

The Science of Teaching

Writing Educational Objectives

What is an objective?

A behavioral (performance) objective is “an intent communicated by a statement describing a proposed change in a learner – a statement of what the learner is to be like when he/she has successfully completed a learning experience” (Mager, 1975). Or, a behavioral (performance) objective is a statement of an observable behavior which the learner is to exhibit at the close of a program, course, or learning session. Stated in another way, a behavioral (performance) objective is a description of a proposed behavioral change the teacher wants to bring about in a learner—change in either the cognitive, psychomotor, or affective domain of learning.

Objectives:

Effective objectives communicate what you intend for your students to achieve.

They are SMART.

- Specific
- Measurable
- Attainable
- Relevant
- Time-bound

Quality objectives...

- Define what the learner will be able to do as a result of a learning experience
- Focus on the learner, not the teacher and not the content
- Communicate learning expectations to others
- Provide organization of the lesson
- Assist with planning for content, materials, and methods of instruction
- Guide assessment of student learning

Three types of objectives

Another dimension of writing performance objectives relates to the different types of performances that can be specified. These performances include **knowing certain information** (classified as the cognitive domain), **performing certain physical activities** (classified as the psychomotor domain), and **exhibiting certain personal qualities or attitudes** (classified as the affective domain).

The **cognitive domain** includes those performances that require knowledge of specific information; e.g., the principles, concepts, and generalizations necessary for problem solving.

The **psychomotor domain** measures the skill performance of the learner and, therefore, the performance required will involve the manipulation of objects, tools, supplies, or equipment.

In the **affective domain** the performance required involves the demonstration of feelings, attitudes, or sensitivities toward other people, ideas, or things.

Writing Performance Objectives

A performance objective is a three-part statement of what, in measurable terms, the learner must do to master a behavior (performance). A true performance objective has three identifiable parts: (1) a description of the behavior (performance); (2) the conditions under which the behavior (performance) will be measured; and (3) the criterion which states how well the behavior must be performed to be considered mastered.

CONDITION The condition component of an objective informs the learner of what conditions or restrictions will be imposed when he/she is demonstrating mastery of a competency. The condition component of an objective can describe what equipment, tools, supplies, or resources the learner will be given to work with; any items the learner will not have access to; the environment or setting where the competency must be performed and/or what information the learner may be provided that will direct the action in a certain way. Some examples of condition statements are:

1. Given a set of blueprints
2. Without the aid of a calculator
3. Using a case study provided by the instructor
4. Given a malfunctioning carburetor

PERFORMANCE The performance component of an objective is a statement of the actual competency. This statement identifies the performance or behavior which a student will be required to demonstrate. The “behavior” component of a performance objective should be precise, observable, and measurable.

CRITERION The third component of an objective is called the criterion or standard. The criterion tells learners the quantity and quality of how they are expected to perform the competency. There are several ways in which the criterion can be established including (1) specification of tolerance limits, (2) speed, (3) maximum number of permissible errors, (4) reference to other materials which specify standards, (5) degree of excellence, or (6) any combination of the above. All criterion should be based on the actual performance level needed on the job.

CLASSIFICATION OF EDUCATIONAL OBJECTIVES* (COGNITIVE DOMAIN)

- I. Knowledge (recall or recognition)
 - A. Knowledge of specifics (terminology and facts)
 - B. Knowledge of ways and means of dealing with specifics
 - 1. Characteristic way of presenting ideas and phenomena
 - 2. Processes and directions
 - 3. Classes, sets, and divisions fundamental to a subject field
 - 4. Criteria by which facts, principles, and conduct are tested
 - 5. Methods of inquiry, techniques, and procedures employed in a subject field in investigating problems
 - C. Knowledge of universals and abstractions
 - 1. Principles and generalizations
 - 2. Theories and structures

- II. Comprehension (understanding)
 - A. Translation—accuracy with which the communication is paraphrased from one language to form another
 - B. Interpretation—explanation or summarization of a communication
 - C. Extrapolation—extension of trends beyond given data to determine implications

- III. Application
 - A. Use of abstractions in particular and concrete situations
 - B. Abstractions may be general ideas, rules of procedure, technical principles and theories

- IV. Analysis (breakdown of communication into its constituent elements)
 - A. Analysis of elements—recognize unstated assumptions; distinguish facts from hypotheses
 - B. Analysis of relationships—comprehending interrelationships
 - C. Analysis of organizational principles—systematic arrangement and structure

- V. Synthesis (putting elements together to form a whole)
 - A. Production of a unique communication
 - B. Production of a plan or proposed set of operations
 - C. Derivation of a set of abstract relations
 - 1. Abstract relations to classify or explain data or phenomena—formulate hypotheses
 - 2. Deduction of propositions and relations

- VI. Evaluation—quantitative and qualitative judgments about the extent to which material and methods satisfy criteria
 - A. Judgments in terms of internal evidence—logical accuracy; consistency
 - B. Judgments in terms of external criteria—evaluation with reference to selected or remembered criteria

*Bloom (1965). Taxonomy of Educational Objectives, Handbook I: Cognitive Domain.

Action Verbs for Writing Objectives in the Cognitive Domain

Knowledge

acquire
count
define
draw
identify
indicate
label
list
match
name
outline
point
quote
read
recall
recite
recognize
record
repeat
state
tabulate
trace
write

Comprehension

associate
classify
compare
compute
contrast
convert
describe
differentiate
discuss
distinguish
estimate
explain
extrapolate
interpret
interpolate
predict
rewrite
translate

Application

apply
calculate
change
classify
complete
demonstrate
discover
employ
examine
illustrate
manipulate
operate
practice
prepare
produce
relate
solve
use
utilize

Analysis

analyze
construct
detect
diagram
differentiate
explain
infer
outline
separate
subdivide
summarize

Synthesis

arrange
categorize
combine
construct
create
design
develop
explain
formulate
generate
generalize
integrate
organize
plan
prepare
prescribe
produce
propose
rearrange
reconstruct
specify
summarize

Evaluation

appraise
assess
compare
critique
determine
evaluate
grade
judge
justify
measure
rank
rate
recommend
select
support
test