Writing Student Learning Outcomes

The paradigm shift away from a teacher-centered curriculum to a student-centered curriculum is changing higher education. Teacher-centered syllabi focus on objectives and course topics and describe what the instructor intends to cover. The addition of student learning outcomes to the syllabus describes what the expected learning will be of the student, and thus pivots attention away from what is being taught to what is being learned. This shifts the attention to the assignments and the assessments that are developed by the instructor (Palumbo and Banta, 1999).

At Coastal Carolina University the following definition has be adopted:

Student Learning Outcome: "a measurable statement of what students should know and are able to do as a result of their course work and educational experience at an institution or in a program of study" (Maki, 2004).

Levels of Student Learning Outcomes

Student learning outcomes should be developed at two levels, the program level and the individual course level. ***Program learning outcomes*** (PLOs) serve the purpose of identifying the shared expectations that faculty within a major, or program, have of students. These are often broad, yet measurable, and encompass the knowledge, skills, and values that faculty within the program have agreed upon. Program outcomes should be written by a core group of faculty who achieve a consensus of program-level priorities. These outcomes can be guided by professional organizations and reflect the knowledge and skills faculty determine a student should have at the end of the program.

The following questions can assist faculty in developing program level outcomes:

- What do we want students in our major to know at the end of the program?
- What do we want students in our major to be able to do at the end of the program?
- What values or attitudes do we want to instill in our students?
- What do we want student to be able to demonstrate, represent, or produce based on their learning histories? (Maki, 2004).

The following are examples of program learning outcomes:

Politics:

- Demonstrate comprehension of the development and evolution of political foundations, institutions, and processes in the United States.
- Apply knowledge of the concepts, processes, and principles of the public sector to analyze public policies and organizations.

Philosophy:

- The students will be able to identify the major issues and positions in the history of Western Philosophy and display an understanding of major aspects of the philosophical theories of key figures.

Business Management:

- Students should be able to demonstrate comprehension of the management process, organizational behavior, strategy and policy, international issues, and entrepreneurship.

Business Finance:

- Students should be able to demonstrate comprehension of corporate finance, investments, and international finance.

Physics:

- When students complete the program in Applied Physics, they will be able to explain the principles and concepts of classical physics.

Marine Science:

- Students will be able to explain the principles, concepts, applications, and inter-relations of biology, chemistry, geology, physics, and mathematics, as they apply to the marine environment.
- Students will be able to use the principles of scientific inquiry to describe, analyze, and interpret data and to draw sound conclusions about scientific problems involving marine science and related fields.

Elementary Education:

- Teacher candidates will design lesson plans based on knowledge of subject matter, students, curriculum goals, and standards.

Masters of Teaching:

- M.A.T. candidates will be able to plan, implement and reflect on their classroom instruction based on professional, state and institutional standards.

Mapping Program Learning Outcomes

The design of the sequence of curriculum and learning experiences can be reflected in the PLOs. If using Bloom's cognitive domain and reflecting on the lower-order of learning to the higher order of learning, the verbs that are attached to a learning outcome need to take into account the student's chronology of learning as they progress through the program. This assures that the outcome statements are aligned with the educational practices and assessments. Program outcomes should be assessed sometime during the program. Some programs use a capstone course that may assess the entire program learning outcomes while other programs use various different courses and assess midway and at the end of a program.

Curriculum maps are tools used by faculty to profile when program level outcomes are being introduced, reviewed, and assessed at the course level. Maps are used to verify the collective expectations and coherence of faculty and reveal the opportunities students have to gain knowledge and skills that are crucial throughout a major. Using this visual guide faculty can determine which course is the best to assess a particular program outcome. Mapping also assures that there are ample opportunities for students

to develop the deep level of learning, behaviors, habits of mind, ways of knowing, and values at the program level.

Figure 1: Curricular Map of Student Learning Outcomes

	Politics 101	Politics 200	Politics 370	Politics 371	Politics 373	Politics 453	Politics 471
PLO 1	I	R	A				
PLO 2	I	R	R		R		A
PLO 3		I	R	A			
PLO 4		I		R	R		A
PLO 5			I		R		A

*I- introduce, *R – Review, *A- Assess

Assessment

Planning the assessment for a program is essential if the outcomes are to be measured. Again, a faculty committee should design a useful assessment plan that encompasses all program learning outcomes. Using the curriculum map will help establish the point in each program when the program learning outcome will be assessed.

Course level outcomes (CLOs) are much narrower in scope and written specifically for a course, yet still align with the program level outcomes. CLOs are statements that rely on active, measurable verbs and are assessed either at the midpoint or end of the semester. These statements can be found on syllabi and define what the student will know and be able to do at the end of the course. The course level outcomes assist students in understanding what they will know and the skills they will acquire as a result of taking the course. For many students these present a road map to assisting them in studying for the course.

The following illustrate how course student learning outcomes are more focused on specific topics or skills to be covered in a particular course:

MSCI 330: Physical Oceanography

Explain the processes by which gravity waves are generated and propagated.

COMM 334: Small Group Communication

Analyze audience motivation and media advantage.

PHIL 306: 20th Century Analytic Philosophy

Describe what analytic philosophy is, in terms of its areas of interest and its methodology.

HIST 338: Modern Ireland

Synthesize Ireland's history within a greater European context in terms of comparative domestic developments and competing foreign interest.

ARTH 450: Ashes2Art: Digital Reconstructions of Ancient Monuments

Scan images and documents using the appropriate mode and resolution.

Writing Student Learning Outcomes

Writing student learning outcomes for either a program or a course takes time. A set of rules apply to both.

The first and most important rule is that the SLO must have **an action verb that is measurable**. For assessment purposes, it is best to only have one verb per outcome. Having more than one verb can cloud the analysis of the outcome and make it difficult to determine if it has been met.

Following Bloom's taxonomy of cognition, the verb chosen will determine the cognitive level of thought. Bloom's levels are in an order of increasing complexity and guide the type of behavior that is expected of the student. The use of verb also impacts how the student learning outcome will be assessed. Figure 2 illustrates the levels of Bloom with some examples of verbs that are measurable.

Application, analysis, synthesis, and evaluation are considered higher-order thinking skills and entail students using information they have learned in specific ways. Assessment of these thinking skills often consists of performance measures. Therefore, assignments that are activities, projects, or products can be used as assessment and are thought of as being authentic, natural ways of assessing student learning.

Figure 2 Bloom's cognitive levels with action verbs

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
List	Summarize	Solve	Analyze	Design	Evaluate
Name	Explain	Illustrate	Organize	Hypothesize	Choose
Identify	Interpret	Calculate	Deduce	Support	Estimate
Show	Describe	Interpret	Contrast	Write	Judge
Define	Compare	Manipulate	Compare	Report	Defend
Visualize	Demonstrate	Apply	Distinguish	Justify	Criticize
State	Classify	Modify	Discuss		

The second rule in writing SLOs is that there should be **a clearly defined expectation or result that is based on learning**.

Linda Suskie has five suggestions for developing student learning outcomes that can be followed when developing both program and course student learning outcomes.

1. Focus on the most important goals.
2. Work with colleagues.

3. Focus on the ends, not the means; that is, what will students know and be able to do after they have successfully completed the program or the course.
4. Use concrete action words that describe what students should be able to do in explicit, observable terms.
5. Define fuzzy terms whenever possible. For example *thinking critically*, could be better defined as *analyze and evaluate arguments*.

Works used:

Maki, P. (2004). *Assessing for learning: Building a sustainable commitment across the institution.* Sterling, VA: Sterling.

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials: Planning, implemented, and improving assessment in higher education.* San Francisco. Jossey Bass.

Suskie, L. (2004). *Assessing student learning*: *A common sense guide.* San Francisco, CA: Josey-Bass.