Program Performance Outcomes

Document
Assessment Activities

Identify
Methods & Measures

Plan & Execute Improvement Actions

Determine Criteria for Success

Collect & Analyze Data

*AECC 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

- 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…

- **Mission**: Holistic vision of the values and philosophy of an institution/department/program
- **Goals**: Broad, general statements about knowledge, skills, attitudes, etc. expected in students
- **Outcomes**: Clear, specific “operational definitions” of goals
  - Learner-centered
- **Objectives**: Intended instructional strategies or learning opportunities
  - Instructor-centered

*Adapted from Mary Allen workshop (2006) & ALA (2016)*
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)

*Adapted from Mary Allen workshop (2006) & ALA (2016)
Sound SLOs are Active

<table>
<thead>
<tr>
<th>LEVELS of SLOs (Bloom et al., 1956)</th>
<th>BLOOM’S TAXONOMY EXAMPLE ACTION VERBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Assess, Conclude, Criticize, Justify, Value</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Assemble, Create, Design, Produce, Reconstruct</td>
</tr>
<tr>
<td>Analysis</td>
<td>Analyze, Compare, Differentiate, Experiment, Solve</td>
</tr>
<tr>
<td>Application</td>
<td>Apply, Demonstrate, Modify, Practice, Use</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Convert, Explain, Interpret, Paraphrase, Report</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Define, Describe, List, Name, Outline</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></td>
<td>Introduced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td></td>
<td>Introduced</td>
<td></td>
<td>Introduced</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>Practiced</td>
<td></td>
<td></td>
<td>Introduced</td>
<td></td>
</tr>
<tr>
<td>230</td>
<td></td>
<td></td>
<td>Practiced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>Practiced</td>
<td>Practiced</td>
<td></td>
<td>Practiced</td>
<td></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></td>
<td>Practiced; Mastered</td>
<td></td>
</tr>
</tbody>
</table>
## Curriculum mapping example 1

**Curriculum Map: Student Learning Goals, CAS Core Courses, and Year of Assessment**

<table>
<thead>
<tr>
<th>Year</th>
<th>SLG</th>
<th>101</th>
<th>201</th>
<th>215</th>
<th>394</th>
<th>300</th>
<th>301</th>
<th>305</th>
<th>310</th>
<th>325A</th>
<th>325B</th>
<th>321</th>
<th>322</th>
<th>323</th>
<th>AdvPr</th>
<th>490</th>
<th>491</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1a. Describe and explain relevant theories, concepts, and related research findings.</td>
<td>I</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>+</td>
<td>+</td>
<td>*</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>+</td>
<td>M</td>
</tr>
<tr>
<td>1</td>
<td>1b. Identify and describe normative development.</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>+</td>
<td>+</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>5</td>
<td>1c. Describe individual, cultural, and environmental differences.</td>
<td>I</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>D/M</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>4</td>
<td>4c. Identify funding, services, and advocacy strategies at the local, state, federal, and international levels that support children, adolescents, families and communities</td>
<td>*</td>
<td>I</td>
<td>D</td>
<td>I</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>3</td>
<td>2a. Identify, access, analyze and synthesize relevant sources</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>I</td>
<td>I/D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>2b. Critically analyze research studies.</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>I</td>
<td>I/D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>4</td>
<td>3a. Write effectively in APA style, taking purpose and audience into account</td>
<td>*</td>
<td>*</td>
<td>I</td>
<td>*</td>
<td>I/D</td>
<td>I/D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>*</td>
<td>M</td>
</tr>
<tr>
<td>3b. Make effective oral presentations, taking purpose and audience into account</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>I</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>4a. Apply theories, concepts and research findings to promote child well-being</td>
<td>I</td>
<td>I</td>
<td>*</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>4</td>
<td>4b. Identify relevant ethical and legal issues and the impact of possible actions in real-world situations</td>
<td>*</td>
<td>I</td>
<td>I</td>
<td>D/M</td>
<td>*</td>
<td>I/D</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
</tbody>
</table>

**Legend:**

- **I:** Introduced
- **D:** Developed
- **M:** Mastered
# Curriculum mapping example 2

<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>1</td>
<td>2</td>
</tr>
<tr>
<td>PCUL302 (80s Fads)</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</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>1</td>
<td>0</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>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PCUL404 (The 80s and Today)</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</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
Case Study: Step 1
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
- ...

[Diagram showing the triangulation of direct and indirect measures for Chemistry B.S. program]
Triangulating direct and indirect measures

Nursing - D.N.P. program:

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

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

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

...
Triangulating direct and indirect measures

**GE program:**

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

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

**INDIRECT**
- 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!

Basic elements:
### A rubric example: Critical Thinking

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>1 Below Basic</th>
<th>2 Basic</th>
<th>3 Proficient</th>
<th>4 Advanced</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> INFORMATION ORGANIZATION</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>Communicates and organizes information from sources. The information is not well synthesized.</td>
<td>Communicates, organizes and synthesizes information from sources. Intended purpose is achieved, but would benefit from improved clarity.</td>
<td>Communicates, organizes and synthesizes information from sources to fully achieve a specific purpose with exceptional clarity.</td>
<td>N/A</td>
</tr>
<tr>
<td>Appropriately present and organize supporting information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B</strong> SOURCE SELECTION</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></td>
</tr>
<tr>
<td>Choose information from reliable, relevant and valid sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C</strong> ARTICULATION PROCESS</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>
</tr>
<tr>
<td>Analyze, evaluate or interpret information critically for accuracy, appropriateness or sufficiency to pursue specific conclusion(s), argument(s) or solution(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D</strong> VALIDITY AND RELEVANCE OF ARGUMENT/CONCLUSION</td>
<td>Arguments are unsupported or irrelevant (to the assignment). Conclusions are unsupported, non-existent, or unrelated to the information presented.</td>
<td>Arguments are weakly supported. Conclusions are somewhat logical, but incomplete, flawed 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>
</tr>
<tr>
<td>Clearly articulate the value, validity and relevance of argument(s) and conclusion(s), and if applicable, acknowledge relevant personal perspective(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E</strong> CREATIVE APPLICATION OF KNOWLEDGE</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>
</tr>
<tr>
<td>Apply prior academic knowledge to a new context</td>
<td></td>
<td></td>
<td></td>
<td></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)
• 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

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

Outcome is not for only 1 year
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