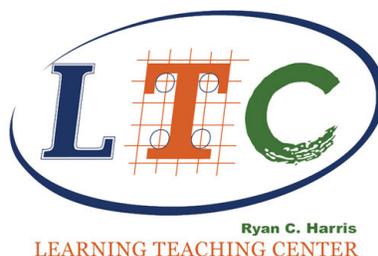


Student Learning Outcome Assessment

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Identifying Student Learning Outcomes: Possible Starting Points and Strategies

1. Consult your discipline's professional organizations
2. Consult your discipline's accreditation standards
3. Consult college catalogues and websites at institutions, programs, or departments similar to yours
4. Consult your department, program, school, or university mission statement(s)
5. Visualize your "ideal" graduate, one who exemplifies everything you are trying to accomplish through your course
6. Angelo and Cross's Teaching Goals Inventory

Angelo, T.A., & Cross, K.P. (1993). Teaching goals inventory. In *Classroom assessment techniques: A handbook for college teachers* (pp. 393-97). San Francisco, CA: Jossey-Bass.

Angelo and Cross Teaching Goals Inventory

Higher Order Thinking Skills

1. Develop ability to apply principles and generalizations already learned to new problems and situations
2. Develop analytic skills
3. Develop problem-solving skills
4. Develop ability to draw reasonable inferences from observations
5. Develop ability to synthesize and integrate information and ideas
6. Develop ability to think holistically: to see the whole as well as the parts
7. Develop ability to think creatively
8. Develop ability to distinguish between fact and opinion

Basic Academic Success Skills

9. Improve skill at paying attention
10. Develop ability to concentrate
11. Improve memory skills
12. Improve listening skills
13. Improve speaking skills
14. Improve reading skills
15. Improve writing skills
16. Develop appropriate study skills, strategies, and habits
17. Improve mathematical skills

Discipline-Specific Knowledge and Skills

18. Learn terms and facts of this subject
19. Learn concepts and theories in this subject

20. Develop skill in using materials, tools, and/or technology central to this subject
21. Learn to understand perspectives and values of this subject
22. Prepare for transfer or graduate study
23. Learn techniques and methods used to gain new knowledge in this subject
24. Learn to evaluate methods and materials in this subject
25. Learn to appreciate important contributions to this subject

Liberal Arts and Academic Values

26. Develop an appreciation of the liberal arts and sciences
27. Develop an openness to new ideas
28. Develop an informed concern about contemporary social issues
29. Develop a commitment to exercise the rights and responsibilities of citizenship
30. Develop a lifelong love of learning
31. Develop aesthetic appreciations
32. Develop an informed historical perspective
33. Develop an informed understanding of the role of science and technology
34. Develop an informed appreciation of other cultures
35. Develop capacity to make informed ethical choices

Work and Career Preparation

36. Develop ability to work productively with others
37. Develop management skills
38. Develop leadership skills
39. Develop a commitment to accurate work
40. Improve ability to follow directions, instructions, and plans

41. Improve ability to organize and use time effectively
42. Develop a commitment to personal achievement
43. Develop ability to perform skillfully

Personal Development

44. Cultivate a sense of responsibility for one's own behavior
45. Improve self-esteem/self-confidence
46. Develop a commitment to one's own values
47. Develop respect for others
48. Cultivate emotional health and well-being
49. Cultivate physical health and well-being
50. Cultivate an active commitment to honesty
51. Develop capacity to think for one's self
52. Develop capacity to make wise decisions

Teaching Goals Inventory. <http://centeach.uiowa.edu/tools.shtml>

Types of Outcomes to Consider

Increase Knowledge and Basic Understanding

- Explain how to access the web from computers in campus labs.
- Summarize the distinctive characteristics of a Hemingway's novels.
- Identify each element of the scientific method.

Develop Thinking and Other Skills

- Locate online resources on a particular topic
- Apply scientific and economic principles to everyday life.
- Explain why a research paper is structured the way it is.
- Explain the impact of the Korean War on U.S.-Far East relations today.
- Theorize what is likely to happen when two chemicals are combined, and justify the theory.
- Conceive of original, unorthodox solutions to a problem.
- Judge the effectiveness of a use of color in a work of art.
- Choose the appropriate mathematical procedure for a given problem.
- Identify the strengths and weaknesses of one's completed work.
- Develop and use effective time-management skills.

Develop Attitudes and Values

- Be a passionate and curious lifelong learner
- Choose ethical courses of action

Suskie, Linda. *Assessing Student Learning: A Common Sense Guide*. Bolton, MA: Anker, 2004. 79-86.

Composing Student Learning Outcomes Statements

Assessment is a systematic and on-going process of collecting, interpreting, and acting on information relating to the goals and outcomes developed to support [an] institution's mission and purpose. It answers the questions:

1. What are we trying to do?
2. How well are we doing it?
3. How can we improve what we are doing?

Student learning outcomes (SLOs) are the knowledge, skills, and attitudes students should take with them after completing a course.

Most SLOs are “behavioral” goals that state outcomes a student should be able to demonstrate at the end of a course

SLOs are not statements about what is covered in a course. The following are not student learning outcome statements:

- Students will write three papers in the course.
- The course offers students the opportunity to exercise their critical thinking skills.
- Student will be exposed to a wide range of theories currently practices in the field.

An SLO includes

- the specific knowledge, skills, or attitude students should be able to demonstrate at the end of the course
- simple, specific action verbs that lend themselves to measurement

Verbs are crucial to writing effective learning outcome statements. Concrete verbs are better than vague verbs. “Define” is better than “be familiar with”; “apply” is better than “know.”

Texas A&M University

Designing and Assessing Student Learning Outcomes

Introduction

Assessment procedures should be designed to determine what students

- know (cognitive outcomes)
- believe or feel (attitudinal outcomes)
- are able to do (behavioral outcomes)

following an educational program (a course, a set of courses, a major, etc.).

According to “Assessing Student Learning Outcomes (University of North Carolina, 2004), to obtain this information faculty need to answer the following questions:

- Are our students learning what we think is important?
- Are they learning what they need to succeed in this field or profession?
- Are we improving in our ability to help students learn?
- Should our curriculum or teaching strategies be modified?
- Are there other techniques or additional resources that would help our students learn more effectively?

To develop and establish a successful student learning outcomes assessment plan, follow these eight steps:

1. Define the student learning outcomes you hope to achieve
2. State these student learning outcomes in measurable terms
3. Determine which methods you will use to assess these outcomes
4. Determine your desired levels of success
5. Determine when and where assessment will take place
6. Administer the assessments
7. Review the results and make changes needed to improve student learning and/or the assessment process
8. Repeat as indicated by the assessment timetable you establish

A fully developed student learning outcomes assessment plan will include

- The desired student learning outcomes stated in measurable terms
- Multiple measures for each outcome
- The desired level of success for each outcome
- A timetable for administering the assessments
- Some feedback mechanism designed to promote continual improvement

Model Process

Step 1: Identify what you would like students to know, think, or do as a result of instruction.

Answer the following question: After completing the educational program I am assessing, students should be able to _____. Your answers may focus on what you would like student to know, believe, or be able to do. Initially generate as many outcomes as possible then work to identify a set of three or four that you will assess.

Step 2: Articulate your desired outcomes in ways that can be measured.

For assessment purposes, you need to state these outcomes in ways that can be measured. Focus on the verbs when drafting the outcomes: a student should be able to *verb* A, B, or C. One helpful tool is Bloom's Taxonomy of Cognitive Skills. Determine if you are assessing for knowledge, comprehension, application, etc. then choose an appropriate verb when framing your outcome.

Bloom's Taxonomy of Cognitive Skills

Category	Definition	Related Behaviors
Knowledge	Recalling or remembering something without necessarily understanding it	count, define, describe, identify, label, match, recall, recognize, select, state
Comprehension	Understanding something that has been communicated without applying it	discuss, explain, give examples of, group, paraphrase, summarize
Application	Using a general concept to solve a problem; use learned material in new ways	apply, classify, demonstrate, illustrate, modify, relate, show, solve, use
Analysis	Breaking something down into its parts; analysis of relationships among parts;	analyze, breakdown, compare, contrast, combine, diagram, distinguish, identify, outline, sort
Synthesis	Creating something new by putting parts of different ideas together to make a new whole	combine, compile, compose, create, design, formulate, generate, integrate, modify, reorder, revise, transform
Evaluation	Judging the value of material or methods as might be applied in a particular situation	appraise, assess, conclude, critique, defend, determine, interpret, judge, justify, prioritize, rank, rate, select, support

Step 3: Identify how you might determine whether the student now possesses these abilities.

You will likely assess student learning outcomes through some combination of direct and indirect techniques. Direct assessment techniques measure actual performance; indirect assessment techniques get at attitudes, opinions, or beliefs. Below is a list of commonly employed direct and indirect assessment techniques. **You should put into place multiples measures of each student learning outcome you assess.**

Direct Assessment Techniques

- Examinations
- Standardized tests
- Pre- and post-tests
- Special projects
- Oral presentations
- Online tests
- Scenarios
- Essays
- Directed paraphrase
- Critiques
- Exhibits
- Posters

Indirect Assessment Techniques

- Student surveys
- Student interviews
- Focus group interviews
- Student reflections
- Faculty interviews
- Faculty surveys
- Analysis of grade distribution
- Student scholarly achievement

Step 4: Determine your desired level of success.

When examining student learning in a course, what level of achievement constitutes success? Such goals are typically stated in terms of percentages: X% of students assessed will be able to A, B, or C. These percentages tend to change over the years as curricula and student populations change.

Step 5: Determine when and where assessment will take place.

You may assess student learning outcomes at many points during an educational program: during or after a course, at the beginning and/or end of a course, after a series of courses—whatever makes sense. At times, you may be assessing both course assignments and student learning outcomes at the

same time: student learning outcomes assessment does not have to be a separate process from course assignment.

Step 6: Administer the assessments.

Gather the information following the plan you have just developed.

Step 7: Review the results and make changes needed to improve student learning and/or the assessment process.

As you review the information you obtained, determine whether you are gathering the data you need to honestly and effectively assess your educational program. If not, improve your student learning outcomes and/or measurements. Also, determine how well you met your expected levels of attainment.

Step 8: Repeat as indicated by the assessment timetable you established.

Action Verbs and Bloom's Taxonomy

Cognitive Learning	Action Verbs
Knowledge: to recall or remember facts without necessarily understanding them	arrange, articulate, collect, define, describe, duplicate, enumerate, examine, identify, label, list, memorize, name, order, quote, recognize, relate, recall, reproduce, show, tabulate, tell
Comprehension: to understand and interpret learned information	associate, classify, contrast, describe, differentiate, discuss, distinguish, estimate, explain, express, interpret, locate, paraphrase, predict, recognize, report, restate, review, translate
Application: to put ideas and concepts to work in solving problems	apply, calculate, complete, compute, change, choose, deliver, demonstrate, discover, dramatize, employ, establish, examine, experiment, illustrate, interpret, make, modify, operate, practice, relate, schedule, show, sketch, solve, use
Analysis: to break information into its components in order to see interrelationships and ideas	analyze, appraise, arrange, calculate, categorize, classify, compare, connect, contrast, criticize, differentiate, distinguish, divide, examine, experiment, infer, interpret, investigate, order, question, separate, test
Synthesis: to use creativity to compose and design something original	arrange, assemble, collect, compose, construct, create, design, formulate, generalize, integrate, manage, organize, plan, prepare, propose, set up, rewrite
Evaluation: to judge the value of information based on established criteria	appraise, argue, assess, attach, conclude, convince, compare, critique, defend, evaluate, judge, predict, question, rate, recommend, review, summarize, support
Affective Learning	appreciate, accept, attempt, challenge, defend, dispute, join, judge, praise, question, share, support
Psychomotor Learning	bend, grasp, handle, operate, reach, relax, shorten, stretch, differentiate (by touch), express (facially), perform (skillfully)

Tips on Writing Effective Student Learning Outcomes Statements

Aim for goals that are neither too broad nor too specific

- Students will demonstrate information literacy skills (too vague)
- Students will be able to use institutional online services to retrieve information (too specific)
- Students will locate information and evaluate it critically for its validity and appropriateness. (better)

Define fuzzy terms

- “think critically” or “analyze and evaluate arguments”

Focus on the end, not the means

- what students should be able to do after they finish your course

Focus on the most important goals

- limit yourself to 3-6

Work with colleagues

Suskie, Linda. *Assessing Student Learning: A Common Sense Guide*. Bolton: MA: Anker, 2004. 78-9.

Developing Learning Assessment Outcomes: Questions to Ask

1. Are you trying to assess what your program is accomplishing and how successful it is (program assessment) or what your students are learning as a result of completing your class or curriculum (learning outcomes assessment)?
2. Are your outcomes measuring something useful and meaningful?
3. Are the learning outcomes appropriate and realistic given the level and types of students taking your class?
4. Is the outcome measurable?
5. Do you have too many student learning outcomes listed?

Composing Student Learning Outcomes Worksheet

Course: _____

Knowledge Students Should Learn	Skills Students Should Obtain	Attitudes Students Should Develop

As a result of completing this course, students should be able to:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.