Agenda

- What are student learning outcome statements?
- Why are student learning outcomes important?
- How are learning outcomes related to competencies?
- How do I write student learning outcomes?
The Assessment Process

Formulate statements of intended learning outcomes

Create experiences leading to outcomes

Discuss and use assessment results to improve learning

Develop or select assessment measures

Huba & Freed, 2000
Beginning on the Same Page
What are student learning outcome statements?

- Describe what students should be able to demonstrate, represent, or produce based on their learning histories;
- Rely on active verbs that identify what students should be able to demonstrate, represent, or produce over time.

  Quick example: “A competent graduate will identify and use rhetorical strategies (i.e., invention, arrangement and style) in the processes of analyzing and composing texts.”

Maki, 2004
<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Content &amp; Delivery Method</th>
<th>Learning Activities</th>
<th>Assessment of Learning</th>
<th>Assessment of the Learning Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will the Learner know or be able to do? Consider measurable outcomes that include performance (what will students do?), conditions (under what conditions will they do it?), &amp; criterion (how well will they do it?)</td>
<td>Readings, handouts, hands-on experience, Podcasts, streaming video, websites etc. (What materials will you use to help individuals learn it?)</td>
<td>Small group work, active learning techniques, problem-based learning, lecture, learner self-assessment activities. (How will you help individual learn it?)</td>
<td>Graded and/or ungraded assessment. (How will you measure each of the desired learning outcomes?)</td>
<td>Student tests, essays, mid-term survey, course evaluations, etc. (What evidence will you use in order to measure the effectiveness of the learning experience? What data would you need in order to make improvements to the learning experience?)</td>
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Establish Learning Goals

- Given the context of your teaching situation, what do you want students to get out of this experience?

- Move from a list of topics to be covered to a list of what the student will know and be able to do.

- Design for a significant learning experience
Why are student learning outcomes important?

- Student learning outcomes can assist faculty by:
  - Increasing understanding of how to facilitate student learning.
  - Communicating to students what is expected of them.
  - Providing a mechanism for consistency within instruction.
  - Providing departments or programs with a foundation for curriculum development.
  - Providing departments or programs with feedback to answer such questions as: What skills are students learning? Are these the skills that we want students to learn? Are these the skills that we are teaching our students?
Why are student learning outcomes important?

- Student learning outcomes can improve student learning by:
  - Strengthening academic programs so that students are more likely to achieve integrated, higher learning skills that they can demonstrate to others.
  - Enabling students to articulate what they are learning and have learned, inside and outside the classroom.

- Students perform better when they know exactly what is expected of them, including what they will be required to do and how it will be evaluated.
How are student learning outcomes related to competencies?

- Competencies specify the measurable knowledge, skills, abilities, and behaviors critical to successful performance.

- Learning outcomes specify what students will be able to do as a result of participation in a program or course.
  - Integration of knowledge, skills, abilities, behaviors

- “A competent graduate will identify and use rhetorical strategies (i.e., invention, arrangement and style) in the processes of analyzing and composing texts. (Competency X, Y, Z)”
Why are student learning outcomes important?

- At the unit/lesson level
  - Build a structure for a unit or session
  - Focus each unit or session
  - Give learners a clear picture of what to expect
  - Provide criteria for constructing assessments
  - Guide the selection of learning activities
  - Teach learners how to be successful

“Given a problem with two unknowns, students will, in a step-by-step fashion, describe how to solve the problem.”
Objectives, and outcomes, and goals

- **Semantics, semantics…**

- **Differentiate based upon**
  - **Level**
    - Program level outcomes and goals
    - Course/lesson level objectives or outcomes
  - **Purpose**
    - Outcome = Objective (at course or lesson level)
    - Outcome ≠ Goal
    - The way I like to think of it…
## Goals and Outcomes: What’s the Difference?

<table>
<thead>
<tr>
<th>Goals</th>
<th>Outcomes</th>
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<tbody>
<tr>
<td>Tend to be broad</td>
<td>Tend to be narrow</td>
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<tr>
<td>Usually general</td>
<td>Always specific</td>
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<tr>
<td>Sometimes abstract</td>
<td>Almost always concrete</td>
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<tr>
<td>Not always measurable</td>
<td>Always measurable</td>
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<tr>
<td>Outline improvement</td>
<td>Delineate milestones</td>
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<tr>
<td>Can be idealistic</td>
<td>Always realistic</td>
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</table>
How do I write student learning outcomes?

- Components of effective SLO statements
- The CBC Method
- Wording SLOs using the domains of learning (Bloom’s Taxonomy)
- Self-check questions
Components of effective SLOs

- The intended outcome clarifies what you are attempting to assess
- The intended outcome is measurable
- The intended outcome is useful and meaningful
- One or more methods of assessment can be explicitly tied to the intended outcome
Constructing Effective Learning
Outcomes at the Unit/Lesson Level

- The CBC Method (three parts)
  - Condition: Under what conditions?
  - Behavior: What should they be able to do?
  - Criterion: How (well) must it be done?

- “Given a problem with two unknowns, students will, in a step-by-step fashion, describe how to solve the problem.”
Quick Tips

- **Conditions:**
  - Circumstances, commands, materials
  - Aiding versus limiting conditions

- **Behaviors:**
  - Action verbs that are measurable
  - Avoid fuzzy words, e.g. appreciate, believe, understand, know, learn…
  - Avoid “will be able to…”, instead use “will…”

- **Criterion:**
  - Measure of accuracy or precision
  - Use competency requirements, if applicable
  - Not always applicable, consider the manner in which it is to be done
Wording SLOs Using the Domains of Learning

- Three domains:
  - Cognitive (about knowledge and the development of intellectual skills)
  - Affective (the manner in which things are dealt with emotionally)
  - Psychomotor (physical movement, coordination, and use of motor skills)

- Start with the end in mind and identify developmental benchmarks along the way
Original Terms

Evaluation
Synthesis
Analysis
Application
Comprehension
Knowledge

New Terms

Creating
Evaluating
Analyzing
Applying
Understanding
Remembering
Taxonomy for Learning, Teaching, and Assessing: Bloom’s Taxonomy Revised

- Iowa State University Center for Excellence in Learning and Teaching
# Cognitive Domain Words

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Key Words</th>
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<tbody>
<tr>
<td>Knowledge/Remembering</td>
<td>Recall data or information</td>
<td>Defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.</td>
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<tr>
<td>Comprehension/Understanding</td>
<td>Understand the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one’s own words.</td>
<td>Comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.</td>
</tr>
<tr>
<td>Application/Applying</td>
<td>Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.</td>
<td>Applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.</td>
</tr>
<tr>
<td>Analysis/Analyzing</td>
<td>Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.</td>
<td>Analyzes, breaks down, compares, contrasts, diagrams, differentiates, discriminates, illustrates, infers, outlines, relates, selects, separates.</td>
</tr>
<tr>
<td>Synthesis/Evaluating</td>
<td>Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure</td>
<td>Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.</td>
</tr>
<tr>
<td>Evaluation/Creating</td>
<td>Make judgments about the value of ideas or materials.</td>
<td>Appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.</td>
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Affective Domain (Krathwohl, et. al)

- Receiving
- Responding
- Valuing
- Organizing
- Internalizing
# Affective Domain Key Words

<table>
<thead>
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<th>Definition</th>
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<tr>
<td>Receiving</td>
<td>Awareness, willingness to hear, selected attention</td>
<td>Asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses.</td>
</tr>
<tr>
<td>Responding</td>
<td>Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding.</td>
<td>Answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.</td>
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<tr>
<td>Valuing</td>
<td>The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner’s overt behavior and are often identifiable.</td>
<td>Completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.</td>
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<tr>
<td>Organizing</td>
<td>Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a unique value system. The emphasis is on comparing, relating, and synthesizing values</td>
<td>Adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.</td>
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<td>Internalizing</td>
<td>Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student’s general patterns of adjustment (personal, social, emotional).</td>
<td>Acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies</td>
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Psychomotor Domain (Dave)

- Naturalization
- Articulation
- Precision
- Manipulation
- Imitation
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</thead>
<tbody>
<tr>
<td>Imitation</td>
<td>Copy the action of another. Observe and replicate.</td>
<td>Copy, follow, replicate, repeat, adhere, observe, identify, mimic, try,</td>
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<td></td>
<td></td>
<td>reenact, imitate, explain.</td>
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<tr>
<td>Manipulation</td>
<td>Reproduce activity from instructions or memory.</td>
<td>Re-create, build, perform, execute, implement, calculate.</td>
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<tr>
<td>Precision</td>
<td>Execute skill reliably, independent of help.</td>
<td>Demonstrate, complete, show, perfect, calibrate, control, practice, solve,</td>
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<td></td>
<td></td>
<td>perform</td>
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<tr>
<td>Articulation</td>
<td>Adapt and integrate expertise to satisfy a non-standard</td>
<td>Adapt, alter, change, rearrange, reorganize, revise, vary, construct,</td>
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<td></td>
<td>objective.</td>
<td>create, design, initiate, formulate, modify, develop, formulate, modify.</td>
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<tr>
<td>Naturalization</td>
<td>Automated, unconscious mastery of activity and related</td>
<td>Design, create, specify, manage, invent, originate, teach, master, improve</td>
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<td></td>
<td>skills at strategic level.</td>
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Self-check Questions

- Is it clear what you are assessing?
- Is the intended outcome measurable?
  - Active verbs, active verbs, active verbs
- Is the intended outcome measuring something useful AND meaningful?
- How will this outcome be measured?
  - Explicit or Implicit?
Let’s Give it a Try!
What’s Next?

- Write, Collaborate, Revise, Collaborate…
- Internal and external analysis
- Define benchmarks for each of the outcomes
- Define which tools you will use to assess the learning outcomes
- Define how you will help students get there.
The Assessment Process

1. Formulate statements of intended learning outcomes
2. Create experiences leading to outcomes
3. Develop or select assessment measures
4. Discuss and use assessment results to improve learning

Huba & Freed, 2000
Questions


