Making Assessment Meaningful

Turning Assessment Into More Than Numbers

David W. Marshall, PhD
California State University San Bernardino
What is assessment for?
Overview

- **Facing the Right Way**
  Participants can explain a purposeful rationale for assessment

- **Two Cultures: A Contrast in Emphasis**
  Participants can explain the distinct approaches to assessment and their ramifications

- **Evaluating Program Effectiveness**
  Participants can evaluate their own programs’ readiness for assessment and apply principles of authentic assessment to their own programs

- **Authentic Assessment’s Payoff**
  Participants can pursue program improvement as a result of authentic assessment
Facing the Right Way Part I
Who are we?

Orienting Ourselves
An Analogy

Those who:
- Pray/Teach
- Fight/Defend
- Farm/Provide Food

Mutuality
Taking the Analogy Too Far
Taking the Analogy Too Far
An approach to activities that uses information about the effectiveness of our activities to implement strategic and targeted revisions towards increased impact of our goals.
Working Toward a Shared Purpose
What hinders your ability to work towards a shared purpose?
Two cultures: A contrast in approaches

Orienting Priorities
The Student Learning Assessment Cycle

- Gather Results
- Analyze Results
- Identify Assessments
- Strategize Program Improvement
- Write Outcomes
Perception of the Assessment Cycle

Submit Reports ➔ Write Outcomes

Package Results ➔ Identify Assessments

Gather Results ➔ ACCREDITATION
The Culture of Compliance

- Sees accreditation as an end in itself
- Seeks information on what accreditors want to see
- Worries about whether what is reported matches accreditors’ expectations

Students become unimportant elements of the assessment process
Another View of the Assessment Cycle

STUDENTS

Strategize New Student Success Plans

Communicate Expectations to Students

Collect Student Work

Determine Extent of Learning

Name Expectations for Learning
The Culture of Intentionality

Students become the primary focus of the assessment process

- Is student-centered
- Seeks information about how well students are learning and/or how well various areas of the college are supporting the student experience
- Reflects on what we teach or do and how we teach or do it
- Accepts (some) responsibility for student learning and the student experience
- Experiments with new strategies for student success
A student learning outcome...is...defined in terms of the particular levels of knowledge, skills and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of collegiate experiences.

(Peter Ewell, 2001)
The Core: Student Learning Outcomes

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(Peter Ewell, 2001)
Learning Outcomes are goals that describe how a student will be different because of a learning experience. More specifically, learning outcomes are the knowledge, skills, attitudes, and habits of mind that students take with them from a learning experience.

(Linda Suskie, 2009).
Student Learning Outcomes: The Student Perspective

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Facing the Right Way Part II
What are we doing?

Orienting Ourselves
Are Outcomes Aligned?

Learning anything about how we’re doing depends on having constructed programs to achieve our goals.
Differentiating Outcome Types

PSLO: 1
Utilize higher order thinking in applying basic research methods in psychology including research design, data analysis, and interpretation of findings, and, reporting of result both in written and oral forms that are in conformance with APA format.

CSLO 1.1: Identify basic research methods and ethical considerations in the study of behavior.

CSLO 1.2: Critique psychological studies and their study design, results and the conclusions reached by the researchers involved.
Objects of Outcomes

- **Content**: facts, concepts, principles/theories

- **Skills**:
  - **Cognitive**: information literacy, thinking strategies, computational skills
  - **Social**: communication skills, collaboration skills, initiative/leadership skills
  - **Aesthetic**: arts appreciation, proficiency in creative procedures, creativity

- **Values**: open-mindedness/love of knowledge, diligence/integrity, social responsibility
Features of Effective Outcomes

Employ these strategies for writing strong outcomes statements that communicate clearly what students will know and be able to do.

- Focus on learning, not processes or assignments

- Avoid vague verbs (*know, understand, demonstrate*)

- Use operational verbs that imply a student’s active response to learning or a service

- Ensure that outcomes are observable and measurable

- State what students do (*not what staff or instructors do*)
Support for Student Support

**Six Success Factors**

- **Directed**
  - Students have a goal & know how to achieve it

- **Focused**
  - Students stay on track—keeping their eyes on the prize

- **Valued**
  - Students’ skills, talents, abilities & experiences are recognized; they have opportunities to contribute on campus & feel their contributions are appreciated

- **Nurtured**
  - Students feel somebody wants & helps them to succeed

- **Connected**
  - Students feel like they are part of the college community

- **Engaged**
  - Students actively participate in their learning both in & out of class
Do your outcomes represent your goals for students? How well?
Using the SLOs

The Culture of Compliance

- Rarely communicates outcomes to students
- Files outcomes with the appropriate office
- Sticks with what has always been done
- Works on outcome assessment for an accreditation cycle
Using the SLOs

The Culture of Compliance
- Rarely communicates SLOs to students
- Files SLOs with the appropriate office
- Sticks with what has always been done
- Works on SLO assessment for an accreditation cycle

The Culture of Intentionality
- Makes outcomes visible to students
- Incorporates outcomes into faculty practice
- Assesses outcomes appropriately
- Uses outcomes for ongoing conversations about teaching effectiveness
How are you using your outcomes at Merritt?
Evaluating Program Effectiveness

A Strategy for Meaningful Assessment
Mutuality
Working Toward a Shared Purpose
Student Learning Outcomes Home

Merritt College
Student Learning Outcomes and Assessment

Assessment is an ongoing process aimed at understanding and improving student learning. It involves:

- making our expectations explicit and public;
- setting appropriate criteria and high standards for learning quality;
- systematically gathering, analyzing, and interpreting evidence to determine how well performance matches these expectations and standards;
- using the resulting information to document, explain, and improve performance.

When assessment is embedded effectively in larger institutional systems, assessment can help to focus our collective attention, examine our assumptions and create a shared culture dedicated to assuring and improving the quality of higher education.” (Thomas A. Angelo)

What is an SLO?
Student learning outcomes (SLOs) are the skills and/or knowledge that a student can expect to have upon completion of a specific educational task (course, program, degree, etc.). There are different levels of SLOs: course, program, and institutional.

Why are SLOs used?
SLOs are assessed on a regular cycle in order to ensure that our students are meeting our stated goals and to continually improve the quality of the instruction.
A Process of Questions

Instructional Programs

1. What do we want students to know, understand, and be able to do?
2. Where do students learn what we expect them to learn?
3. How well did students learn what you expected them to learn?
4. How do we know how well they learned what we expected them to learn?

Non-Instructional Programs

1. What are the intended results of our programmatic, operational, or administrative activities?
2. How do we accomplish what we set out to do?
3. How well did we do what we intended to do?
4. How do we know how well we did what we expected to do?
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### Mapping Up

#### Microscopy Outcome Set

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<thead>
<tr>
<th>Outcome</th>
<th>Mapped to</th>
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<tbody>
<tr>
<td>Hardware Proficiency</td>
<td>Institutional Learning Outcomes: Critical Thinking, Information and Computer Literacy</td>
</tr>
<tr>
<td>Software Proficiency</td>
<td>Institutional Learning Outcomes: Critical Thinking, Information and Computer Literacy, Quantitative Reasoning</td>
</tr>
<tr>
<td>Specimen Preparation</td>
<td>Institutional Learning Outcomes: Critical Thinking, Quantitative Reasoning</td>
</tr>
<tr>
<td>Design experiments for optical microscopy</td>
<td>Institutional Learning Outcomes: Civic Engagement and Ethics, Communication, Critical Thinking, Information and Computer Literacy, Quantitative Reasoning</td>
</tr>
<tr>
<td>Troubleshoot</td>
<td>Institutional Learning Outcomes: Communication, Critical Thinking, Information and Computer Literacy, Quantitative Reasoning</td>
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<tr>
<td>Critical Thinking for Microscopy Technology</td>
<td>Institutional Learning Outcomes: Communication, Critical Thinking, Information and Computer Literacy, Quantitative Reasoning</td>
</tr>
<tr>
<td>Assess and utilize new microscopy technologies</td>
<td>Institutional Learning Outcomes: Civic Engagement and Ethics, Communication, Critical Thinking</td>
</tr>
<tr>
<td>Competitive Workforce Skills</td>
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Note: Additional outcomes related to microscopy include skills in histology, high-tech, and other growth fields.
# Mapping Down

## PLO/SLO-Curriculum Map

<table>
<thead>
<tr>
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<th>D=developing</th>
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<td>Identify basic research methods and ethical considerations in the study of behavior.</td>
<td>Analyze the results of two different kinds of personality tests and birth order for college age adults especially introversion versus extraversion.</td>
<td>SLO 2.1</td>
<td>SLO 2.2</td>
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<tr>
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<td>Course 2</td>
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<tr>
<td>Course 4</td>
<td>A</td>
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Course Level Outcomes Referenced On Course Outlines
A Process of Questions

Instructional Programs

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2. Where do students learn what we expect them to learn?

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3. How well did we do what we intended to do?

4. How do we know how well we did what we expected to do?
How well did they learn it?

Assessment data is produced all the time in educational practice. Three types are frequent:

1. Direct
2. Indirect
3. External

Direct assessment embeds artifacts in practice

- Student essays, exams and presentations
- Case studies and field work
- Group projects and service learning
- Journals and article critiques
- Performances and artworks

Indirect assessment seeks opinions of student learning

- Student meta-cognitive reports
- Internship supervisor reports

External assessment uses outside exams

- Non-degree standardized tests
How well did they learn it?

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<th>Outcome</th>
<th>Measure</th>
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<td>Identify &amp; locate specific outcomes</td>
<td>Align assignments/assessments to the expectations of a given outcome or set of outcomes.</td>
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- Operational Verb
- Correlating Assignment
How well did they learn it?

PLO 1: Identify the major writers, periods, and genres of British and American literature with sufficiency to explain the importance of works and genres within their historical contexts and over time.

**Outcome**

- **Identify** major writers, periods, and genres of British & American literature

- **Explain** the use of genres within the literary culture of a given period of British & American literature

- **Comparatively interpret** authors’ use of genre in works from two periods of British & American literature

**Aligned Measure**

- Objective Test

- Take-home Exam Essay

- Researched Paper

Adapted from CSUSB
How well did they learn it?

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<td><strong>Objective Exam</strong></td>
<td><strong>Course Essay</strong></td>
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<tr>
<th>Studies in a Literary Period</th>
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What Information is Helpful?

**Letter Grades?**
- Assignments often ask students to engage in multiple tasks covered by more than one outcome.

**Student Performance Percentages?**
- Percentages of students meeting outcomes or not reveals overall performance, but does not highlight HOW students do well or go wrong.

**Descriptions of Performance?**
- Descriptions of patterns of student strength and patterns of student weakness can be the most revealing information, but percentages can help to define the extent of a particular problem.

**Surveys?**
- Surveys often provide a snapshot or overview of satisfaction or awareness of services, but they rarely provide authentic or direct evidence as to whether learning outcomes have been met or highlight HOW students do well or go wrong.
A Process of Questions

**Instructional Programs**

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How do we know how well we’ve done?

Two challenges confront us when we have developed outcomes and seek to assess our programs:

1. Gathering and wading through data
2. Knowing what to look for
3 Strategies for Smaller Piles

1. Assess a subset of the outcomes each year in a consistent annual cycle

2. Embed direct assessment assignments in classes or activities

3. Collect results regularly for longer term review

Managing the Data

Assess a manageable subset of outcomes and use sampling to gather a reasonable set of data
Managing the Data

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3 Steps for Evaluation

1. Specify the criteria that will be evaluated in the student’s work
   - These can derive from the SLOs under the Program Level Outcome

2. Identify the levels of student performance
   - Four levels? (superior, good, adequate, inadequate)
   - Three levels? (above expectations, meets expectations, below expectations)

3. Define the standards for the program’s success
   - Set what percentage of students will meet or exceed expectations

Knowing What to Look For

We have our student samples to provide data—now what?

Define a rubric

- Criteria
- Levels of performance

Set Standards
How do we know how well they learned?

| PLO 1: Apply critical thinking within the context of professional work practice |
|---------------------------------|-----------------|-----------------|-----------------|
| ARTIFACT: Student case presentation | GOAL: 85% meet or exceed expectations |
| Student . . . | 3-Exceeds Expectations | 2-Meets Expectations | 1-Below Expectations |
| Demonstrates evidence of problem solving skills. | Identifies the problem & contributing factors and poses solution that addresses each factor | Identifies the problem and proposes an adequate solution | Fails to identify the problem or proposes an incomplete solution |
| Determines appropriate assessment of needs of client population and articulates appropriate resources. | Describes complex assessment of needs and articulates resources for each need identified | Makes an appropriate assessment of needs and identifies at least 3 appropriate resources | Determines an incomplete assessment and articulates inappropriate or less than 3 resources |

Adapted from BYUH
SLOAC has provided tremendous resources and examples!

What patterns of strength and weakness emerge?
A Process of Questions

The Culture of Intentionality’s focus on student learning opens a clearer approach to assessment.

1. What do we want students to know, understand, and be able to do? (PSLOs / CSLOs)

2. Where do students learn what we expect them to learn? (Curriculum Mapping)

3. How do students learn what you expected them to learn? (Aligning Measures to Outcomes)

4. How do we know how well they learned what we expected them to learn? (Cycles & Rubrics)
Reveals patterns of student strength and patterns of student weakness that letter grades and percentages can conceal.

- Allows faculty & staff to see HOW students are responding instead of simply THAT they are responding.
- Indicates the degree to which we succeed in producing the educated, prepared students we desire to produce.
- Provides direction when staff & faculty need to make program adjustments to address shortcomings.

What does this add?

Authentic assessment moves us away from missing the really useful information.
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Assessment’s Payoff: Innovation

Creating Meaningful Change
Innovating Around Success:

- Consider increasing expectations or rigor outlined in outcomes
- Raise the standard of attainment
- Consider surveying students about their experience of the program
- Scale the activity up
- Consider surveying others in the discipline/profession/area

We Did It!
Assessment may find that student learning meets expectations at the determined standard for some outcomes
What Happened?
Assessment may find that student learning does not meet expectations at the determined standard for some outcomes.

Innovating to Address Shortcomings:

Curricular Issues

- Ensure outcomes are clear and aligned with expectations
- Review and revise activities and/or teaching & learning methods used by faculty & staff
- Review and revise course / program content
- Revise or establish pre-requisites
- Review and revise sequences
Method: Course: Math 253: Pre-algebra; Direct – Exam

Analysis of Results: There was considerable overlap between these results: 3 students scored “essentially correct” on all three questions, while another 5 scored “essentially correct” on two out of the three. When the scores were aggregated, 7 students achieved a score of 20/30 or better. I would therefore put the “success rate” of this particular sample at 33%.

Planned Use of Results for Continuous Improvement:
To my knowledge, this is the first documented assessment of Program Learning Outcomes for Math 253 at Merritt College. The sample size is not particularly large, and the department has not established criteria for adequacy of progress at this stage of the Math Program. These results should therefore be considered largely as contributing to a baseline for later comparison. Nevertheless, based on this execution of the assessment process, I would recommend further discussions in the department concerning the following topics:

1. Establishing a set of particular topics for PLO assessment.

2. Establishing rubrics for grading the particular questions used, esp. the use of “partial credit” scales.

3. Establishing thresholds for adequate progress.

With regard to Math 253 in particular, I suspect that the low success rate achieved by this group on the topic of percents may have at least the following two contributory “causes”: 1.) the topic comes late in the semester, and most of our students at this level are hard-pressed to maintain concentration for that length of time, and 2.) time spent reviewing the arithmetic of whole numbers and fractions leaves insufficient time to cover percents with the necessary depth. This second factor also holds for Math 250, with the result that percents are never adequately covered in either course. I would therefore strongly recommend that the department consider redistributing the percent time-on-topic values for Math 250 and 253 so that more time can be spent on percents and their applications in Math 253.
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2. Establishing rubrics for grading the particular questions used, esp. the use of “partial credit” scales.
3. Establishing thresholds for adequate progress.

With regard to Math 253 in particular, I suspect that the low success rate achieved by this group on the topic of percents may have at least the following two contributory “causes”: 1.) the topic comes late in the semester, and most of our students at this level are hard-pressed to maintain concentration for that length of time, and 2.) time spent reviewing the arithmetic of whole numbers and fractions leaves insufficient time to cover percents with the necessary depth. This second factor also holds for Math 250, with the result that percents are never adequately covered in either course. I would therefore strongly recommend that the department consider redistributing the percent time-on-topic values for Math 250 and 253 so that more time can be spent on percents and their applications in Math 253.
Results for Final Exam
(Assessment Plan and Assessment Findings; 2014-2015 Assessment Cycle)
Summary of Results: For #1: 7 students got full credit which is 7 points
9 students got 5 to 6 points.
7 students got 3 to 4 points.
8 students got 1 to 2 points.
6 students received no credit on this question.

For #2: 1 students got full credit which is 10 points.
1 student got 9 points.
6 students got 5 to 6 points.
7 students got 3 to 4 points.
13 students got 1 to 2 points.
9 students received no credit on this question.

Action details and description: More homework assignments should be given to students from solving logarithmic and exponential equations part so students can practice more.

Implementation Plan (timeline): Spring 2015
Key/Responsible Personnel: Minyoung(Michelle) Lee
Expected outcome of this action: 70% of students get 70% for those problems.
Budget request amount: $0.00
Priority: High
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Implementation Plan (timeline): Spring 2015
Key/Responsible Personnel: Minyoung(Michelle) Lee
Expected outcome of this action: 70% of students get 70% for those problems.
Budget request amount: $0.00
Priority: High
Innovating to Address Shortcomings:

Administrative Issues

- Develop advising systems for students
- Appoint coordinators for multi-section courses
- Review outlines for multi-section courses
- Build systems for communicating expectations to students

What Happened?

Assessment may find that student learning does not meet expectations at the determined standard for some outcomes.
A Pragmatic Rationale

ACTION:
Action details and description: I will provide more time in lab class for students to familiarize themselves, individually and/or in groups, with the fossil casts and to handle and observe/compare them. Students will be required (as part of the week’s lab assignment grade) to visit the station with the relevant material. As they complete their lab exercises and study sheets they must view and handle the materials rather than rely simply on information from the lab manual and class presentation. Many students are not interested in handling the fossil casts. We also need a chimpanzee skeleton to use in comparison with the fossil hominid and modern human skeletal casts. It is insufficient for students to rely on two-dimensional images in their lab manuals and on PowerPoint slides to identify and compare skeletal remains.

Implementation Plan (timeline): The weekly labs at the end of the semester covering hominid evolution: the last 4-5 weeks of the semester. This lab work prepares students for the final exam.

Expected outcome of this action: Improved ability to identify, classify, analyze, and compare and contrast skeletal remains.

Budget request amount: $2,000.00

Priority: High
A Pragmatic Rationale

ACTION:
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Priority: High
Responding to the Results

Students benefit from an institution’s thoughtful response to an honestly undertaken attempt to determine a program’s strengths and weaknesses in educating them.
For This Afternoon

- Please bring or have access to your outcomes
- Please sit with colleagues in the same or a similar unit
Questions?