Johns Hopkins

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Tips for writing Multiple-Choice questions

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OBJECTIVES FOR WORKSHOP

► At the end of the workshop you will be able to:

   ► Describe the strengths and limitations of multiple-choice exams

   ► Discuss best practices for writing multiple-choice questions

   ► Compose multiple-choice questions to assess higher-order thinking skills

STRENGTHS

► Ability to measure a variety of learning outcomes – comprehension, application and analysis

► Ability to cover a wide range of content

► Reveal student misconceptions, knowledge gaps

► Easy to score

► Objective

LIMITATIONS

▶ Difficult to construct "good" questions

▶ Difficult to write plausible distracters

▶ Limited use in assessing higher-order thinking skills such as analysis, synthesis and evaluation

▶ Cannot measure students' writing skills

▶ Can lead to guessing

COMMON PROBLEMS

▶ Not aligning test items with the learning objectives

▶ Ambiguity in the wording

▶ Testing trivial facts

▶ Providing clues to the correct answer

▶ Focusing on testing factual details, memorization skills

▶ Too easy/too difficult

GENERAL TIPS

► Compose questions based on the learning objectives

► Avoid questions based on minute details and memorization of facts

► Test only a single idea in each question

► Make sure that there is only one correct answer

► Provide at least 3 to 5 options

► Peer review

FORMAT

What is chiefly responsible for the increase in the average length of life in the USA during the last fifty years? - Stem

a)   Compulsory health and physical education courses in public schools - Distracter

b)   The reduced death rate among infants and young children - Answer

c)   The safety movement which has greatly reduced the number of deaths from accidents – Distracter

d)   The substitution of machines for human labor - Distracter

QUESTION STEM

▶ Write the stem in either the question or incomplete statement format

▶ State the problem clearly and concisely

▶ Avoid excessive wording

▶ Pose the problem/question in a positive form. Avoid negative wording – e.g. "Which of the following is not…."

***Ideally, it should be possible to answer the question without reading the answer options

DISTRACTERS

► Keep all distracters and the correct option to approximately the same length

► All distracters should be plausible answers. Ideally, they should be logical misconceptions of the correct answer

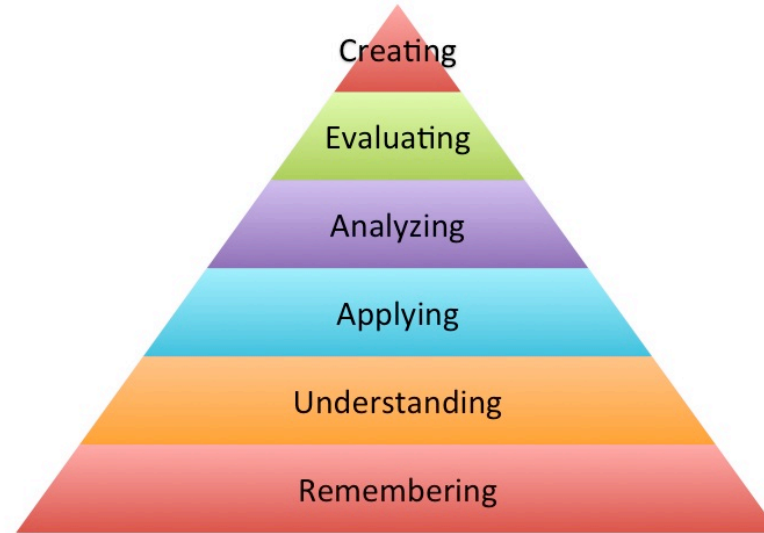► Avoid specific determiners such as "only", "never", "always"

WHICH ONE IS BETTER? WHY?

HIGHER-ORDER THINKING SKILLS

► Match quiz objective to Bloom's Taxonomy level - knowledge, application, or evaluation
   ► Self-assessment/review quiz
   ► Midterm
   ► Final

The New Version of Bloom's Taxonomy

M Hall. (2015, January 30). A Guide to Blooms Taxonomy. Retrieved from http://ii.library.jhu.edu/2015/01/30/a-guide-to-blooms-taxonomy/

HIGHER-ORDER THINKING SKILLS, continued

► Some strategies to assess higher-order thinking in quiz questions
  ► Scenario
  ► Image/graph analysis
  ► Case study

ITEM ANALYSIS

▶ Analyze the test items to ensure their quality

▶ Rewrite items that are unclear, too easy, too difficult

REFERENCES

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