

TAXONOMY OF EDUCATIONAL OBJECTIVES

Table G.1

Major categories in the cognitive domain of the taxonomy of educational objectives (Bloom, 1956)

Descriptions of the Major Categories in the Cognitive Domain

1. **Knowledge.** Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.
 2. **Comprehension.** Comprehension is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (words or numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material and represent the lowest level of understanding.
 3. **Application.** Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension.
 4. **Analysis.** Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material.
 5. **Synthesis.** Synthesis refers to the ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviors, with major emphasis on the formulation of *new* patterns or structures.
 6. **Evaluation.** Evaluation is concerned with the ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgments are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose) and the student may determine the criteria or be given them. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories plus value judgments based on clearly defined criteria.
-

Table G.2

Examples of general instructional objectives and clarifying verbs for the cognitive domain of the taxonomy

<i>Illustrative General Instructional Objectives</i>	<i>Illustrative Verbs for Stating Specific Learning Outcomes</i>
Knows common terms Knows specific facts Knows methods and procedures Knows basic concepts Knows principles	Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states
Understands facts and principles Interprets verbal material Interprets charts and graphs Translates verbal material to mathematical formulas Estimates consequences implied in data	Converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, paraphrases, predicts, rewrites, summarizes
Justifies methods and procedures Applies principles to new situations Applies theories to practical situations Solves mathematical problems Constructs charts and graphs Demonstrates correct usage of a procedure	Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses
Recognizes unstated assumptions Recognizes logical fallacies in reasoning Distinguishes between facts and inferences	Breaks down, diagrams, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivides
Evaluates the relevancy of data Analyzes the organizational structure of a work (art, music, writing)	© CourseSmart
Writes a well-organized theme Gives a well-organized speech Writes a creative short story (or poem) Proposes a plan for an experiment Integrates learning from different areas into a plan for solving a problem Formulates a new scheme for classifying objects (or events or ideas)	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes
Judges the consistency of written material Judges the adequacy with which conclusions are supported by data Judges the value of a work (art, music, writing) by use of internal criteria Judges the value of a work (art, music, writing) by use of external standards	Appraises, compares, concludes, contrasts, criticizes, describes, discriminates, explains, interprets, justifies, relates, summarizes, supports

Table G.3

Major categories in the affective domain of the taxonomy of educational objectives (Krathwohl et al., 1964)

Descriptions of the Major Categories in the Affective Domain

- 1. Receiving.** Receiving refers to the student's willingness to attend to particular phenomena or stimuli (classroom activities, textbook, music, etc.). From a teaching standpoint, it is concerned with getting, holding, and directing the student's attention. Learning outcomes in this area range from the simple awareness that a thing exists to selective attention on the part of the learner. Receiving represents the lowest level of learning outcomes in the affective domain.
 - 2. Responding.** Responding refers to active participation on the part of the student. At this level he not only attends to a particular phenomenon but also reacts to it in some way. Learning outcomes in this area may emphasize acquiescence in responding (reads assigned material), willingness to respond (voluntarily reads beyond assignment), or satisfaction in responding (reads for pleasure or enjoyment). The higher levels of this category include those instructional objectives that are commonly classified under *interest*; that is, those that stress the seeking out and enjoyment of particular activities.
 - 3. Valuing.** Valuing is concerned with the worth or value a student attaches to a particular object, phenomenon, or behavior. This ranges in degree from the more simple acceptance of a value (desires to improve group skills) to the more complex level of commitment (assumes responsibility for the effective functioning of the group). Valuing is based on the internalization of a set of specified values, but clues to these values are expressed in the student's overt behavior. Learning outcomes in this area are concerned with behavior that is consistent and stable enough to make the value clearly identifiable. Instructional objectives that are commonly classified under *attitudes* and *appreciation* would fall into this category.
 - 4. Organization.** Organization is concerned with bringing together different values, resolving conflicts between them, and beginning the building of an internally consistent value system. Thus, the emphasis is on comparing, relating, and synthesizing values. Learning outcomes may be concerned with the conceptualization of a value (recognizes the responsibility of each individual for improving human relations) or with the organization of a value system (develops a vocational plan that satisfies his need for both economic security and social service). Instructional objectives relating to the development of a philosophy of life would fall into this category.
 - 5. Characterization by a Value or Value Complex.** At this level of the affective domain, the individual has a value system that has controlled his behavior for a sufficiently long time for him to have developed a characteristic *lifestyle*. Thus, the behavior is pervasive, consistent, and predictable. Learning outcomes at this level cover a broad range of activities, but the major emphasis is on the fact that the behavior is typical or characteristic of the student. Instructional objectives that are concerned with the student's general patterns of adjustment (personal, social, emotional) would be appropriate here.
-

Table G.4

Examples of general instructional objectives and clarifying verbs for the affective domain of the taxonomy

<i>Illustrative General Instructional Objectives</i>	<i>Illustrative Verbs for Stating Specific Learning Outcomes</i>
<p>Listens attentively</p> <p>Shows awareness of the importance of learning</p> <p>Shows sensitivity to social problems</p> <p>Accepts differences of race and culture</p> <p>Attends closely to the classroom activities</p>	<p>Asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits erect, replies, uses</p>
<p>Completes assigned homework</p> <p>Obeys school rules</p> <p>Participates in class discussion</p> <p>Completes laboratory work</p> <p>Volunteers for special tasks</p> <p>Shows interest in subject</p> <p>Enjoys helping others</p>	<p>Answers, assists, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes</p>
<p>Demonstrates belief in the democratic process</p> <p>Appreciates good literature (art or music)</p> <p>Appreciates the role of science (or other subjects) in everyday life</p> <p>Shows concern for the welfare of others</p> <p>Demonstrates problem-solving attitude</p> <p>Demonstrates commitment to social improvement</p>	<p>Completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works</p>
<p>Recognizes the need for balance between freedom and responsibility in a democracy</p> <p>Recognizes the role of systematic planning in solving problems</p> <p>Accepts responsibility for own behavior and limitations</p> <p>Understands and accepts own strengths</p> <p>Formulates a life plan in harmony with his abilities, interests, and beliefs</p>	<p>Adheres, alters, arranges, combines, compares, completes, defends, explains, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes</p>
<p>Displays safety consciousness</p> <p>Demonstrates self-reliance in working independently</p> <p>Practices cooperation in group activities</p> <p>Uses objective approach in problem solving</p> <p>Demonstrates industry and self-discipline</p> <p>Maintains good health habits</p>	<p>Acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, uses, verifies</p>

Table G.5

A classification of educational objectives in the psychomotor domain (Simpson, 1972)

Description of the Major Categories in the Psychomotor Domain

1. **Perception.** The first level is concerned with the use of the sense organs to obtain cues that guide motor activity. This category ranges from sensory stimulation (awareness of a stimulus), through cue selection (selecting task-relevant cues), to translation (relating cue perception to action in a performance).
2. **Set.** Set refers to readiness to take a particular type of action. This category includes mental set (mental readiness to act), physical set (physical readiness to act), and emotional set (willingness to act). Perception of cues serves as an important prerequisite for this level.
3. **Guided Response.** Guided response is concerned with the early stages in learning a complex skill. It includes imitation (repeating an act demonstrated by the instructor) and trial and error (using a multiple-response approach to identify an appropriate response). Adequacy of performance is judged by an instructor or by a suitable set of criteria.
4. **Mechanism.** Mechanism is concerned with performance acts where the learned response has become habitual and the movements can be performed with some confidence and proficiency. Learning outcomes at this level are concerned with performance skills of various types, but the movement patterns are less complex than at the next higher level.
5. **Complex Overt Response.** Complex overt response is concerned with the skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, smooth, accurate performance, requiring a minimum of energy. This category includes resolution of uncertainty (performs without hesitation) and automatic performance (movements are made with ease and good muscle control). Learning outcomes at this level include highly coordinated motor activities.
6. **Adaptation.** Adaptation is concerned with skills that are so well developed that the individual can modify movement patterns to fit special requirements or to meet a problem situation.
7. **Origination.** Origination refers to the creating of new movement patterns to fit a particular situation or specific problem. Learning outcomes at this level emphasize creativity based upon highly developed skills.

Table G.6

Examples of general instructional objectives and clarifying verbs for the psychomotor domain

<i>Illustrative General Instructional Objectives</i>	<i>Illustrative Verbs for Stating Specific Learning Outcomes</i>
Recognizes malfunction by sound of machine Relates taste of food to need for seasoning Relates music to a particular dance step	Chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects, separates
Knows sequence of steps in varnishing wood Demonstrates proper bodily stance for batting a ball Shows desire to type efficiently	Begins, displays, explains, moves, proceeds, reacts, responds, shows, starts, volunteers
Performs a golf swing as demonstrated Applies first aid bandage as demonstrated Determines best sequence for preparing a meal	Assembles, builds, calibrates, constructs, dismantles, displays, dissects, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches
Writes smoothly and legibly Sets up laboratory equipment Operates a slide projector Demonstrates a simple dance step	(Same list as for Guided Response)
Operates a power saw skillfully Demonstrates correct form in swimming Demonstrates skill in driving an automobile Performs skillfully on the violin Repairs electronic equipment quickly and accurately	(Same list as for Guided Response)
Adjusts tennis play to counteract opponent's style Modifies swimming strokes to fit the roughness of the water	Adapts, alters, changes, rearranges, reorganizes, revises, varies
Creates a dance step Creates a musical composition Designs a new dress style	Arranges, combines, composes, constructs, creates, designs, originates

REFERENCES*

- Bloom, B. S., et al. (Eds.). (1956). *Taxonomy of educational objectives: Handbook I, Cognitive domain*. New York: D. McKay. Describes the cognitive categories in detail and presents illustrative objectives and test items for each.
- Harrow, A. J. (1972). *A taxonomy of the psychomotor domain*. New York: D. McKay. Provides a model for classifying learning outcomes in the psychomotor domain and presents illustrative objectives.
- Krathwohl, D. R., et al. (Eds.). (1964). *Taxonomy of educational objectives: Handbook II, Affective Domain*. New York: D. McKay. Describes the affective categories in detail and presents illustrative objectives and test items for each.
- Simpson, E. J. (1972). The classification of educational objectives in the psychomotor domain. In *The psychomotor domain* (vol. 3.). Washington: Gryphon House. Describes the psychomotor domain in detail and presents illustrative objectives.



*Tables G.1 through G.6 are reprinted from N.E. Gronlund, *Stating Objectives for Classroom Instruction*, 3rd ed. (New York: Macmillan, 1985).