Cognitive Domain – Bloom's Taxonomy

Benjamin S. Bloom, <u>Taxonomy of Educational Objectives: The Classification of Educational Goals</u> (New York: David McKay, 1956).

Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range material, from specific facts to complete theories, but all that is required is for the student to bring to mind the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.
Objectives: Know common terms, specific facts, methods, procedures, basic concepts, principles.
Verbs for expressing learning outcomes: define, describe, identify, label, list, match, name, recall, reproduce, select, state.

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 to 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.
Objectives: Understand facts and principles. Interpret verbal material, charts, graphs. Translate verbal material to mathematical formulas. Estimate future consequences implied by data. Justify method and procedures.
Verbs for expressing learning outcomes: convert, defend, distinguish, estimate, explain, infer, paraphrase, predict, rewrite, summarize.

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.
Objectives: Apply concepts and principles to new situations. Apply laws and theories to practical situations. Solve mathematical problems. Construct charts and graphs.
Verbs for expressing learning outcomes: change, compute, demonstrate, discover, manipulate, prepare, produce, relate, show, use.

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. Differentiate.
Objectives: Recognize unstated assumptions and logical fallacies in reasoning. Distinguish between facts and inferences. Evaluate the relevancy of data. Analyze the organizational structure of a work.
Verbs for expressing learning outcomes: break down, diagram, differentiate, discriminate, distinguish, outline, point out, relate select, separate, subdivide.

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 of structures. Integrate.
Objectives: Write a well-organized theme or give a well-organized speech. Propose a plan or create a new work or writing, music, art. Integrate learning from different areas into a plan to solve new problems. Formulate or develop new schemes for classifying.
Verbs for expressing learning outcomes: compile, compose, create, devise, design, generate, modify, organize, plan, rearrange, reconstruct, relate, revise, rewrite, write.

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 conscious value judgments based on clearly defined criteria.

Objectives: Judge the logical consistency, the adequacy of conclusions, the value of a work by use of internal criteria, the value of a work by use of external standards.
Verbs for expressing learning outcomes: appraise, compare, conclude, contrast, critique, justify, interpret, relate, support.