

Assessing Higher-level Cognitive Processes with Multiple-Choice Items

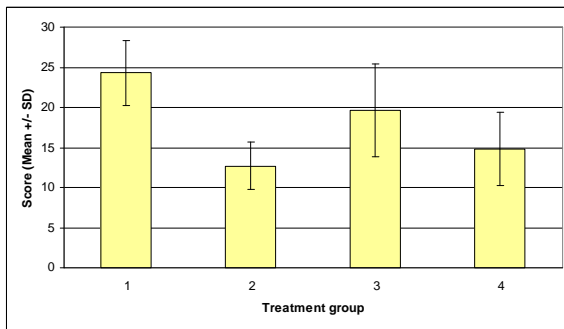
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If assessment tasks are to tap higher-order cognitive processes, they must require that students cannot answer them correctly by relying on memory alone.

—Anderson and Krathwohl, 2001, page 71

Understand: Interpreting

In the figure shown below, which treatment group has the most variability in its scores?



- A. Group 1
- B. Group 2
- C. Group 3*
- D. Group 4

Understand: Classifying

Right after a rat smells menthol, it is always given Drug X, which reliably induces substantial water intake. Eventually, the rat drinks water whenever it smells menthol, even when it is not injected with Drug X. In this situation, what is the role of Drug X?

- A. conditioned stimulus
- B. activational stimulus
- C. unconditioned stimulus*
- D. discriminative stimulus

Apply: Executing

Working with an ordinal data scale, Jeff obtained the following five scores: 0, 0, 2, 5, 8. What is the value of the median for this set of scores?

- A. 0
- B. 2*
- C. 3
- D. 5

Apply: Implementing

Working with an ordinal data scale, Jeff obtained the following five scores: 0, 0, 2, 5, 8. What is the value of the most appropriate measure of central tendency for this set of scores?

- A. 0
- B. 2*
- C. 3
- D. 5

Apply: Implementing

A researcher is planning an experiment in which each participant will receive both Treatment A and Treatment B. He is now thinking about the order in which the two treatments will be given to participants. Which of the following would be most advisable?

- A. Pick one order at random, either A-B or B-A, and give all participants the treatments in that order.
- B. For each participant, let the research assistant decide the order in which to give the treatments.
- C. Let participants decide for themselves the order in which they would prefer to be given the treatments.
- D. Give the treatments to half of the participants in the order A-B, and to the other half in the order B-A.*

Analyze: Differentiating

Keri received a grade of 70 on her history test. 200 people took the test, and scores ranged from a low of 30 to a high of 90. The class mean was 60, and the variance was 100. Which numbers must you use if you want to compute Keri's standard score?

- A. 30, 70, 90
- B. 30, 90, 200
- C. 60, 70, 100*
- D. 60, 100, 200

Analyze: Differentiating

A rat has been trained to press a bar to receive small pieces of food. The food dispenser has now been disconnected, but the rat is still hungry. Which of the following will have the greatest influence on how long the rat will continue to press the bar?

- A. the reinforcement schedule used during training*
- B. the total amount of food the rat ate during training
- C. the number of times the rat pressed the bar during training
- D. the amount of energy the rat expended to press the bar during training

Analyze: Organizing

Suppose that you are reviewing the history of the research that has been carried out on a particular topic over a very long period of time. Which of the following patterns would be most likely to characterize the methodological progress of the research?

- A. correlational studies first, then experimental studies, then case studies
- B. case studies first, then correlational studies, then experimental studies*
- C. experimental studies first, then case studies, then correlational studies
- D. experimental studies first, then correlational studies, then case studies

Analyze: Organizing

You place your finger in the middle of your forehead, and then move it straight back along the middle of your head and down the back of your head. Your finger started out near your frontal lobe and ended up near your cerebellum. Which parts of your brain did it come near along the way?

- A. first the parietal lobes, then the temporal lobes
- B. first the parietal lobes, then the occipital lobes*
- C. first the temporal lobes, then the parietal lobes
- D. first the temporal lobes, then the occipital lobes

Analyze: Attributing

During a session with a client, a therapist makes the following statement: “The problems that you are having now can be traced back to your relationship with your father when you were a little boy.” Which of these theorists has probably had the greatest influence on this therapist?

- A. Aaron Beck
- B. Carl Rogers
- C. B.F. Skinner
- D. Sigmund Freud*

Analyze: Attributing

Which of the following would a Rogerian therapist be most likely to say during a session with a client?

- A. You seem to be feeling a bit down today.*
- B. I want you to try to work things out with your sister.
- C. Your dream about going to the zoo—what do you think it might signify?
- D. There are some things I want you to work on before we meet again next week.

Analyze: Attributing

According to census data, people are having fewer children nowadays than they did 50 years ago. Your friend Anne tells you that she does not believe this because the young couple who live next door to her are both under 30 and already have four children. If Keith Stanovich were told about this, what might you reasonably expect him to say?

- A. The census data must be wrong.
- B. Anne’s comment illustrates valid probabilistic reasoning.
- C. Anne’s comment illustrates the use of “person-who” statistics.*
- D. The young couple provide an exception that actually serves to prove the rule.

Evaluate: Checking

You have carried out a 3×2 ANOVA for independent groups. There were 60 participants, with 10 participants randomly assigned to each cell. You have now analyzed the data and are double-checking your work. Which of the following would immediately let you know that you have made an error?

- A. You found the total degrees of freedom to be 60.*
- B. You found the mean square for the error term to be 6.25.
- C. You found the F -statistic for the interaction effect to be 2.34.
- D. You found degrees of freedom for the interaction effect to be 2.

Evaluate: Checking

Which of the following research findings would most strongly suggest that differences in Variable X are influenced by genetic factors?

- A. Sisters reared apart have more similar scores on Variable X than sisters reared together.
- B. Sisters reared together have more similar scores on Variable X than sisters reared apart.
- C. Same-sex fraternal twins reared together have more similar scores on Variable X than identical twins reared together.
- D. Identical twins reared together have more similar scores on Variable X than same-sex fraternal twins reared together.*

Evaluate: Checking

Which of the following research findings would most strongly support Schachter's theory of emotion?

- A. People injected with adrenaline find a slapstick movie funnier than those given a placebo.*
- B. Some people are much more expressive than others when they experience strong emotions.
- C. People who suffer damage to the amygdala frequently mistake expressions of anger for smiles.
- D. People who hold a pen in their teeth find cartoons funnier than people who hold a pen in their lips.

Evaluate: Critiquing

John is a healthy, well-adjusted young man who happens to become very nervous whenever he has to speak in public. To get over this problem, he starts taking some capsules that his doctor has told him will make him feel calmer when he speaks in public. John does not know it, but the capsules are actually empty. If John takes a capsule the next time he speaks in public, how do you think he will feel?

- A. more nervous than usual
- B. just as nervous as usual
- C. less nervous than usual*
- D. There is no way to predict how John will feel.

Evaluate: Critiquing

Dr. Brennan wants to compare the effectiveness of two training methods that are commonly used to teach people to juggle. He obtains a group of volunteers who have never juggled and randomly assigns each person to one of the two training methods. He sets alpha at 0.05 and determines that the power of his statistical test is 0.40. Which of the following is a valid criticism of Dr. Brennan's research study?

- A. Power is much too low; it should be at least 0.80.*
- B. Alpha is much too high; it should be no larger than 0.01.
- C. A placebo group should be included in the research design.
- D. Participants should be allowed to select the training method they will have.