

Guiding Students through the Cognitive Learning Process with Post-Test Analysis

This resource can be used to help students gain a greater understanding of their test preparation techniques and evaluate how they are studying. This resource can help students determine the correlation between their effort and perception of performance and how well specific strategies prepared them for the exam.

Instructors should make certain that they choose learning taxonomies with clearly identified levels of skills that reflect ones course objectives for cognitive learning. As the instructor is writing his/her exam, one should be certain to include questions that encompass each of the learning taxonomy levels you are interested in evaluating. This is also helpful to determine if the instructor's interpretation of learning levels also corresponds to the students' thinking for each question.

Post-Test Analysis Stage I

After you have completed the exam but before you submit the exam to me, please:

- A. Predict your exam score out 100 points.
- B. Rate your effort in studying for the exam on a scale of 1 [lowest] to 10 [highest]
- C. List the specific learning strategies you used to study for the exam [for example, memorized definitions through flashcards, rewrote and reviewed lecture notes, created outlines of readings from book, and so forth]

Post-Test Analysis Stage 2

Now that you have received your graded exam, please:

- a. Describe your emotional response to your exam score [surprised, disappointed, relieved, etc.]
- b. Compare your actual score with your predicted score.
- c. Go back through the exam questions and identify the level of learning taxonomy used in each exam question. Use Figure 1 and Table 1, Bloom's Taxonomy, to determine the level of learning.
- d. Calculate the proportion of items you answered correctly or incorrectly at each classification level. There may not be any questions at some of the levels.

Knowledge

Comprehension

Application

Analysis

Synthesis

Evaluation

e. Reflect upon and describe any changes in strategies or amount of time studying you plan to do to prepare for the next exam.

f. Offer me any feedback in regards to how your peers or I could help you better prepare for the next exam.

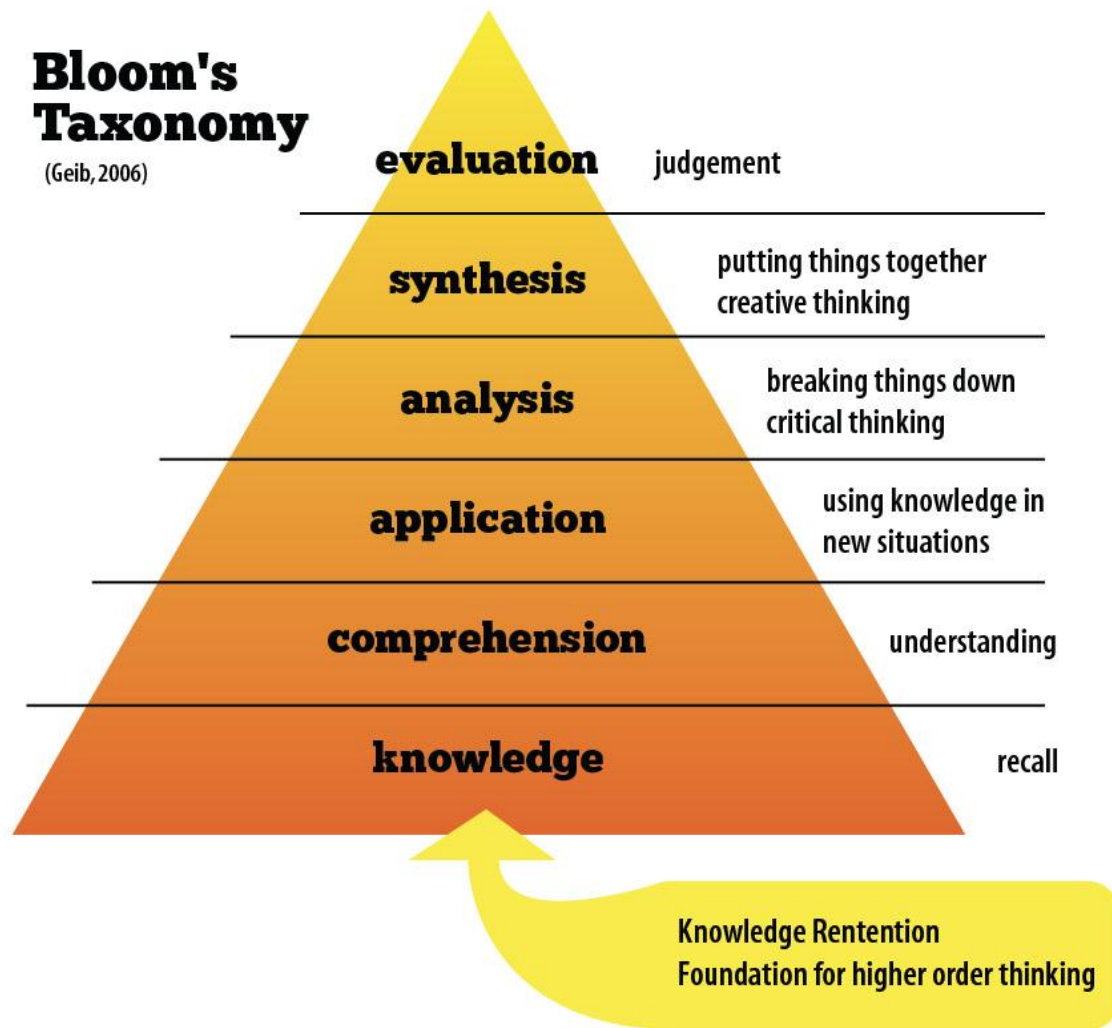


Figure 1. Bloom's Taxonomy. This diagram shows the different levels of cognitive learning as described in Bloom's Taxonomy. <http://www.psia-nw.org/newsletter-articles/blooms-taxonomy-levels-of-understanding/>

Table 1: Verb's used in classifying level of cognitive learning in Bloom's Taxonomy

Category	Example and Key Words (verbs)
Knowledge: Recall data or information.	Examples: Recite a policy. Quote prices from memory to a customer. Knows the safety rules. Key Words: defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.
Comprehension: Understand the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.	Examples: Rewrites the principles of test writing. Explain in one's own words the steps for performing a complex task. Translates an equation into a computer spreadsheet. Key Words: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.
<u>Application:</u> Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.	Examples: Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test. Key Words: applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.
Analysis: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.	Examples: Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training. Key Words: analyzes, breaks down,

	compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.
Synthesis: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.	<p>Examples: Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome.</p> <p>Key Words: categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.</p>
Evaluation: Make judgments about the value of ideas or materials.	<p>Examples: Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.</p> <p>Key Words: appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.</p>

[<http://www.nwlink.com/~donclark/hrd/bloom.html>]

Post-Test Analysis Stage III

Students are then prompted to answer a series of questions after the second test of the semester.

- A. Predict your exam score out 100 points.
- B. Rate your effort in studying for exam 2 in comparison to exam 1 on a scale of 1 to 10. A rating of 1 implies you studied significantly less for exam 2 in comparison to exam 1, a rating of 5 implies you studied the same for both exams and a rating of 10 implies you studied significantly more for exam 2 in comparison to exam 1.
- C. Regardless of your effort in studying, did you utilize the new study techniques and strategies you described during your post-test analysis stage II of exam 1.
- D. If you did not employ the new study techniques from your previous post-test analysis, explain why.
- E. If you did employ the new study techniques from your previous post-test analysis, explain how you feel these new techniques will have effected your predicted grade [did better, did same, did worse] and why.