The University of Tennessee, Memphis

Writing Learning Objectives

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I.   Learning Objectives: Their Importance and Construction

What is a Learning Objective?
A learning objective is a statement of what students will be able to do when they have completed instruction. A learning objective has three major components:

1.   A description of what the student will be able to do
2.   The conditions under which the student will perform the task.
3.   The criteria for evaluating student performance.

What is the difference between a GOAL and a Learning Objective?
A GOAL is a statement of the intended general outcome of an instructional unit or program. A goal statement describes a more global learning outcome. A learning objective is a statement of one of several specific performances, the achievement of which contributes to the attainment of the goal. A single GOAL may have many specific subordinate learning objectives. For example-

GOAL: The goal of the Learning Assessment course is to enable the students to make reliable and accurate assessments of learning.

Learning Objective #1:   Given a learning objective the student will be able to develop an appropriate multiple-choice question to measure student achievement of the objective.
Learning Objective #2:   Given a printout from an item analysis of a multiple choice exam the student will be able to state the accuracy of the test scores.
Learning Objective #3:   Given the discrimination and difficulty indices of an item the student will be able to determine if the item contributes to the reliability of the exam.

Why are Learning Objectives important? Learning objectives are guides to:

1.   Selection of content
2.   Development of an instructional strategy.
3.   Development and selection of instructional materials.
4.   Construction of tests and other instruments for assessing and then evaluating student learning outcomes.

How do you write a Learning Objective? In writing a Learning Objective:

1.   Focus on student Performance not teacher performance.
2.   Focus on product - not process.
3.   Focus on terminal behavior - not subject matter.
4.   Include only one general learning outcome in each objective.

A learning objective is a statement describing a competency or performance capability to be acquired by the learner. There are three characteristics essential to insuring clear statements of objectives.

Behavior - First, an objective must describe the competency to be learned in performance terms. The choice of a verb is all-important here. Such frequently used terms as know, understand, grasp, and appreciate do not meet this requirement. If the verb used in stating an objective identifies an observable student behavior, then the basis for a clear statement is established. In addition, the type or level of learning must be identified. See Section II for a description of the types of learning and their levels.

Criterion - Second, an objective should make clear how well a learner must perform to be judged adequate. This can be done with a statement indicating a degree of accuracy, a quantity or proportion of correct responses or the like.

Conditions - Third, an objective should describe the conditions under which the learner will be expected to perform in the evaluation situation. What tools, references, or other aids will be provided or denied should be made clear.

Sometimes, one or even two of these elements will be easily implied by a simple statement. Other times, however, it may be necessary to clearly specify in detail each element of the objective. The following is an example of a completed learning objective:

OBJECTIVE: "Given a set of data the student will be able to compute the standard deviation."

Condition - Given a set of data
Behavior - the student will be able to compute the standard deviation.
Criterion - (implied) - the number computed will be correct.

Checklist for Writing a Specific Instructional Objective

1. Begin each statement of a specific learning outcome with a verb that specifies definite, observable behavior. (See the Table of Process Oriented Learner Behaviors below.)

2. Make sure that each statement meets all three of the criteria for a good learning objective: observable behavior, the conditions under which the student will be expected to perform, and the criteria to be used for evaluation of the student's performance.

3. Be sure to include complex objectives (appreciation, problem-solving, etc.) when they are appropriate.

Guides or aids to writing learning objectives:
Educators and psychologists concerned with learning theory have given considerable thought to the various types of learning that take place in schools. Probably the most comprehensive and widely known analysis of objectives is the Taxonomy of Educational Objectives by Benjamin Bloom and others. Bloom's Taxonomy provides a consistent means of developing the single most powerful tool in instruction and the assessment of student learning outcomes - the learning or performance objective. The Taxonomy distinguishes between three major categories of objectives termed the COGNITIVE DOMAIN, the PSYCHOMOTOR DOMAIN, and the AFFECTIVE DOMAIN. (See Section II for a more complete description of the Taxonomy.)

It is generally the Cognitive Learning Domain that is of primary concern in higher education. If we assume that faculty are more concerned with process and problem solving activities, then the categories of the Taxonomy are most valuable in suggesting various kinds of behavior to use as objectives. The following list of process-oriented behaviors, which are related to the six categories of the Taxonomy, should serve as a useful guide to faculty preparing objectives.   For a more complete table of words for describing learner behaviors see "Instrumentation of Bloom's and Krathwohl's Taxonomies for the Writing of Educational Objectives," (Metfessel, Newton S., Michael, William B., and Kirsner, Donald A., in   Psychology in the Schools, Vol. VI, No. 3, pp.227-231, July 1969).

TABLE OF PROCESS ORIENTED LEARNER BEHAVIORS

KNOWLEDGE

recall	identify	recognize	acquire	distinguish

COMPREHENSION

translate	extrapolate	convert	interpret	abstract
transform				

APPLICATION

apply	sequence	carry out	solve	prepare
operate	generalize	plan	repair	explain

ANALYSIS

analyze	estimate	compare	observe	detect
classify	discover	discriminate	identify	explore
distinguish	catalog	investigate	breakdown	order
recognize	determine	outside		

SYNTHESIS

write	plan	integrate	formulate	propose
specify	produce	organize	theorize	design
build	systematize			

EVALUATION

evaluate	verify	assess	test	judge
rank	measure	appraise	select	check

Summary: A Learning Objective is a statement of what students will be able to do when they have completed instruction. Learning objectives have their roots in the instructional analysis and the definition of entry behaviors. They form the basis for subsequent instructional design activities. A Learning Objective has three major components:

- **A description of what the student will be able to DO.**
- **The conditions under which the student will perform the task.**
- **The criteria for evaluating student performance**

Each statement of a learning objective should begin with a verb and should include only one general learning outcome. Learning Objectives should focus on:

- **Student performance**
- **Product**
- **Terminal behavior**

II. Bloom's Taxonomy of Learning

Learning is a psychological process. Thus, the assessment of learning, of necessity, requires the assessment of various psychological processes. In developing assessment tools (tests) it is important that we first have an understanding of these psychological processes and how to go about measuring them. Although there are many psychological models for the process of learning, for this workbook we have chosen Benjamin Bloom's taxonomy as a useful tool. In Bloom's taxonomy there are three fundamental learning domains: Cognitive, Psychomotor, and Affective.

Affective learning of beliefs, attitudes, and values.

Psychomotor learning of physical movements such as ballet steps, how to pitch a curve ball, how to drill out a cavity in a molar, etc.

Cognitive learning of information and the processes of dealing with that information.

There are six levels of Cognitive Learning as specified by Bloom:

1. **Basic Knowledge**
2. **Comprehension**
3. **Application**
4. **Analysis**
5. **Synthesis**
6. **Evaluation**

Generally it can be said that the first category, **Knowledge**, is information-oriented as it stresses the ability to recall existing knowledge. The other five categories can be termed "Process-oriented" because they entail more sophisticated learner behaviors and competencies that require increasing degrees of understanding. The following are brief definitions of these six levels with a suggestion as to how to assess this level of learning.

<u>Basic Knowledge</u>**: To recall and memorize -** *Assess by direct questions. The object is to test the students' ability to recall facts, to identify and repeat the information provided.*

<u>Comprehension</u>: **To translate from one form to another** *- Assess by having students' 1) restate material in their own words, 2) reorder or extrapolate ideas, predict or estimate. Assessments must provide evidence that the students have some understanding or comprehension of what they are saying.*

<u>Application</u>: **To apply or use information in a new situation** *- Assess by presenting students with a unique situation (i.e. one not identical to that used during instruction) and have them apply their knowledge to solve the problem or execute the proper procedure.*

<u>Analysis</u>: **To examine a concept and break it down into its parts** *- Assess by presenting students with a unique situation of the same type but not identical to that used during instruction, and have them analyze the situation and describe the appropriate procedure or solution to the problem.*

<u>Synthesis</u>: **To put information together in a unique or novel way to solve a problem** *- Assess by presenting students with a unique situation NOT of the same type used during instruction, and have them solve a problem by selecting and using appropriate information .*

<u>Evaluation</u>: **To make quantitative or qualitative judgments using standards of appraisal** *- Assess by presenting the students with a situation which includes both a problem and a solution to the problem and have them justify or critique the solution.*