



How Student Learning Outcomes Can Strengthen Teaching and Learning



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1



Learning Outcomes for this Workshop

By the end of this session, participants will be able to:

- Explain the difference between general course goals and specific student learning outcomes.
- State three reasons why we need to use student learning outcomes in every course.
- Be able to articulate five different measures of student learning outcomes for course assessment.




Agenda

How Student Learning Outcomes (SLOs) Relate to Course Design or Redesign

A Quick Review of Creating SLOs

Why SLOs are important for Teaching and Learning

Some Assessment Options based on SLOs

- Knowledge Surveys
- Structured Focus Groups

Conclusion




Teaching is a lifelong art, that ... involves continuous learning not just for the student but for the teacher as well.

—Joseph Katz and Mildred Henry



Faculty Involvement

“Faculty should be influential in the substantive determination of key learning outcomes at all levels: institutional, program, and course.”

(Middle States, 2006, p.56)




Stages in the Backward Design Process

1. Identify desired results.
2. Determine acceptable evidence.
3. Plan learning experiences and instruction.

(Teachers must build in appropriate assessment procedures to determine if the evidence for learning exists.)



Wiggins, G. & McTighe, J. (1998). *Understanding by Design*. Alexandria, VA: Association for Supervision and Curriculum Development.



Clearly describe and communicate goals for the course. What do you want your students to “look like” by the end of the semester? Five years after the course has ended?

- What should they *know* about the subject?
- What should they be able to *do* with what they know?
- What should they *value* about the discipline?

speaking as a designer
committed to building a better product
“a better learning experience”
“learning from working”




Teaching Goals Inventory

Cyber Cats



<http://www.uiowa.edu/~centeach/tgi>

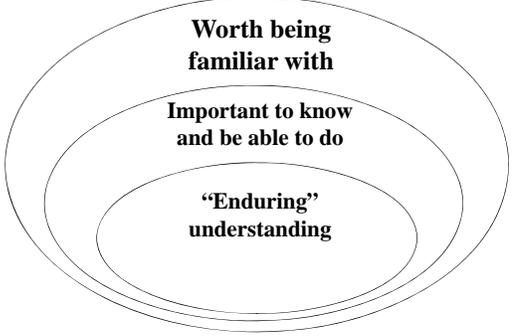


To begin with the end in mind means to start with a clear understanding of your destination. It means to know where you’re going so that you better understand where you are now so that the steps you take are always in the right direction.

Stephen Covey, *7 Habits of Highly Effective People*




Establishing Curricular Priorities



Worth being familiar with

Important to know and be able to do

“Enduring” understanding



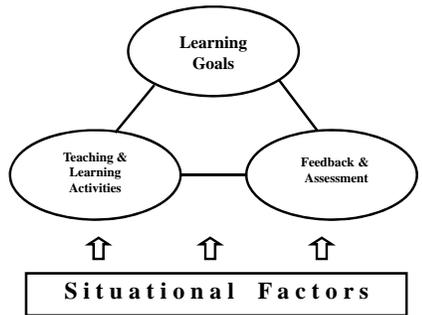
Dee Fink’s book, *Creating Significant Learning Experiences* is an Excellent Tool for Re-thinking your Course Design.



<http://www.deefinkandassociates.com/GuidetoCourseDesignAug05.pdf>



Key Components of Interactive Course Design



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    graph TD
      LG[Learning Goals] --- TLA[Teaching & Learning Activities]
      LG --- FBA[Feedback & Assessment]
      TLA --- SF[Situational Factors]
      FBA --- SF
  
```



A Review: Course Goals vs. Student Learning Outcomes

- Course goals are *general statements* that define an effective course (what the **course** should do).
- Student learning outcomes are *specific results* the students must achieve in order to attain the course goals (what **student** can do).



Good Student Learning Outcomes are:

- **Student-focused** rather than professor-focused
- Focused on the learning resulting from an activity rather than on the activity itself
- Focused on **skills and abilities** central to the discipline and based on professional standards of excellence
- General enough to capture important learning but clear and specific enough to be **measurable**
- Focused on aspects of learning that will develop and endure but that can be assessed in some form now



Writing Student Learning Outcomes

Student Learning Outcomes must be measurable.

1. **Performance.** What is the learner expected to be able to do and/or produce to be considered competent?
2. **Conditions.** What are the important conditions (if any) under which the performance is to occur?
3. **Criterion.** What is an acceptable level of performance? How well must the learner perform the task in order to be considered competent?

(Mager, 1997)



Example of goals that are admirable, but not measurable as phrased:

- I want students to achieve a life-long interest in my subject
- I want students to develop self-assessment skills
- I want students to understand the nature of critical thinking



Example of outcomes that are action statements:

"Students will be able to":

- describe the scientific method and provide an example of its application;
- pick a single theory from the science represented by this course and explain its historical development;
- provide two examples of testable hypotheses;
- provide two specific examples that illustrate why it is important to the everyday life of an educated person to be able to understand science;
- describe two current examples of the relationship between physical science and public policy.... (4 more)"

Source: Ed Nuhfer, CSU-Channel Islands



Roundtable

- The teacher poses an open-ended question.
- Each group has one piece of paper and one pen.
- The first student writes one response, saying it out loud.
- He or she passes the paper to the left where a second student writes a response, etc.
- The "brainstorm" continues until time elapses.
- Students may say "pass"



Roundtable Question

Why are Student Learning Outcomes Important? What purpose do they serve?




Why are Student Learning Outcomes Important?

For the institution: Data on student learning outcomes can be used to:

- Facilitate understanding of **student needs**
- Document **effectiveness** of instruction
- Guide course/program **improvement**
- Meet the **requirements** of accrediting bodies

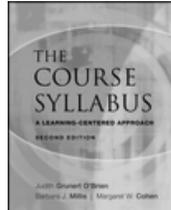
For your teaching: Data on student learning outcomes can be used to:




Where do We Start?



Put Student Learning Outcomes in your Syllabus to Create a Learning-Centered Approach




Three Components of a “Promising Syllabus”

as outlined by Kenneth Bain in his book *What the Best College Teachers Do*, (2004)

1. A promise to students
2. The activities used to fulfill that promise
3. A conversation about student learning




A Promise to Students

- There should be an explanation of the course’s promises to students—what will they have gained, in terms of knowledge and skills, by the end of the semester?
- The focus moves away from what the teacher will cover to what the student will take away from the course.



The Second Part of a “Promising Syllabus”

It describes the activities in which students will engage in order to help them fulfill that promise: the readings, the class activities, the assignments.

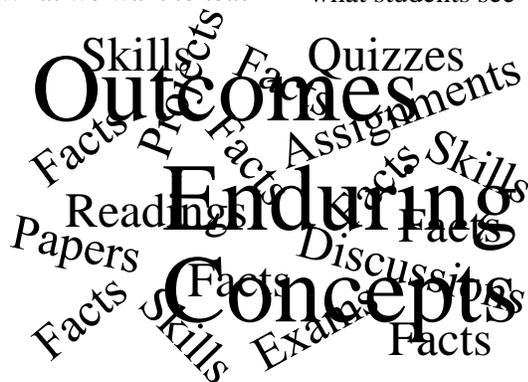


Third Component of a “Promising Syllabus”

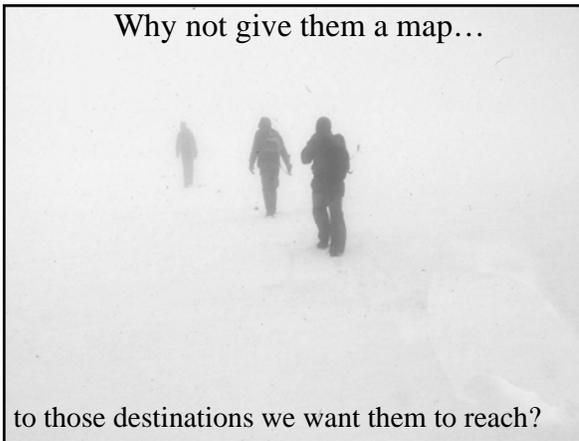
It begins a conversation about how the teacher and student would best come to understand the nature and the progress of the student’s learning:

- Not about grading policy per se
- Focus on learning to think within a given discipline
- Focus on evidence that the student has achieved that kind of thinking.

What we want to teach- what students see -



Why not give them a map...



to those destinations we want them to reach?



Clearly Mapped and Shared Student Learning Outcomes can Promote You:

Good Teachers and Good Teaching:
Nine Characteristics that Students and Faculty Agree On:

- Knowledge of the subject/discipline
- Course preparation & organization
- Clarity and understandability
- Enthusiasm for subject/teaching
- Sensitivity to and concern with students’ level and learning progress



Nine Characteristics, Cont.

- Availability and helpfulness
- Quality of examinations
- Impartiality in evaluating students
- Overall fairness to students

—Feldman, Kenneth A. (1988). Effective college teaching from the students’ and faculty’s view: Matched or mismatched priorities? *Research in Higher Education*, 28(4), 291-344.



Teaching for Learning & Satisfaction

(after K. Feldman, 1997; 1998)

Instructional Dimension	% Variation Explained	Importance Shown by Correlation (and rank) with Student Achievement	Importance Shown by Rank with Overall Evaluations
Teacher's preparation; organization of the course	30 – 35%	.57 (1)	(6)
Clarity and understandableness	25 – 30%	.56 (2)	(2)
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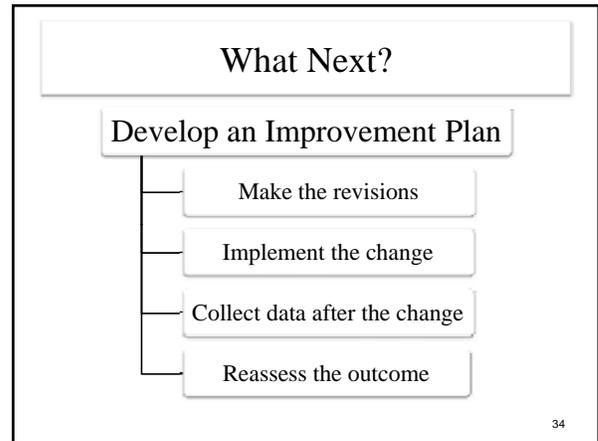
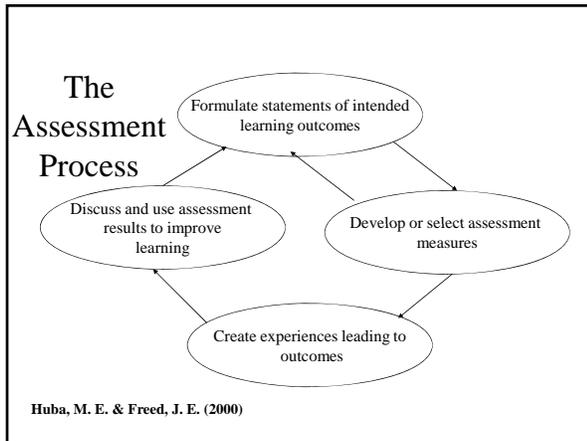
Table Courtesy of Ed Nuhfer, CSU, Channel Islands



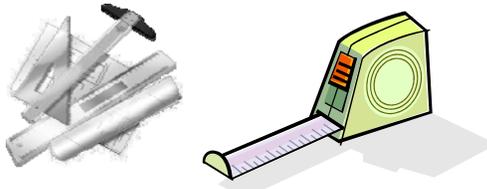
Middle States Standard 14

“Assessment of student learning demonstrates that, at graduation, or other appropriate points, the institution’s students have knowledge, skills, and competencies consistent with institutional and appropriate higher education goals.”

(Middle States, 2006, p. 78)


Establishing Measurable Student Learning Outcomes Allows Faculty to Undertake Meaningful Assessment of Students' Knowledge, Skills, and Abilities




Think-Pair-Share



What is a rubric?



An assignment blueprint



Literature Course	Basic level	Applied level	Advanced level
Key Literary Terms	Vocabulary Quiz	In-class Discussions	
<i>A Lesson Before Dying</i>	Reading Quiz	In-class Discussions	Comparison Contrast Paper on <i>A Lesson</i> and <i>Antigone</i>
<i>Antigone</i>		Homework: Graphic Organizer on character traits plus evidence (Creon, Antigone, Ismene, Haemon)	Comparison Contrast Paper on <i>A Lesson</i> and <i>Antigone</i>



Using Rubrics



- Use rubrics to explain your grading
 - After but also before students do the assignment
- Have them apply the rubrics
 - To a sample work
 - To their own work before submission
 - To peer work
- Have them develop the rubrics

Source: "Taking the Pain Out of Grading" by Marilla Svinicki at Lilly North, 2006.



How do we know we ended up where we wanted to be?




Snow Ball Discussion

- The teacher poses an open-ended question.
- Working together, two students generate as many responses as possible.
- Joining another pair, the foursome (quad) combines the list and generates other ideas.

Assessment at the Course Level:

How do you measure student learning in *your* courses?




Course Level Assessment

<p>Direct measures:</p> <ul style="list-style-type: none"> • Homework assignments • Examinations and quizzes • Standardized tests • Projects • Case study analysis • Rubric scores for writing, oral presentations and performances • Artistic performances and products • Grades that are based on explicit criteria related to clear learning goals 	<p>Indirect Measures:</p> <ul style="list-style-type: none"> • Course Evaluation • Test blueprints (outlines of the concepts and skills covered on tests) • Number of student hours spent at intellectual or cultural activities related to the course
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There are more...

<ul style="list-style-type: none"> • Published tests (Standardized test) • Locally developed test • Course embedded assignments and activities • Capstone evaluation • Portfolios • Videotape and audiotape evaluation • Pre-test/Post-test • Competence interview • Thesis evaluation 	<ul style="list-style-type: none"> • Curriculum and syllabus analysis (input assessment) • External reviewers (peer review) • Surveys • Reflective essay • Interview
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Two Assessment Tools that Measure Student learning Outcomes

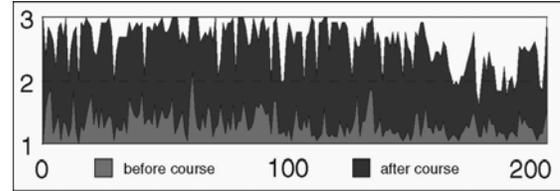
Knowledge Surveys

<http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/knowlsurvey.htm>

Structured Focus Groups

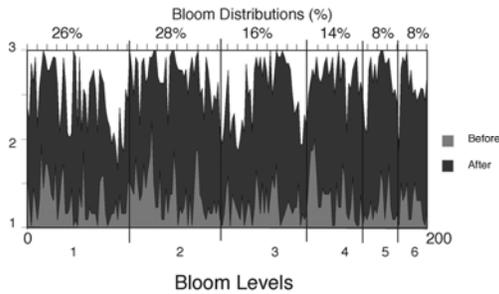
http://www.utsa.edu/tlc/Focus_Groups.html

Knowledge Survey Concepts



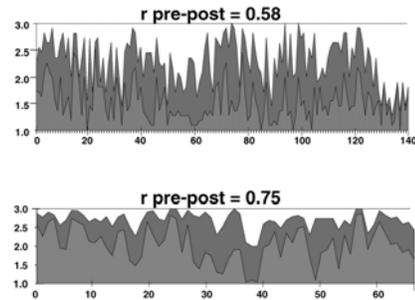
1. = I have insufficient knowledge to answer this question.
2. = I have partial knowledge or know where to quickly (20 minutes or less) obtain a complete answer to this question.
3. = I can fully answer this question with my present knowledge.

Is the course appropriately challenging?



Once it is over, how did students do across different levels of challenge?

Use correlation coefficient on pre-post measures. Which course changed minds the most?



Bloom's Taxonomy of Educational Objectives

- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Knowledge



Anderson, L. W. & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessment: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

Cognitive Process Dimension

- Create
- Evaluate
- Analyze
- Apply
- Understand
- Remember



Anderson, L. W. & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessment: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

The Knowledge Dimension

- Metacognitive knowledge
- Procedural knowledge
- Conceptual knowledge
- Factual knowledge

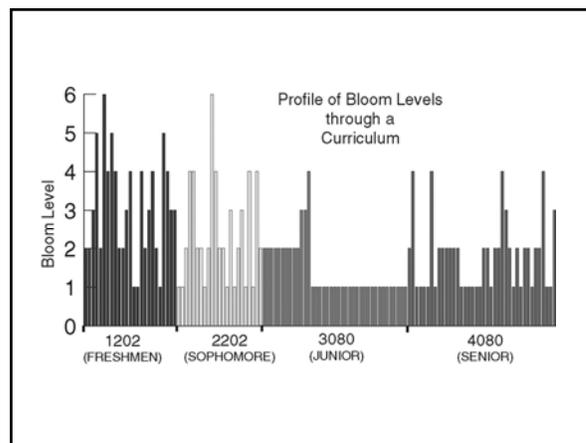


Matching your plan to your students level of challenge

Rate each knowledge survey item's Bloom Level. Reflect on whether our general course plan for levels of thinking challenge matches that of the needs of students in class.

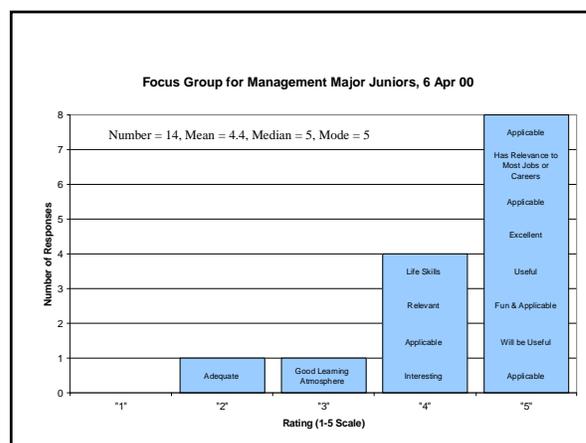
Coding Knowledge Survey Items by Bloom Level

Bloom Level	KS Item #	KS Item
4	5	Distinguish between a natural and a technological hazard. Why is this distinction sometimes difficult to make?
2	6	Hazards are often described in terms of magnitude, frequency, duration, areal extent, and onset speed. What do each of these mean and why are we interested in these characteristics?
2	7	To what degree are disasters a natural phenomenon?
1	8	Describe the disaster management cycle.
2	9	List and explain the range of human adjustments to hazards.
6	10	Where is the most dangerous place to live in the U.S. with regards to hazards? Be sure to provide evidence.
4	11	How does the media influence what the general population knows about hazards?




On the index card, write one word or phrase to describe your impressions of the course. Below this word, please write a number from 1-5 that describes your satisfaction with the course:

1 = Low, 5 = High



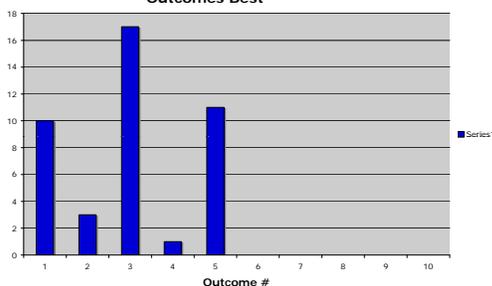
Outcomes section of 3x5 cards

- Two #s: of the two outcomes best met:
- Two #s: of the two outcomes least met:

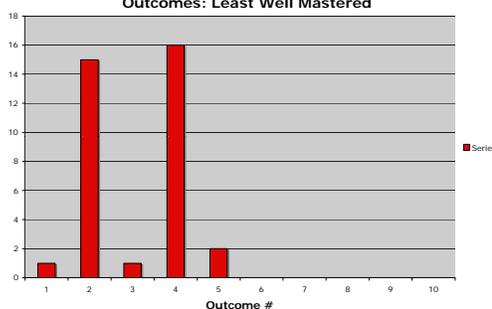
Psychology 211 Outcomes

1. Demonstrate knowledge and understanding of theory and research in learning, perception, and cognition
2. Evaluate the appropriateness of conclusions presented in disseminated research relevant to psychology.
3. Construct examples of how psychological theories and principles relate to everyday life
4. Explain and defend against common thinking fallacies.
5. Explain behavior using different cognitive and learning theories or models

Psyc 211
Outcomes Best



Psyc 211
Outcomes: Least Well Mastered



Roundtable/Ranking



Passing a sheet of paper rapidly from one person to another, please jot down all strengths of the course, saying them aloud as you write.



Passing a sheet of paper rapidly from one person to another, please jot down all the things about the course that might be changed or improved, saying them aloud as you write.

Working as a team, please rank order the top three strengths you identified, with the most important strength at the top of your list. Now rank order the top three drawbacks of the [course] conference—the things you would change—with the most important at the top of your list.

Focus Group

Title: COBA Student Preparation/Professionalism Employer

Date: 8/01/07 – 11:30 am

Rank-Ordering of Strengths		
Team one	Team two	Team three
Intelligence	Bright	Professionalism
Confidence	Computer literate	Reliable
Hardworking	Outgoing personality/Friendly	Team players
Eager to learn	Aggressive	Good time management skills
Technical knowledge	Motivated	Personable
	Smart	Aggressive
		Hardworking

Thread (Strengths)	Color Code	Number of Occurrences
Intelligence		4
Personality		3
Technical knowledge		2
Hardworking		2
Aggressive		2
Motivated		1
Professionalism		1
Reliable		1
Team players		1
Good time management skills		1

Rank-Ordering of Weaknesses		
Team one	Team two	Team three
Unrealistic expectations	People skills	Unprepared for work
Occasional reliability issues	Culturally unaware	Conflict resolution
Impatient	High expectations	Communication
Lack of people skills	Starts at the top	Negotiation skills
"Cocky"	Unfamiliar with business world ("know it all", "what is in it for me")	Relationship building
		Dealing with customers

Thread (Strengths)	Color Code	Number of Occurrences
Lack of people skills		5
Expectations		4
Occasional reliability issues		1
Impatient		1
Culturally unaware		1
Unprepared for work		1
Conflict resolution		1
Communication		1
Negotiation skills		1



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Chart courtesy of Ed Nuhfer, CSU Channel Islands



Use Multiple Measures

- Different instruments measure different types of outcomes
- Use more than one type of assessment so they complement each other.
- Each type of assessment instrument has its own strengths and weaknesses.



Build Redundancy into the System

- Multiple courses within a program
- Multiple projects or other measurements within a course

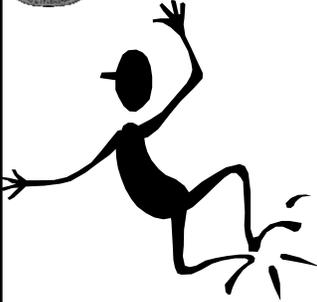


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Some Advice about
Strengthening Teaching and
Learning through Student
Learning Outcomes





The
End!

Happy Teaching!



Why are Student Learning Outcomes
Important?

- **They help students appreciate your organizational skills**
- **They guide development of the course syllabus**
 - They guide decisions about content and coverage
- **They guide development of evaluation methods (test and assignments).**
- **They allow you to undertake broader assessments**
 - They result in convergence of content, assignments, and grading!



Definition of Rubric

“As applied to student work, a rubric reveals . . . the scoring ‘rules.’ It explains to students the criteria against which their work will be judged. More importantly, . . . It makes public key criteria that students can use in developing, revising, and judging their own work.”

Huba, M. E. & Freed, J. E. (2000). *Learner-Centered Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Boston: Allyn and Bacon, p. 155.