Linking Learning Objectives to Assessment

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What are learning objectives?

- Simply put, it is a statement of what one should be able to do or know as a result of an educational activity.
- Learning objectives focus on the student, that is, they are not teaching objectives.
Benefits of Learning Objectives

- Content
- Teaching Methodology
- Assessment
Benefits of Learning

Objectives

- **Student Perspective**
  - What do I need to know?
  - Helps prepare for tests

- **Faculty Perspective**
  - Simplifies choice of content, which instructional methodologies to use.
  - Informs what needs to be assessed
  - Shows colleagues what we consider important
Purpose of Assessment

- If the objectives are what you believe the student should know, do, or feel
- Then the objectives tell you what to assess.
- Or more simply, did the students learn what I wanted them to learn
Characteristics of good learning objectives

- Student centered
- Measurable
- Specific
  - Example: Draw the structure of glucose.
  - Student wants to figure out how faculty test. Is this going to be on the test? Often heard when LO’s not specific
- SMART: May also hear the SMART acronym (Specific, Measurable, Achievable, Relevant, Targeted)
Student intellectual development

- Bloom’s taxonomy
- Other taxonomies, e.g., William Perry
  1. Received knowledge
  2. Subjective knowledge
  3. Relative knowledge
  4. Constructed knowledge
- What level do you need?
- What type of learning?
  - Cognitive
  - Procedural
  - Affective
Curricular map

- Courses are mapped to Terminal Outcomes, Secondary Objectives and level
  1. Knows
  2. Knows How
  3. Shows How
  4. Does

- Faculty can use the curricular map to help create Learning Objectives and Level at which they should be taught
Bloom’s (revised) verbs (cognitive)

- Knowledge: Define, draw, identify, count…
- Comprehension: summarize, review, estimate…
- Application: Apply, calculate classify, solve…
- Analysis: Analyze, debate, categorize, contrast…
- Evaluate: Justify, compare & contrast, assess…
- Create: Adapt, compose, integrate, revise…
Procedural & Affective

- Procedural (Psychomotor)
  - Calibrate, measure, operate, perform, record

- Affective (Attitudinal)
  - Consider, exemplify, rank, reflect
Verbs to avoid

- Know
- Know how
- Learn
- Understand
- Appreciate
Could use a little work

- Explain the pathophysiology of Type I diabetes
- Describe the interaction between valproate and lamotrigine
Some better examples

- Explain the physiological mechanism by which metoprolol reduces heart rate.
Use Learning Objectives to Design Assessments

- If Objectives are specific and measurable, half the battle is won.
- But, Learning Objectives are not test questions. Objectives are the result, assessment is the process.
Assess at the correct level

- Knowledge (Define, identify, who, list..)
  - Name the four bases in DNA
  - Define bioavailability.

- Understand (Explain, give an example, in your own words..)
  - Draw a graph illustrating the plasma concentration of drug X following administration of a single dose.

- Apply (Calculate, determine, solve..)
  - Use the following graph to determine half-life
  - Administration of timolol would result in (list of effects)
Assess at the Correct Level

- **Analyze**
  - What are the possible outcomes...?
  - What is the relationship between...?

- **Evaluate**
  - Recommend...?
  - Which outcome do you predict...?

- **Create**
  - Propose an alternative solution...
  - Design a management system that makes everyone happy.
In the real world

• What is considered a good objective is subjective.
• Classification is also fuzzy.
• Do students understand what LO’s are?
• Philosophically: avoid checklist mentality.
Summary

- Use Learning Objectives to design assessments
- Reflect and revise: Is content, teaching methodology, level appropriate?
- Use assessment results to improve objectives
- Keep in mind that too many objectives can limit learning