Bloom's Taxonomy of Educational Objectives

Benjamin Bloom and his group of educational psychologists (1956) developed a classification of levels of behavior that is critical in learning processes. There are three domains in the taxonomy - the cognitive domain, the affective domain, and the psychomotor domain. Each domain has several hierarchical levels of intended behaviors that learners should be able to exhibit as a result of learning. Bloom's taxonomy has been widely used as a guideline for **classifying the educational goals/objectives** and **structuring appropriate test items or other evaluation methods**.

Bloom and his colleagues published handbooks for the cognitive domain and the affective domain. I present a summary of the cognitive domain and the affective domain below. Bloom and his colleagues did not publish a handbook for the psychomotor domain. Several people came up with their own ideas about the psychomotor domain, one of which I selected and presented in the summary below.

Cognitive Domain

There are six levels in the cognitive domain:

Cognitive Domain	What your students will be able to do …
1. Knowledge	It is basically the initial memorization stage. You teach students to be able to remember information. They should be able to recall learned materials when they are tested. **Action verbs** – e.g., state, define, describe, identify, label, list, match, name, reproduce, select
2. Comprehension	You help students be able to correctly interpret and understand the information. Information can be presented in an enactive, iconic and/or symbolic form of communication. Students should be able to grasp the correct meaning of the information and demonstrate their understanding levels when they are tested. **Action verbs** – e.g., distinguish, explain, generalize, give examples, convert, defend, estimate, paraphrase, summarize
3. Application	Students apply learned principles in new and concrete situations. **Action verbs** – e.g., operate, predict, prepare, produce, relate, show, solve, use, change, compute, demonstrate, discover, manipulate
4. Analysis	Students are able to break down material into its component parts and analyze its organizational structure and relationships between parts. **Action verbs** – e.g., break down, diagram, differentiate, discriminate, distinguish, infer, relate, subdivide
5. Synthesis	Students are able to put parts together to form a new whole or produce a new arrangement. **Action verbs** – e.g., categorize, combine, compile, compose, create, devise, design, explain, generate, modify, organize, plan, rearrange, reconstruct, relate, revise
6. Evaluation	Students are able to judge the value of material based on external criterion or evidence. **Action verbs** – e.g., compare, conclude, contrast, criticize, justify, support, appraise, relate

Affective Domain

There are five levels in the affective domain:

Affective Domain	What your students will be able to do …
1. Receiving	Students are willing to pay attention to particular stimuli (e.g., lecture, directions, music, etc.). **Action verbs** – e.g., choose, follow, identify, use, select
2. Responding	Students not only attend to particular stimuli but also exhibit reaction to them. **Action verbs** – e.g., answer, conform, discuss, perform, present, report
3. Valuing	Students clearly and consistently identify the value of materials. **Action verbs** – e.g., complete, explain, join, propose, justify, share, volunteer
4. Organization	Students can bring different values together and build internally consistent value systems (e.g., a philosophy of life). **Action verbs** – e.g., arrange, combine, defend, generalize, integrate, organize, synthesize
5. Characterization by a Value or Value Complex	Students can control their behavior for a sufficiently long time and have developed a certain life style. Their behavior is consistent and predictable. **Action verbs** – e.g., act, display, influence, question, serve, solve, verify

Psychomotor Domain

There are seven levels in the psychomotor domain:

Psychomotor Domain	What your students will be able to do …
1. Perception	Students are aware of stimuli. **Action verbs** – e.g., choose, distinguish, identify, isolate, select, separate
2. Set	Students are mentally, physically, and/or emotionally ready to act toward the stimuli. **Action verbs** – e.g., begin, display, move, proceed, react, respond, show
3. Guided Response	Students try to imitate and go through trial and error. **Action verbs** – e.g., build, assemble, calibrate, construct, dissect, fix, grind, manipulate, measure, mix, sketch
4. Mechanism	Students become habitual. **Action verbs** – e.g., (same list as for guided response)
5. Complex Overt Response	Students perform complex tasks without hesitation. **Action verbs** – e.g., (same list as for guided response)
6. Adaptation	Students can modify your movements to deal with new situations. **Action verbs** – e.g., adapt, alter, change, rearrange, reorganize, revise
7. Origination	Students can create new movement patterns. **Action verbs** – e.g., arrange, combine, compose, construct, design, originate

How Bloom's Taxonomy of Educational Objectives is being used

Bloom's Taxonomy of Educational Objectives is one of many helpful tools that are available for instructional designers. Mastery of the lower levels is prerequisite to the higher levels. Learners (or performers) may have difficulty in learning (or performing) when a prerequisite is missing. Using Bloom's taxonomy, an instructor (or an instructional designer) should be able to design/provide instruction from simple information to complex information, from easy tasks to hard tasks, and from basic knowledge/skills to advanced knowledge/skills.

Bloom's Taxonomy of Educational Objectives is also helpful for constructing test items. It helps an instructor (or an instructional designer) set up the evaluation domain and criteria. Learners' performance is being evaluated based on what has been taught (← Note: It may sound too obvious, but sometimes an instructor or instructional designer can make a mistake and construct test items that do not reflect what has been taught.).

Tips for Stating Instructional Objectives

- ref. Gronlund, G. (1991). How to write and use instructional objective (4th ed.). New York: Macmillan Publisher.

1. Don't state them in terms of teacher performance (e.g., Teach scientific concepts).
2. Don't state them in terms of the learning process (e.g., Students learn scientific concepts).
3. Don't focus on the subject-matter topics (e.g., Students learn the meaning of osmosis, photosynthesis, etc.).
4. Don't include two objectives in one statement (e.g., Student knows and understands scientific concepts).

State and define each objective in terms of the type of student performance that is to be demonstrated at the end of instruction. For example,

1. Students will understand scientific concepts
   1.1 Students will define the concept
   1.2 Students will identify an example of the concept
   1.3 Students will state hypotheses based on the concept
   1.4 Students will describe how the process functions in a given situation
   1.5 Students will describe an experiment that illustrates the process

In the above example, #1 is a general instructional objective, where action verbs were not necessarily used. #1.1 through 1.5 are the specific instructional objectives (sometimes called 'enabling objectives'), where action verbs should be used. Action verbs indicate observable student responses; that is, responses that can be seen by an outside observer.

A way of organizing goals and objectives:

- Program (Department-level) Goals
  - Each Course's Goals
    - Instructional Objectives
      - Specific Instructional Objectives (w/action verbs)