Writing Effective Learning Outcomes

In order for faculty and departments to succeed in educating students, they must establish what they hope students will learn. For the purposes of this document, desirable student learning will be referred to as learning outcomes. Broadly speaking, learning outcomes are the intended or expected knowledge, skills, attitudes, and behaviors that students take with them from an academic (or nonacademic) experience.

Taking the time to write effective learning outcome statements is a challenging but important process. Thoughtfully considering the outcome of a learning activity (e.g., assignment, class or academic program) helps create a more effective pedagogical strategy and assessment process. A learning outcome statement is not the process that students undergo (e.g., students will complete 36 credits in [academic discipline]). It is what students will be able to demonstrate after participation in a learning activity. If learning outcomes are vaguely defined this can lead to confusion. Building from this, program learning outcomes are written more broadly than course learning outcomes and addressed in multiple ways throughout the curriculum.

How to write effective learning outcomes

There are multiple guidelines that faculty and program designers should consider when writing learning outcomes. We suggest keeping three key ideas in mind.

1. Learning outcomes should be specific and well defined.
2. Learning outcomes should be realistic and achievable.
3. Learning outcomes should be measureable.
4. Learning outcomes should be written in simple language with active verbs.

In addition to these key principles, most effective learning outcomes share a common format with three key components. First is a <u>condition or antecedent</u> (i.e., After completing [learning activity - likely a degree program]). Second is an <u>action or behavior</u> (i.e., a knowledge, skill, attitude, or behavior) a student will be able to demonstrate. Third is a <u>criterion or metric</u> for success (i.e., specific activity and at what level the student will be able to demonstrate this action or behavior).

We have provided a template that programs may find useful in writing learning outcomes. Not all learning outcomes must follow this format. We provide it as an example of what an effective learning outcome may look like.

Recommended Template: After [completing learning activity] students will be able to [action] via [criterion].

As a reminder, <u>make the outcome specific, with action verbs and observable end products</u>. We recommend avoiding the word, "demonstrate" and selecting an action verb that illustrates how students may demonstrate (e.g., define, predict, explain, compute, critique). Some learning outcomes may utilize multiple actions. This is okay, but be careful not to make the learning outcome to complex.

Example #1: After completing a degree in microbiology [condition], students will be able to communicate [action] scientific concepts clearly and concisely, both verbally and in writing [criterion].

Example #2: Through coursework in government and politics [condition], students will demonstrate analytical skills [action] by examining foundational theories of citizenship and government [criterion].

Key Challenge in Developing Learning Outcomes

<u>Trying to do too much</u> - Some learning outcomes consist of compound statements. These statements are not inherently poor, but they risk creating assessment issues. If a unit is not cautious, a learning outcome with compound statements risks becoming multiple learning outcomes. A good rule in using a compound statement to write a learning goal is by asking, "If students achieve this outcome fully, how will our assessment procedure identify this success?" If the outcome can be assessed with one (or two) assessments, then it is probably fine. If a complex series of assessments is necessary to capture each aspect of the learning outcome, the outcome statement is likely multiple learning outcomes.

Poorly Written Example #1 (Too verbose): By the end of completing a program in communication students will organize and develop well-designed arguments, locate supporting evidence, and analyze others' arguments using relevant theories of communication. (This example could be split into two learning outcomes: 1. Develop well-designed arguments by locating supporting evidence and 2. Analyze others' arguments using relevant theories of communication)

Poorly Written Example #2 (No criterion for evaluation): Students in computer science will learn the programing language, SQL. (This example can be improved by suggesting how students will demonstrate their ability to use SQL. "...SQL to manage a large relational database.)

Taxonomies of Learning Outcomes

Learning outcomes are easier to assess when they contain specific action verbs. Bloom's Taxonomy is a widely known structure for thinking about learning. The original cognitive taxonomy was developed in 1949-1956 with four overarching goals. The goals of this taxonomy were to serve as (1) a common language around learning goals, (2) a basis for determining the specific meaning of educational goals for a course or curriculum, (3) a means for examining the congruency of educational objectives and learning activities, and (4) a panorama of educational possibilities to contrast specific courses or curricula.

A revised version of Bloom's taxonomy was created in 2001 by Anderson and Krathwohl and colleagues. Both taxonomies are ordered from simple to complex and concrete to abstract. The revised taxonomy utilizes six key verbs to think about cognitive domains.

Domain	Description
Remember	Retrieving or recognizing relevant knowledge from memory.
Understand	Constructing meaning from different kinds of messages, often instructional (oral, written, or graphic communication).
Apply	Carrying out or using a procedure in a given situation.
Analyze	Breaking material down into constituent parts and detecting how the parts relate to one another and their overall purpose.
Evaluate	Making judgements based on criteria and standards.
Create	Putting elements together to form a novel, coherent whole or make an original product.

Simple → Complex

Concrete → Abstract
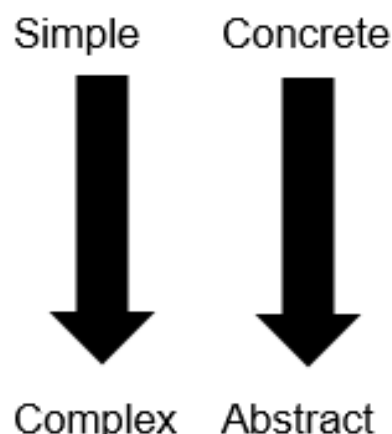
These six key verbs are archetypal of the six taxonomic domains. However, when writing learning outcomes, there are many other observable-action verbs that may be utilized to approximate the respective domain. Bloom's 1956 taxonomy provided examples of verbs that are likely to represent each domain. This list is not exhaustive, and some words appear on more than one list (e.g., recognize). Therefore, care should be taken when writing learning outcomes with these words.

Remember	Understand	Apply	Analyze	Evaluate	Create
Acquire	Classify	Apply	Analyze	Arrange	Arrange
Define	Discuss	Demonstrate	Categorize	Combine	Combine
Identify	Explain	Develop	Compare	Compose	Conclude
Know	Identify	Employ	Contrast	Develop	Consider
List	Illustrate	Exhibit	Debate	Formulate	Create
Memorize	Locate	Operate	Deduce	Generalize	Criticize
Name	Paraphrase	Organize	Detect	Modify	Critique
Recall	Recognize	Practice	Discover	Plan	Estimate
Recognize	Report	Relate	Examine	Predict	Invent
Record	Represent	Restructure	Inquire	Prepare	Set up
Relate	Review	Translate	Probe	Produce	Synthesize
Repeat	Summarize	Use	Separate	Propose	Validate

While writing learning outcomes there is not distinctly right or wrong way to apply Bloom's Taxonomy to a learning outcome statement. One study found that two-thirds of learning outcomes statements were clearly classified into one level, and one-third of statements could be classified at two or more levels. The same study also found that at four-year institutions, undergraduate program-level learning outcomes most commonly fell into the *Apply* (33%) and *Understand* (33%) levels of the taxonomy, with the remaining third evenly distributed among the other four levels.

Additional Reading:

A Revision of Bloom's Taxonomy: An Overview

Suskie, L. (2018). *Assessing student learning: A common sense guide* (3rd ed.). San Francisco, CA: Jossey-Bass.