Blooms Taxonomy of Cognitive Levels

Knowledge

Recalling memorized information. May involve remembering 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. Represents the lowest level of learning outcomes in the cognitive domain.

Learning objectives at this level: know common terms, know specific facts, know methods and procedures, know basic concepts, know principles.

Question verbs: Define, list, state, identify, label, name, who? when? where? what?

Comprehension

The ability to grasp the meaning of material. Translating material from one form to another (words to numbers), interpreting material (explaining or summarizing), estimating future trends (predicting consequences or effects). Goes one step beyond the simple remembering of material, and represent the lowest level of understanding.

Learning objectives at this level: understand facts and principles, interpret verbal material, interpret charts and graphs, translate verbal material to mathematical formulae, estimate the future consequences implied in data, justify methods and procedures.

Question verbs: Explain, predict, interpret, infer, summarize, convert, translate, give example, account for, paraphrase x?

Application

The ability to use learned material in new and concrete situations. Applying rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension.

Learning objectives at this level: apply concepts and principles to new situations, apply laws and theories to practical situations, solve mathematical problems, construct graphs and charts, demonstrate the correct usage of a method or procedure.

Question verbs: How could x be used to y? How would you show, make use of, modify, demonstrate, solve, or apply x to conditions y?

Analysis

The ability to break down material into its component parts. Identifying parts, analysis of relationships between parts, 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.

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Learning objectives at this level: recognize unstated assumptions, recognizes logical fallacies in reasoning, distinguish between facts and inferences, evaluate the relevancy of data, analyze the organizational structure of a work (art, music, writing).

Question verbs: Differentiate, compare / contrast, distinguish x from y, how does x affect or relate to y? why? how? What piece of x is missing / needed?

Synthesis

(By definition, synthesis cannot be assessed with multiple-choice questions. It appears here to complete Bloom's taxonomy.)

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 structure.

Learning objectives at this level: write a well organized paper, give a well organized speech, write a creative short story (or poem or music), propose a plan for an experiment, integrate learning from different areas into a plan for solving a problem, formulate a new scheme for classifying objects (or events, or ideas).

Question verbs: Design, construct, develop, formulate, imagine, create, change, write a short story and label the following elements:

Evaluation

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, which may be internal (organization) or external (relevance to the purpose). 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 the other categories, plus conscious value judgments based on clearly defined criteria.

Learning objectives at this level: judge the logical consistency of written material, judge the adequacy with which conclusions are supported by data, judge the value of a work (art, music, writing) by the use of internal criteria, judge the value of a work (art, music, writing) by use of external standards of excellence.

Question verbs: Justify, appraise, evaluate, judge x according to given criteria. Which option would be better/preferable to each party?