STUDENT OUTCOMES: IDENTIFICATION AND DEVELOPMENT OF A PLAN FOR CRC

SABBATICAL REPORT FALL 2003

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ABSTRACT

The new Institutional Accreditation Standards are formulated around the concept of Student Learning Outcomes Assessment. Student Learning Outcomes (SLO's) Assessment differs from traditional assessment processes in that it incorporates both measurement (Assessment) and improvements in effectiveness. Traditional assessment processes measure student learning and assign grades based on that measurement. Student Learning Outcomes Assessment is different in that it both measures achievement and also monitors the learning process. By adding the dimension of monitoring the learning process, SLO's enable faculty to ask themselves how the curriculum and the instructional processes can be made more effective and better. This process enables faculty to develop a longitudinal view for improvement of instruction.

Assessment also exists at several levels within the institution. The basic level is course level SLO's. However they are also used at the program and institutional level and an additional set of SLO's are also developed for general education. The outcomes also vary by discipline and course since they reflect the needs of the various curricula.

The adoption of SLO's requires a shift to a student-centered focus since the focus of SLO measurement is on student learning of content rather than the effectiveness of teaching the content. At the same time, these measurements are used to both measure learning and to direct adaptations to make the learning more effective.

SLO Assessments will start with the evaluation processes already used in courses. Differences may include more types of assessments to include the variety of learning outcomes in a course. Another aspect of SLO's is scoring rubrics. These rubrics, or grading methods, include specific criteria to ensure consistent and reliable assessments.

Development of SLO's at the College will entail a process that is different from our traditional curriculum development processes. In order to develop effective SLO's three components are essential to the process.

- *The process must be Inclusive and collaborative*. The dialogue to develop SLO's must be inclusive of all faculty teaching the course
- *The components of the collaboration need to be clearly defined and understood/shared*. There must be a shared understanding of the desired outcomes from a course.
- *The process needs to be flexible to accommodate different disciplines*. Not all courses will use similar outcomes or assessment tools. Additionally, not all institutional, general education, or program outcomes will apply to all courses.

In order to implement SLO's at Cosumnes River College, several issues need to be addressed.

- There must be an institutional commitment and support for the process.
- The overall goals of instruction do not change even though measurable outcomes and assessment processes are developed.

- The assessment tools must provide valid and reliable data while not requiring excessive time or process.

There will be several components to the process to implement SLO's at the College.

- There will need to be a comprehensive Staff Development process. This will have two components. First, a general orientation to SLO's. Second, specific training on the development of specific SLO's/
- Second, a cohort of "power users" must be developed to provide the institutional support and mentoring needed to implement the system.
- Third, there must be agreement on the aspects of SLO's to implement.
- Fourth, there must be a recognition that SLO development and implementation cannot be accomplished quickly and it cannot be implemented

FINDINGS

Introduction:

The new Institutional Accreditation Standards have been formulated around the concept of Student Learning Outcomes Assessment. This concept of Student Learning Outcomes (SLO's) Assessment differs from traditional assessment processes in that it incorporates both measurement (Assessment) and improvements in effectiveness. Traditional assessment processes measure student learning and assign grades based on that measurement. As noted by Barbara Wright[1], this process is primarily summative (focused on the end point). Student Learning Outcomes Assessment is different in that is not only measures achievement but also monitors the learning process. From that perspective it is both summative and formative (focused on process). By adding the dimension of monitoring the learning process, SLO's enable faculty to ask themselves how the curriculum and the instructional processes can be made more effective and better. Additionally, this process enables faculty to develop a longitudinal view for improvement of instruction. Not only can adjustments be made in processes immediately, they can also be monitored over a longer period of time to make systemic improvements in instruction.

The Assessment process then becomes a systematic process to:

- Set goals or identify issues to be addressed
- Acquire information related to those goals or issues
- Analyze and interpret this information
- Utilize this information to make adjustments in the process.

This process is also a continual process. The process of setting goals, measuring outcomes, and adjusting processes continues so that improvement and adaptation to changing needs is constant. The primary objective of the process is to make long term improvement on student learning and development. Figure 1 illustrates the cyclical nature of the process.

This assessment process works on several levels. At it most basic level, it can be used to improve an existing course (or even an individual unit within a course). However it can also be elevated to the program (Program Level learning outcomes) and the institution (utilization of student learning outcomes in the planning process). Assessment is also unique. Different courses and programs will develop different Student Learning Outcomes based on the needs of the curriculum. Therefore the assessment must be embedded within the curriculum. It uses student work to not only evaluate performance (and grading) but also to identify strengths and weaknesses in the teaching-learning process. Since these processes are unique within disciplines, the assessment processes utilized within disciplines will be different. However the overall process identified in figure 1 will be the consistent factor in these assessments.

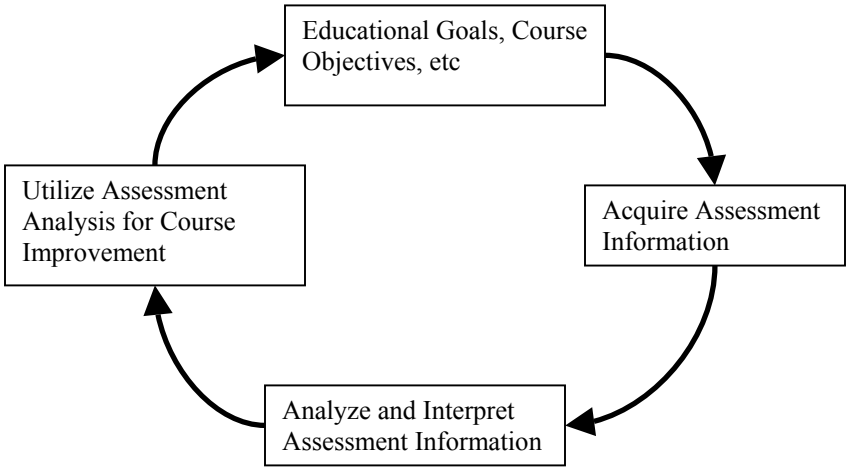

Figure 1

A critical factor in the adoption of Student Learning Outcomes is a required change in the frame of reference used. Traditionally, curriculum is focused on academic disciplines with an orientation toward content. The adoption of SLO's and the assessment process entails a shift toward a student-centered curriculum. The focus shifts to the measurement of learning, not content. This is not to indicate that current curriculum is not student centered. It also does not mean that SLO's are not discipline focused, because they are. Adoption of SLO's does not mean that assessment processes are "added-in" to the curriculum. Rather they are used to measure learning and direct adaptations to make that learning more effective.

Lisa Brewster of Miramar College identified SLO's as an "end to a means."[2] This means that the focus shifts to process rather than measurements of content acquisition. In her article, Brewster summarizes some current research on learning. Several factors were identified by Ken Wesson in this article. They include that 1) people learn better with

other people (i.e. working in groups), and 2) that people learn better when they're required to think (i.e. when learners can relate information to something that's familiar to them, they learn). This means that "active" learners learn better than "passive." In a typical instructor centered/discipline oriented course, the instructor is the driving force and the class revolves around the knowledge held by the instructor. In a student-centered course, the class will revolve around both the content and the instructor. This requires that the instructor recognize and utilize the variety of learning types and intelligences in the class. A variety of activities, group projects, and multiple modes of teaching shift the learning process to the students. Instead of being sponges that may or may not absorb the information flow, they become active participants in a process to acquire content knowledge. In order to do this, the curriculum must identify what students should be able to do at the end of the course (course objectives) and the assessment processes need to measure whether that learning occurred.

In order to accomplish this, Denton[3] identified the assessment process. First, the objectives of the course (learning outcomes) need to be identified. These must be specific and identify the content that is critical for students to know and remember after the course is completed. Second, multiple assessment techniques should be used to measure the various content. If students have different learning styles, then multiple measures should be utilized to ensure that assessment techniques are not biased for or against particular students. Ferrall[4] indicates "Assessment needs to help students quantify their learning and their behaviors towards learning." Brewster identifies this assessment as a process and developmental tool to foster learning. Students learn from the assessment process and become better and more knowledgeable learners.

Levels of student learning outcomes

As identified above, there are multiple levels of student learning outcomes. Bakersfield College has developed an Assessment Pyramid that illustrates these levels (figure 2). As is illustrated in this pyramid, the levels of student learning outcomes, although based on Institutional Goals, Mission, and Vision, differ depending on the level of assessment. It also illustrates that those accountability measures most frequently mentioned in public policy discussions (Partnership for Excellence, Perkins VTEA Core Indicators) are at the most consolidated level. Therefore what happens in an individual classroom or course, although contributing to a cumulative impact or measure, they are not in and of themselves institutional success measures.

As was demonstrated in the College's recent Accreditation Self Study, the curriculum reflects the College's Mission and Vision. The Strategic Plan reflects the activities that the College utilizes to achieve that Mission. The Student Leaning Outcomes that will be developed will contribute to the Assessment of the College's achievement of its Mission. The levels of Assessment are described below. The definitions used at Oakton Community College in Illinois are the source of these descriptions.[5]

- ***Classroom Assessment***: Instructor evaluation of student learning through formal and informal measurements

- ***Course Assessment***: Evaluation of the extent to which students learn course material and meet course objectives across the same course
- ***Program Assessment***: Examination of whether students meet the objectives of the program/curriculum and whether the program's objectives provide the skills necessary to pursue higher level learning or the workplace.
- ***General Education Assessment***: Examination of student acquisition of the General Education competencies of the College based on completion of general education requirements.

Figure 2
Bakersfield College Assessment Process Pyramid (adopted)

As identified at Oakton, the assessments are done by different groups. Classroom assessment is done by individual course instructors. Course Assessment is frequently done by a group of faculty. They identify student outcomes for a course or courses. This assessment identifies the outcomes and standards for success, identifies who conducts the assessments, and analyzes the results and recommends actions based on the results. Program assessments are also done by faculty and identify the outcomes for programs. As was the case in course assessments, the outcomes and the standards are identified and responsibility is assigned to conduct the assessments, analyze the results, and recommend actions based on the results.

The General Education Assessment process at Oakton provides a good illustration of the process to measure both General Education Outcomes and Institutional Outcomes. Oakton uses a three step process to measure these outcomes.

- *Identify the Institutional Project*: A committee selects the competencies to be evaluating, designs the evaluation instrument and evaluation rubric, trains the assessment team, and reviews the outcome of the assessment.
- *Review the General Education Objective in College Syllabi*: Assessment faculty review the learning objectives for selected courses and identify those courses in which students are expected to develop particular general education competencies. This process requires the development of a matrix that identifies the general education competencies and identifies which competencies individual courses address. This review may result in revisions to course learning outcomes.
- *General Education course or program assessment*: Departments may assess general education courses or arrays of courses using the processes identified under course and program assessment processes.

In addition to this process, the College can also review the matrix of courses that address general education competencies and identify strategies to address areas of concern. Miramar College in San Diego has developed a useful matrix of Core Competencies with specific sub-competencies.[6] These competencies have been accumulated into a matrix. Each course at the College can then be evaluated against this matrix to identify the degree and effectiveness that it addresses these competencies. The Core Competencies and sub-competencies for Miramar College are as follows:

- *Communication Skills*
    - Reading
    - Writing
    - Speaking
    - Listening
- *Personal and Professional*
    - Understand and Manage Self
    - Manage Change
    - Personal Responsibilities
    - Wellness
    - Teamwork and Relationship Maintenance
    - Conflict Resolution

- *Global Awareness*
    - Diversity Sensitivity
    - Cultural Awareness
    - Community Awareness
- *Critical Thinking Skills and Problem Solving*
    - Creative thinking
    - Decision making
    - Problem solving
    - Reasoning
    - Analyses and Uses Numerical Data
    - Learning to Learn
- *Information Management*
    - Collecting Information
    - Analyzing Information
    - Technology Literacy

The Miramar College web site also included definitions of the competencies, identification of levels of mastery, a course review sheet for core competencies, and a program review assessment worksheet that provides the cumulative data for all courses at the College.

Another source of institutional learning requirements is CSU Monterey Bay. They have developed a set of University Learning Requirements (ULR) that address general education outcomes.[7] These requirements identify the requirements and measurement processes. The web site also identifies the processes and identifies the impact this process has had on the University.

Developing Measurable Student Learning Outcomes – Course and Program level Outcomes

The intent of Student Learning Outcomes is to determine if intended learning has occurred. At the course and program level, objectives are developed that are clearly defined in measurable terms. These Student Learning Outcomes are direct measures of student learning. Unfortunately, much of what has been proposed at state and national policy levels has used indirect measures of student learning such as graduation rates, course completion and success rates, employment status, transfer status, etc. All of these measures, although valid for some purposes, do not help to determine whether learning has occurred and the have little impact on strategies to improve that learning.

By using SLO Assessment processes, instructors are able to evaluate both surface and deep learning. Surface learning measures short term memory of facts. However deep learning assessment measures the ability to apply learning in a broader and more abstract context. This process goes beyond the measurement of knowledge and skills and seeks to measure more global and comprehensive learning. At the same time, this process enables instructors to use the information provided to adjust their curriculum until the desired learning has occurred.

The development of SLO's requires multiple steps. Bill Scroggins of Modesto Junior College has outlined an eight step process.[8]

1. Create written statements of measurable student outcomes
2. Choose the measuring tool
3. Set standards for levels of performance of each objective
4. Identify observable factors that provide the basks for assessing which level of performance ahs been achieved on each objective
5. Conduct norming sessions to assure acceptable inter-rater reliability
6. Set benchmarks for successful student, course, program, or degree outcomes, including milestones to gradually more from current performance levels to the benchmark goal
7. Evaluate student performance, assemble the data, and report the results
8. Use the results to improve student learning

Some additional detail on the first two steps should be helpful.

Creating Written Statements for Measurable Learning Outcomes: Course Objectives must be clear and measurable. They should set standards of performance, provide a basis to identify observable factors, and allow the assessment of the level of performance for these objectives. In order to be measurable, outcomes must have both the conditions of performance and the success criteria must be specified.

Scroggins makes an additional point that course outlines should contain the course objective. However supplemental documents, such as course syllabi, should present the detail of student learning outcomes.

Distinction between Course Objectives and SLO's
Course Objectives in course outlines of record are global statements of the knowledge, skill, and attitudes students are expected to master upon successful completion of the course. SLO's are bridges to the assessment of learning and are much more detailed in specifying conditions, outcomes, and criteria for evaluation.

Choose the Tool for Measuring Learning: Methods of assessment should be appropriate to the learning expected. Valid and authentic course learning objectives have several characteristics: 1) The Assessment method is comprehensive of the learning outcome; 2) The level of learning assessed is appropriate to the learning outcome; 3) The evaluation criteria are clear and are consistently applied across sections; 4) Multiple methods, varying by learning style, are used to assess the learning outcomes.

This process is called *course bedded assessment*. Since most courses already have evaluation in their curriculum design, those should be the starting point for SLO Assessment. However SLO Assessment is different in that multiple

assessment tools may be used to assess different learning within a course. Some of the tools include: Capstone projects, criterion and norm referenced tests, portfolios, performance assessments, rating scales, and simulations.

Rubrics: A rubric is a grading method used consistently to rate all student work. Rubrics have several goals to ensure they are effective methods of evaluating learning. 1) They assure that the methods and criteria for assessment are good matches to the learning objectives being measured. 2) Students are evaluated consistently, independent of course section or instructor of a course. This provides for consistency among graders. 3) They provide feedback on the effectiveness of teaching and provide focus to those areas that are problems for students. 4) They measure the extent to which program level outcomes are achieved. 5) They can provide data for external accreditations and public information.

Scoring rubrics use a technique called Primary Trait Analysis. This process defines the primary traits to be assess and then develops a rubric (rating scale) for each of these traits. These primary traits are the major aspects of a course that faculty consider when grading a product or behavior. Separate scores can be given for multiple primary traits and a summary score can then be developed to assign grades. Individual traits can be assigned weights so that they have differential impacts on the final grade. This process of weighting also supports individual instructor academic freedom. Although there is common agreement on what should be measured in a course and the measurement process, the impact of that measurement can vary by instructor. The following table demonstrates the use of a primary trait analysis and scoring rubric for an oral communications SLO in a course.

Student: _____ Course: _____ Date: _____
Intended outcome: The student will use clear and concise communication in the oral form

Criteria	Rating = 4	Rating = 3	Rating = 2	Rating = 1	Score
Organization	Presenter follows logical sequence and provides explanation/elaboration	Presenter follows logical sequence but fails to elaborate	Presenter does not follow logical sequence (jumps around in presentation).	There is no logical sequence of information	
Eye Contact					
				Total	

Program Level Student Learning Outcomes

Program level student learning outcomes state the goals of a program in measurable terms. Typically these goals are broader than those at the course level. They tend to emphasize the integration of skills and focus on those applications that students will need at the next level, be that Transfer or Work. Program Level outcomes can be measured both directly and indirectly.

Parkland College, Illinois, has developed a Program Assessment process that includes a variety of measurement tools that can be used. Direct measures include pre-post testing, portfolios, capstone projects, and certification. Indirect methods include graduate surveys and interviews and employer surveys. However the essential part of the assessment is a four step process:

- Statement of Intended Program Outcome;
- Assessment Criteria for that Outcome;
- Results of the Assessment;
- Analysis and Action based on those results.

Raymond Walter College, Ohio uses a similar method to assess program outcomes. Each program outcome includes a measure for assessment and criteria for success, the results of the assessment, and a statement on how the results are used.[9]

Processes to develop student learning outcomes

The process to develop student learning outcomes is different from that generally used to develop course objectives. Although course objectives are the basis for SLO's, the SLO's are different. SLO's represent overarching products of a course in contrast to the objective that detail individual components or goals. SLO's represent higher level thinking skills that represent a product applicable outside of the class. SLO's also represent an end product that displays what a student can DO. In order to develop effective SLO's, some essential components are critical.

- *Inclusive and collaborative*: The course objectives and SLO's must be developed through an inclusive dialogue among the faculty teaching the course. They cannot be done individually for each section or instructor. The process requires agreement on methods of assessing student learning, common priorities of course objectives, and development of grading rubrics.

- *Components of collaboration need to be clearly defined and understood/shared*: There must be a shared understanding of the desired outcomes for a course. Instructional methods may vary depending on individual instructor preferences and strengths. Therefore there must be agreement on what can be agreed upon.

- *Process needs to be flexible to accommodate different disciplines*: Not all courses will address the same outcomes, especially when one considered general education or institutional outcomes. Therefore there will probably not be a

common institutional set of student learning outcomes. However each course will have its individual and unique outcomes.

Planning for Student Learning Outcomes

In order for Cosumnes River College to implement Student Learning Objects, several issues need to be addressed.

1. There must be an Institutional commitment and support for this activity. The College must provide resources, structure, and support for this process. However at the same time, this process must not be overly prescriptive, stifling, or bureaucratic. There is also an essential need to recognize that this is an iterative process. It will not happen quickly and cannot be implemented for all courses and programs simultaneously.
2. The overall goal of instruction must be kept in focus while measurable learning objectives and assessment processes are developed.
3. Assessment tools must be developed that provide valid and reliable data without being too cumbersome or time-consuming to implement and use.

As individual SLO Assessment processes are developed, they will need to include some common elements.

- Desired SLO's will need to be developed that include course objectives, context or conditions, and primary traits.
- Grading Rubrics must be developed
- Faculty collaboration is essential
- Assessment reports must be developed that reflect the evaluation of student work, compile results, and use the feedback from those results to improve instruction.

ACCOMPLISHMENT OF OBJECTIVES

A. Identification of CRC appropriate Student Learning Outcomes

As noted in above, the identification of student learning outcomes is a complex, involved, and consultative process. As I initiated the project, I was unaware to the importance of a collaborative process in the development of SLO's. However it became increasingly apparent that SLO's exist at multiple levels (Institutional, General Education, Program, and Course) and that the process for developing the various SLO's requires a broad participation by involved faculty. Additionally, this process is predicated on the existence of a robust staff development and collaborative assistance system to assist faculty in the development, refinement, and implementation of SLO's at each of the levels identified. I feel that the above report identifies the types and nature of the SLO's the College must develop.

B. Identification of appropriate and useful methodologies for the measurement of student learning

In addition to outlining the general SLO's that the College will need to develop, the above narrative also outlines a variety of methodologies for measuring this student learning. However, as was noted, the measurement processes will vary by level, type of program and course, and expected outcomes. Therefore the SLO's for a Computer Science course will vary significantly from those of an English course. Even though both measure learning, differences in content and course intent will of necessity result in very different SLO's. Additionally, it may well be that not all courses and programs will address all aspects of Institutional and General Education SLO's.

C. Identification of those factors that impact student success, "Success Drivers" (Buechner)

Buechner's report identifies several determinants of student academic success. The top five factors were:

- Self Motivation
- Clear Lectures and Lab presentations
- Fair exams and other evaluations
- Encouragement and respect from professors
- Clear expectations about course requirements

It was also interesting to note in her analysis that only one teaching methodology (Group activities) made the list within the top ten factors. However two of the factors included in Buechner's analysis are directly related to SLO's – Fair exams and other evaluations and clear expectations about course requirements. Both of these factors are critical components of an effect SLO process.

It is also useful to note that the factors identified by students as defining academic success (gaining knowledge and skills and applying information and positive experiences and personal satisfaction) can both be enhanced through an effective SLO system.

D. Identification of those instructional methodologies that are most effective in the improvement of student learning (Buechner)

The instructional methodologies identified by Buechner include:

- Showing acceptance, respect and concern for students, be encouraging; and
- Use a dynamic and engaging speaking style.

Again, the first factor (especially be encouraging and show concern) can be enhanced through SLO's because they emphasize improvement as a result of the measurements done with the process. Two other factors identified by Buechner (Clear organization for lecture material and clear lecture outlines and handouts) can also be positively impacted by SLO's.

E. Development of a plan to enhance the skills of faculty in the identification of student learning outcomes, the measurement of student success in relation to these outcomes, and the development of instructional strategies to enhance student success

There will be several components to the process to implement SLO's at the College.

- There will need to be a comprehensive Staff Development process. This will have two components. First, a general orientation to SLO's. Second, specific training on the development of specific SLO's/
- Second, a cohort of "power users" must be developed to provide the institutional support and mentoring needed to implement the system.
- Third, there must be agreement on the aspects of SLO's to implement.
- Fourth, there must be a recognition that SLO development and implementation cannot be accomplished quickly and it cannot be implemented

WHAT I HAVE LEARNED:

As I engaged in the development of this project, I found that several of my expectations and objectives were going to need to be revised. The process is more complex and inclusive that I had originally envisioned. Therefore, as a result of this project, I have developed several conclusions:

1. This is not a process that can be accomplished by an individual faculty member working in relative isolation. The complexity and comprehensiveness of the process requires a broader and more inclusive approach. It requires a collaborative effort with colleagues teaching the same or similar courses. The SLO's adopted must be across all sections of the course. Additionally, there should be some common assessment process so that modifications and adaptation can be implemented across the curriculum and measured.
2. There must be a high level of institutional commitment. This is not an activity for an individual faculty member. This requires an institutional wide commitment from all levels of the institution, and all constituencies.
3. As SLO's are adopted across the College, there must be a recognition that different SLO's will apply in different environments. At the base, there is a need to recognize that there will be differences between disciplines, not only in SLO's but in the assessment processes utilized. Second, because there are a range of

SLO's (Course, Program, General Education, and Institutional), it is necessary to recognize that not every course will address every level of SLO.

ATTACHMENTS

A: AAHE ASSESSMENT FORUM: 9 Principles of Good Practice for Assessing Student Learning
B: Five Myths of Assessment
C: Teaching Goals Inventory (1993- Angelo and Cross)

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[1] Evaluating Learning in Individual Courses, Barbara D. Wright; article in Handbook of the Undergraduate Curriculum; Gaff, Ratliff and Associates, Jossey-Bass, San Francisco, 1997 pp 571-590
[2] Course Level Assessment Currently Being Used: Why Turn towards them? Lisa Brewster, October 27, 2003, Presentation #3 of the Learning Assessment ListServ.
[3] Ibid
[4] ibid
[5] Division Meeting presentations on Assessment of Student Learning Outcomes, Oakton Community College, Illinois Web site; March 24, 2003
[6] www.miramar.sdccd.cc.ca.us/projects/league/dore_competencies.htm
[7] csumb.edu/academic/ulr/
[8] Student Learning Outcomes Institute Handout, Modesto Junior College, Aug 3-6, 2003
[9] www.rwc.uc.edu/phillips/index_assess.html