

## Student Learning Outcomes—A Focus on Results

Bill Scroggins, January 2004

In the time since the Accrediting Commission identified “measuring student learning outcomes” as the focus of the latest revision of the standards, many of us have been struggling with what we are expected to do differently. Whatever we do to implement Student Learning Outcomes, this initiative must be seen to have value to faculty—value that clearly outweighs the task of constructing SLOs. Those of us who have taught for years consider that we already measure student learning. However, I have come to believe that SLOs really do have a new and useful emphasis that can be best captured by one word: **results**—collecting them, sharing them, and using them to improve both learning and the operation of our colleges. This series of reflections are intended to address getting useful results from the SLO process—maximizing utility and minimizing futility. (That little “f” really makes a difference, doesn’t it?)

### Student Learning Outcomes at the Lesson Level

As we teach each lesson and grade the related student assignments, we typically have a clear concept of the results expected, and we have defined methods for assessing student work and assigning grades. However, there are several things that we typically don’t do that can potentially improve student learning. While many of us do give students written learning objectives for each lesson, we usually do not *write down criteria for grading nor share them with students*—other than how total points relate to the final grade in the course.

In listening to practitioners of SLOs such as Lisa Brewster, a Speech teacher at San Diego Miramar College, and Janet Fulks<sup>1</sup>, a Microbiology teacher at Bakersfield College, it is clear that SLOs can become a powerful *pedagogical* tool by:

- sharing grading criteria with students,
- getting students to use these criteria as a way to better understand the material, and
- having students evaluate their own and each other’s work.

#### Results of SLOs at the Lesson Level

Most of us have criteria for grading student learning for the individual objectives of each lesson we teach—but we may not write these down or share them with students. Here’s an example:

*Lesson Learning Objective:* Describe and draw the four vibrations of carbon dioxide and show how IR light is absorbed by CO<sub>2</sub>.

*Sample Graded Question:* What two types of motion are caused by the absorbance of IR light by CO<sub>2</sub>? Draw one of these motions.

*Grading Criteria:*

Full credit: Student names “bending” and “stretching” and draws ball-and-stick models with arrows up-and-down for bending and side-to-side for stretching.

Deductions: 25% for one name missing; 50% for both; 25% for wrong or missing arrows; 50% for no drawing.

*Results of Grading Student Work:*

82% earned full credit; 5% confused arrows; 13% had no drawing.

*Action to Improve Learning:*

The greatest deficiency seems to be drawing, so do in-class drawing exercise.

Aggregating the feedback from grading student assignments can provide valuable insight into areas in need of improvement. With all the demands on our time, we may not give adequate attention to mining this valuable source of information for improvement of the teaching and learning process. One of the challenges that the new accreditation standards present us is creating an assessment plan that outlines objectives, grading criteria, results of assessing student work, and how we use those results to improve student learning.

Of course, part of improving student learning is improving the way we teach. This inevitable outcome can potentially be threatening to faculty members. However, when these issues have been raised in workshops with faculty, the result has generally been a serious engagement in discussions of teaching methods to improve authentic, deep learning.<sup>ii</sup> It is extremely important to build environments for discussing the improvement of student learning which are positive and reinforcing. Several colleges have made explicit commitments to this principle,<sup>iii</sup> including Palomar College in California, College of DuPage in Illinois, and the American Association of Higher Education.

### **Student Learning Outcomes at the Course Level: From Course Objectives to SLOs**

Beyond the lesson level, we must address results of student learning at the course level. Moreover, we should do so for all sections of each course, meaning collaboration among the full- and part-time faculty teaching the course. In stating the desired student learning outcomes, we have the advantage of agreed-upon student objectives in the course outline.

A great deal of energy has been expended in discussing the difference between a course objective and a student learning outcome. The difference may be clearer when viewed in the context of producing assessment results that 1) provide useful feedback to improve the teaching and learning process and 2) provide useful information to improve college practices. SLOs more clearly connect with *how the instructor will evaluate student work* to determine if the objective has been met. When we write an assignment, we provide a *context* in which the student will respond and we evaluate the response based on *criteria* we use to judge if the student has met the objective—usually we have at least a mental construct of minimum acceptable performance standards. These are the two additional pieces that transform an objective into an SLO. Here’s how it might work.

If course objectives have been written well, they will be complete, measurable, and rigorous. In practice, as faculty look more closely at the criteria and methods to assess these objectives, changes often result. To “operationalize” an objective for assessment purposes, that is, to transform it into a statement of desired student learning outcomes, typically we must address:

- 1) the stated objectives in terms of acquired knowledge, skill or values (hopefully, the existing course objectives),
- 2) the context or conditions under which the student will be expected to apply the knowledge, skill or values, and
- 3) the primary traits which will be used in assessing student performance.

Below are some examples of “robust course objectives” or “statements of desired student learning outcomes.” (Note that this difference is largely semantic. Some colleges have chosen to put SLO statements in course outlines as an enhancement of the objectives, while others have built statements of desired SLOs into a departmental assessment plan, typically related to program review.) Whatever vehicle the college uses to operationalize course objectives to SLOs, it must be done collaboratively among faculty who teach the course.

## Examples of Course Objectives Transformed Into Student Learning Outcomes

Course Objective	Statement of Desired SLO
Write well-organized, accurate and significant content. (English)	Context: Given an in-class writing task based on an assigned reading, Objective: demonstrate appropriate and competent writing which Traits: states a thesis, supports assertions, maintains unity of thought and purpose, is organized, and is technically correct in paragraph composition, sentence structure, grammar, spelling, and word use.
Analyze behavior following the major accepted theories. (Psychology)	Context: Given a particular behavior and its context (e.g., playing incessantly with one's hair when under pressure in the presence of the opposite sex), Objective: describe how the perspectives of behaviorism, humanistic, psychoanalytic, and biological psychology would interpret that behavior and what methods might each use to alter that behavior. Traits: Include theoretical basis, description of causality, and treatment regimen.
Understand and apply the scientific method. (Biology)	Context: Given a hypothesis, Objective: design experiments and interpret data according to the scientific method in order to evaluate the hypothesis. Traits: Include the ability to approach the scientific method in a variety of ways, formulate questions, design experiments that answer the questions; and manipulate and evaluate the experimental data to reach conclusions.
Compare and contrast the text and film versions of a literary work. (Film)	Context: After viewing an assigned film based on a literary text, Objective: write a review of the film. Traits: Include an appraisal of the director's selection and effective translation of content from the literary text and the dominant tone the director seems to be trying to achieve, supporting each statement with detail from the text and film and your personal reaction to the cited scenes.

### **Primary Trait Analysis: Statements of Grading Criteria**

Primary traits are the characteristics that are evaluated in assessing student work. Identifying primary traits for a given assignment involved listing those specific components that, taken together, make up a complete piece of work. They are the collection of things that we as teachers look for when we grade student work.

#### Definition of Primary Trait Assessment

Primary trait assessment is a method of explicitly stating the criteria and standards for evaluation of student performance of an assignment or test. The professor identifies the traits that will be evaluated, and ranks the student's performance of each trait on a scale of "most effective" to "least effective" realization of the assignment goals. On this scale, the level of the student's performance is explicitly ranked so that the student knows how she is being evaluated. The instructor has created the scale for direct application to the assignment the student is performing so that if the entire class does poorly on the assignment, it is clear to the instructor what difficulties the class may share with one another. This recursive feedback of primary trait assessment can be used to inform classroom and departmental improvement.<sup>iv</sup>

While “primary traits” are the categories into which we can sort competencies when we evaluate student work, we look for specific levels of performance in each of these areas. For example, an essay might be rated on development, organization, style, and mechanics. These primary traits are then rated on some sort of a scale—as simple as A/B/C/D/F or more descriptive as excellent/superior/satisfactory/ poor/unsatisfactory. Occasionally, points are given based on this scale. The challenge presented by the Student Learning Outcomes process is to *write down those*

observable student performance characteristics in an explicit way for each of the primary traits we have identified. This system, known as a “grading rubric,” can be used to grade student work collected through all manner of assessment methods.

**Template for a Grading Rubric:  
Primary Traits and Observable Characteristics**

Trait	Excellent	Superior	Satisfactory	Poor	Unsatisfactory
Development					
Organization					
Style					
Mechanics					

Building a Rubric  
 Start with expectations for satisfactory work for each trait such as Organization in the table to the left:

- Ideas generally related to one another and to the focus, but may have some unrelated material
- Adequate introduction and conclusion
- Some attempt at transitions

Then stretch up to excellent and down to unsatisfactory.

Rubrics can be applied in total by specifically rating each primary trait (an “analytic” grading rubric) or holistically (using the rubric as a guide to determine the overall rating of excellent, satisfactory, or unsatisfactory—or whatever performance levels have been agreed upon). An example is given below.

<b>Primary Trait Grading of Math Problem Solving<sup>v</sup></b>				
Trait	3 points	2 points	1 point	0 points
Understanding	complete understanding of the problem in the problem statement section as well as in the development of the plan and interpretation of the solution	good understanding of the problem in the problem statement section. Some minor point(s) of the problem may be overlooked in the problem statement, the development of the plan, or the interpretation of the solution	minimal understanding of the problem; the problem statement may be unclear to the reader. The plan and/or interpretation of the solution overlooks significant parts of the problem	no understanding of the problem; the problem statement section does not address the problem or may even be missing. The plan and discussion of the solution have nothing to do with the problem
Plan	plan is clearly articulated AND will lead to a correct solution	plan is articulated reasonably well and correct OR may contain a minor flaw based on a correct interpretation of the problem	plan is not clearly presented OR only partially correct based on a correct/partially correct understanding of the problem	no plan OR the plan is completely incorrect
Solution	solution is correct AND clearly labeled OR though the solution is incorrect it is the expected outcome of a slightly flawed plan that is correctly implemented	solution is incorrect due to a minor error in implementation of either a correct or incorrect plan OR solution is not clearly labeled	solution is incorrect due to a significant error in implementation of either a correct or incorrect plan	no solution is given
Presentation			overall appearance of the paper is neat and easy to read, and all pertinent information can be readily found	paper is hard to read OR pertinent information is hard to find

<b>Holistic Grading of Math Problem Solving<sup>v</sup></b>				
Trait	3 points	2 points	1 point	0 points



of mastery. The focus is on performance of an individual as measured against a standard or criteria rather than against performance of others who take the same test, as with norm-referenced tests.
<u>Norm-Referenced Test</u> —an objective test that is standardized on a group of individuals whose performance is evaluated in relation to the performance of others; contrasted with criterion-referenced test.
<u>Portfolio</u> —a collection of student work organized around a specific goal, e.g., set of standards or benchmarks or instructional objectives); it can contain items such as handouts, essays, rough drafts, final copies, artwork, reports, photographs, graphs, charts, videotapes, audiotapes, notes, anecdotal records, and recommendations and reviews; each item in the portfolio provides a portion of the evidence needed to show that the goal has been attained.
<u>Performance Assessments</u> —activities in which students are required to demonstrate their level of competence or knowledge by creating a product or response scored so as to capture not just the "right answer", but also the reasonableness of the procedure used to carry out the task or solve the problem.
<u>Rating Scales</u> —subjective assessments made on predetermined criteria in the form of a scale. Rating scales include numerical scales or descriptive scales. Forced choice rating scales require that the rater determine whether an individual demonstrates more of one trait than another.
<u>Simulation</u> —a competency based measure whereby pre-operationalized abilities are measured in most direct, real-world approach. Simulation is primarily utilized to approximate the results of performance appraisal, but when—due to the target competency involved, logistical problems, or cost—direct demonstration of the student skill is impractical.

In listening to faculty discuss assessment methods (at six statewide California Assessment Institutes, eight regional RP/CAI workshops, and our own college's summer institute on SLOs), I have come to several conclusions:

- School-of-Education level discussions of assessment instruments are not well received
- Faculty are eager to talk about the challenges they experience in assessing students
- Discussions often turn to great stuff such as authentic assessment and deep learning
- Most faculty use a rather narrow range of methods—but use them well
- Faculty will more often try another assessment technique if recommended by a colleague
- Many faculty use assessments that need just slight enhancement to yield SLO results

A few specifics on the last point may help:

- One vocational department teaches portfolios in its introductory course—and uses portfolios when doing faculty career advising—but does not follow through by having students add to the portfolio as competencies are acquired in subsequent courses. The capstone course in this department has students build a portfolio, but there is no connection with the portfolio in the intro class nor is there a grading rubric.
- One department has a clinical component in which students are evaluated using a rating sheet on their hands-on competencies. The department has complained about needing feedback from clinical to the theory courses, but has not consistently used the results of the rating sheets for this purpose. The competencies taught in the theory course are fairly well aligned with those assessed in clinical but could be improved.

- Faculty in one of the social science departments have worked on departmental standards for term papers to the point of a primary trait analysis and meet regularly to discuss grading of term papers but have not filled in the observables to establish a rubric.
- The English department has a grading rubric for written essays, and full- and part-time faculty have regular norming sessions to improve consistency of grading, but the system has only been used for two courses, freshman comp and its prerequisite.

Based on these observations, my recommendation is to start with these good things that faculty are doing, get them engaged in talking about grading (*Effective Grading: A Tool for Learning and Assessment* by Barbara Walvoord and Virginia Anderson has been great for this), get faculty to share assessment strategies with one another—especially across disciplines, and provide the support for moving these good existing assessment practices to the next level.

### **Norming or Inter-Rater Reliability: Assuring Consistency of Grading Among Faculty**

Whatever method is chosen to assess student learning and apply the agreed-upon grading rubric, faculty who teach sections of the course should work together to assure that the results of grading student work are consistent. This process is known as “norming” or “inter-rater reliability” and has been used in a variety of venues including construction of standardized tests, evaluating placement test writing samples and ranking grant proposals. An *explicit* process for establishing inter-rater reliability would be to have evaluators use the grading rubric on a series of student assignments and then evaluate the extent of agreement using standard statistical measures. (The kappa statistic, the chi square test, the Pearson correlation coefficient, and percent agreement have all been used under various circumstances.) Agreement can be improved through discussion and training. Norming can be performed *informally* by having regular discussions among faculty raters, reviewing and debating examples related to the observables in the grading rubric until consensus is reached.<sup>viii</sup>

With the statement of the desired student learning outcome in place, with the grading rubric established and normed, the results collected can be powerful information for improving student learning—and may provide the basis for directing college resources in areas to address the learning gaps identified.

### **The Assessment Report: Sharing the Results of Student Learning Outcomes**

A sensitive aspect of the discussion of Student Learning Outcomes has been how the information is to be used. Most importantly, the significance of the results relates directly to *improving teaching and learning*. Most of that improvement lies with faculty—curriculum design, pedagogy, learning environment, assessment methods and the like. The rest is in the hands of the college’s support system—providing facilities, equipment, student services and so on—to the instructional program to make those improvements identified by SLO results. To the extent that we can build an Assessment Report that *focuses on the instructional program level*—helping faculty improve student learning and identifying needed college resources, college faculty and staff will buy into the process. The examples below illustrate a few key points:

- An analysis of the results—by faculty, particularly all program faculty—must accompany the results.
- Results can be listed completely or summarized in narrative form.
- Specific actions to be taken as a consequence of the results should be described.
- Results often contradict our assumptions of how and what students learn.
- Use of SLO results can be effectively *centered in the instructional program as the locus of change*.
- Simple presentations of results form elegant evidence for accreditation.

### Example of a Course Level Assessment Report<sup>ix</sup>

SLO Results – English 371 – Literature & the Visual Arts – Raymond Walters College					
<b>Course Objective:</b> Compare and contrast the text and film versions of a literary work.	Trait	4 points	3 points	2 points	1 point
	Plot	Accurate plot review	Accurate plot review	Minor inaccuracies of plot	Glaring plot inaccuracies
<b>Desired SLO:</b> After viewing an assigned film based on a literary text, write a review of the film. Include an appraisal of the director's selection and effective translation of content from the literary text and the dominant tone the director seems to be trying to achieve, supporting each statement with detail from the text and film and your personal reaction to the cited scenes.	Text Analysis	Analysis of text beyond literal interpretation	Analysis of text beyond literal interpretation	Analysis of text includes literal interpretation	Literal analysis
	Supporting Statements	Support with specific details from text/film	Weak support with specific details from film	Few specific details as support	No specific details as support
	Personal Reactions	Personal evaluation based on analysis	Personal evaluation not based on analysis	Little personal evaluation	No personal evaluation
<b>Number of Students Scoring at Each Point Level by Film Number Reviewed</b>	Film #1	10	7	3	1
	Film #2	11	7	3	0
	Film #3	10	8	3	1
	Film #4	12	5	5	1
	Film #5	13	5	3	0
	Film #6	6	8	6	1
	Film #7	9	7	7	5
<b>Instructor Analysis:</b> I handed out the trait scale to students on the first day of class, but I am not sure they consulted it; upon my inquiring whether they had a copy near the end of the course, few students were able to locate it in their notebooks. This taught me that I should refer to the scale more explicitly in class. I anticipated that it would be easy for students to give an analysis but difficult for them to identify concrete support for their ideas. However, I discovered that students found it easier to point to specific places in the movies that gave them ideas than to articulate those ideas. Therefore, I will revise the scale for the next course to reflect the relative challenges of these skills.					

### Example of a Program Level Assessment Report<sup>x</sup>

PARKLAND COLLEGE ACADEMIC ASSESSMENT (Excerpts)			
DEPARTMENT: Fine and Applied Arts		PROGRAM: Mass Communication	
Intended Outcomes (Objectives)	Assessment Criteria & Methods (Expected Results)	Actual Results	Analysis & Action
1. Students will demonstrate proficiency in employable Mass Communication skills.	1. Students will demonstrate desired mass communication competencies as shown by individual portfolios, when assessed by representatives from industry, as reported on MC Portfolio Evaluation form.	1. Written comments from industry representatives indicate that MC student's portfolio assessment ranked 4 (on a scale of 1 to 5-five being the highest score). Suggestions were to include	1. Desktop Graphics program revised to include more experience in Web site graphics. Students designed graphics for current MC

		more Web site graphics into curriculum.	home page and links.
2. Students will demonstrate learning the basic concepts necessary to perform satisfactorily in Mass Communications entry-level jobs.	2. When surveyed using <i>Parkland College Student Occupational Follow-Up Survey</i> , graduates will describe satisfaction with their Mass Communication knowledge to recall, analyze, evaluate, and utilize basic concepts.	2. Feedback from employers and students strongly indicated that Visual Arts program option had become obsolete; preference is given to graduates with Desktop Publishing skills.	2. Visual Arts program option shelved.
3. Students in the Mass Communication A.A. program will have the knowledge to successfully complete a Bachelors degree in Mass Communication.	3. Four-year institutions will report of a 75 percent acceptance rate into Mass Communication programs.	3. U of I Coordinator of Transfer Articulation reported that out of 29 applicants from other schools to Graphics a Mass Com student was the only admit.	3. Continue to gather/monitor data. Investigate how many Parkland Graphics students applied.

**Example of a General Education Assessment Report**

<b>Mesa Community College – Results from Student Learning Outcomes Assessment – Spring 2002 and 2003</b>		
	<b>Outcome Statements</b>	<b>Results</b>
Communication	<ol style="list-style-type: none"> <li>1. Write a clear, well-organized paper using documentation and quantitative tools when appropriate.</li> <li>2. Construct and deliver a clear, well-organized, verbal presentation.</li> </ol>	<p>Written: The mean score for the post-group was significantly higher overall and on the scales for content, organization and mechanics/style. When each skill is considered separately, students showed relative strength in stating their own position, addressing the prompt, using appropriate voice and style and sentence structure. Students have consistently rated below the overall average on acknowledging the opposing position, developing each point with appropriate detail and commentary, progressing logically and smoothly, and using transitions and orienting statements.</p> <p>Oral: Significant differences between beginning students and completing students were shown in the total percentage correct for the assessment overall and for each of the subscales: knowledge about effective interpersonal interchanges, small group interaction and conducting oral presentations.</p>
	<ol style="list-style-type: none"> <li>1. Identify and extract relevant data from given mathematical situations.</li> <li>2. Select known models or develop appropriate models that organize the data into tables or spreadsheets, graphical representations, symbolic/ equation format.</li> <li>3. Obtain correct mathematical results and state those results with the qualifiers.</li> <li>4. Use the results.</li> </ol>	<p>The average percent correct was significantly higher for the post-group overall and for outcomes related to identifying and extracting relevant data, using models to organize data, obtaining results, and stating results with qualifiers. Patterns of performance have remained consistent over several years. Use of models is the strongest area and use of results is the weakest area.</p>

Mesa Community College – Results from Student Learning Outcomes Assessment – Spring 2002 and 2003		
	Outcome Statements	Results
Scientific Inquiry	<p><i>Demonstrate scientific inquiry skills related to:</i></p> <ol style="list-style-type: none"> <li>1. Hypothesis: Distinguish between possible and improbable or impossible reasons for a problem.</li> <li>2. Prediction: Distinguish between predictions that are logical or not logical based upon a problem presented.</li> <li>3. Assumption: Recognize justifiable and necessary assumptions based on information presented.</li> <li>4. Interpretation: Weigh evidence and decide if generalizations or conclusions based upon given data are warranted.</li> <li>5. Evaluation: Distinguish between probable and improbable causes, possible and impossible reasons, and effective and ineffective action based on information presented.</li> </ol>	<p>There was no significant difference in the average percent correct between groups in the 2002 administration; however, significant differences were noted, overall, in prior years. Students have been most successful in recognizing possible reasons for a problem. Making a conclusion based upon information presented has had the lowest percent correct for the past three years of administration.</p>
Problem Solving/ Critical Thinking	<ol style="list-style-type: none"> <li>1. Identify a problem or argument.</li> <li>2. Isolate facts related to the problem.</li> <li>3. Differentiate facts from opinions or emotional responses.</li> <li>4. Ascertain the author's conclusion.</li> <li>5. Generate multiple solutions to the problem.</li> <li>6. Predict consequences.</li> <li>7. Use evidence or sound reasoning to justify a position.</li> </ol>	<p>The average total score was significantly higher for the post-group (completing), overall and for two sub-scales: Interpretation and Evaluation of Arguments. The post-group score was at the 45th percentile when compared to a national sample. Average student scores have been consistently highest for the Interpretation and Evaluation of Arguments sections and lowest for Inference.</p>
Arts & Humanities	<ol style="list-style-type: none"> <li>1. Demonstrate knowledge of human creations.</li> <li>2. Demonstrate awareness that different contexts and/or worldviews produce different human creations.</li> <li>3. Demonstrate an understanding and awareness of the impact that a piece (artifact) has on the relationship and perspective of the audience.</li> <li>4. Demonstrate an ability to evaluate human creations.</li> </ol>	<p>Significant differences were observed overall and in three of four outcome areas: Demonstrate an awareness that different contexts and/or world views produce different human creations; an understanding and awareness of the impact that a piece has on the relationship and perspective of the audience; an ability to evaluate human creations.</p>
Information Literacy	<ol style="list-style-type: none"> <li>1. Given a problem, define specific information needed to solve the problem or answer the question.</li> <li>2. Locate appropriate and relevant information to match informational needs.</li> <li>3. Identify and use appropriate print and/or electronic information sources.</li> <li>4. Evaluate information for currency, relevancy, and reliability.</li> <li>5. Use information effectively.</li> </ol>	<p>The percent correct was significantly higher for the post-group overall and for three of five outcome areas: evaluating currency and relevance of information, identifying sources, and locating information. Students were most successful in evaluating information for currency and relevance, followed by defining information needed to solve a problem and identifying appropriate sources. Locating information was relatively more difficult. Students were least successful in using information effectively.</p>

Mesa Community College – Results from Student Learning Outcomes Assessment – Spring 2002 and 2003		
	Outcome Statements	Results
Cultural Diversity	<ol style="list-style-type: none"> <li>1. Identify and explain diverse cultural customs, beliefs, traditions, and lifestyles.</li> <li>2. Identify and explain major cultural, historical and geographical issues that shape our perceptions.</li> <li>3. Identify and explain social forces that can effect cultural change.</li> <li>4. Identify biases, assumptions, and prejudices in multicultural interactions.</li> <li>5. Identify ideologies, practices, and contributions that persons of diverse backgrounds bring to our multicultural world.</li> </ol>	<p>Students in the completing (post) group had significantly higher scores on direct measures of knowledge and on several diversity and democracy outcomes in both years. Completing students agreed more often that they have an “obligation to give back to the community.” In the most recent administration completing students rated themselves more highly than beginning students on having a pluralistic orientation, being able to see both sides of an issue and their own knowledge of cultures. Further, they agreed more strongly with statements that support the value of diversity, reflect tolerance for differences related to gender, and indicate that they engage in social action more often.</p>

### **Conclusion**

In presenting preliminary findings to be published in an up-coming monograph, Jack Friedlander, Executive Vice President of Santa Barbara City College, concluded that most colleges around the country are still at the process level of developing SLOs. And some of them have been at the process level for several years! The climate in education today simply will not allow us to expend valuable time and energy on a process that will not yield useful results. Such results have the potential to allow faculty and others to engage in reflection about the process of teaching and learning and then use the insights they develop to adjust the teaching-learning-assessment process to optimize learning to the full extent possible. By having a clear path to those results, we can move ahead with taking the first few steps. But we need to keep our eye on the goal as we’re walking. Remember, utility can quickly become futility by adding a few f’s!

**Activity for Writing Student Learning Outcomes**

<b>Course Objective</b>	<b>Performance Context</b>	<b>Measurable Objective</b>	<b>Grading Criteria/ Primary Traits</b>
<p>Match the various types of sheet metal welding methods to the appropriate application.</p>	<p>Given specifications and materials requiring a weld,</p>	<p>evaluate the performance needs and match the welding method to the required application.</p>	<p>Welds should have a quality edge joint, meet design specifications, have an evenly positioned weld bead with good penetration, and have the minimum heat-affected zone to maximize strength of the weld.</p>
<p>Demonstrate and develop correct keyboarding techniques applicable to keyboarding by touch for speed and accuracy.</p>			

**Grading Rubric Template**

<b>Trait</b>	<b>Excellent</b>	<b>Satisfactory</b>	<b>Unsatisfactory</b>

---

## Endnotes

<sup>i</sup> Janet Fulks' SLOs are on the web at <http://www2.bc.cc.ca.us/bio16/Student%20Learning%20Outcomes.htm> and her grading rubrics are at [http://www2.bc.cc.ca.us/bio16/projects\\_and\\_grading.htm](http://www2.bc.cc.ca.us/bio16/projects_and_grading.htm)

<sup>ii</sup> For an excellent short article on this topic see "The Case for Authentic Assessment" by Grant Wiggins at <http://ericae.net/edo/ED328611.htm>

<sup>iii</sup> **SLO Good Practice Statements:**

Palomar College: <http://www.palomar.edu/alp/principles.html>

College of DuPage: <http://www.lgu.ac.uk/deliberations/assessment/manifest.html>

American Association of Higher Education: <http://www.aahe.org/assessment/principi.htm>

<sup>iv</sup> Primary Trait Analysis definition is from "Integrating the Assessment of General Education into the Classroom—A Two-Year College Model" by Ruth Benander and Janice Denton of Raymond Walters College and Barbara Walvoord of University of Notre Dame presented at the Annual Meeting of the North Central Accrediting Association in April of 1997:

<http://www.rwc.uc.edu/phillips/Assessment/NCAPaper.html>

See also *Effective Grading: A Tool for Learning and Assessment*. Walvoord, Barbara E. and Virginia J. Anderson.

San Francisco: Jossey-Bass Publishing, Inc. 1998; and "Primary Trait Analysis: Anchoring Assessment in the Classroom" by Benander, Denton, Page and Skinner; *Journal of General Education*, Vol. 49, No 4, 2000.

<sup>v</sup> "Assessing Modeling Projects In Calculus and Precalculus: Two Approaches" by Charles E. Emenaker, University of Cincinnati, Raymond Walters College: <http://www.maa.org/saum/maanotes49/116.html>

<sup>vi</sup> Taken from "A Handbook on Assessment for Two Year Colleges" by Ed Morante of College of the Desert:

<http://cai.cc.ca.us/Fall2002Institute/2002/assessmenthandbookfinal.doc>

<sup>vii</sup> Summary of direct assessment methods taken from "A Glossary of Measurement Terms" ERIC Digest.

<http://ericae.net/edo/ed315430.htm> and the Temple University "Teachers Connection." [www.temple.edu/CETP/temple\\_teach/](http://www.temple.edu/CETP/temple_teach/) and the NCIIA Assessment Workshop. [www.nciia.org/CD/public/htmldocs/papers/p\\_and\\_j.pdf](http://www.nciia.org/CD/public/htmldocs/papers/p_and_j.pdf)

<sup>viii</sup> For commentary on informal norming sessions on an English writing rubric see "Using Rubrics" by Michelle Christopherson of Modesto Junior College: [http://cai.cc.ca.us/SLOworkshops/Strand2/Using\\_Rubrics.doc](http://cai.cc.ca.us/SLOworkshops/Strand2/Using_Rubrics.doc)

<sup>ix</sup> **Examples of Course Level Assessment Plans:**

Raymond Walters College: <http://www.rwc.uc.edu/phillips/Assessment/AcadAssess.html>

California State University, Fresno (Anthropology):