How Can I Assess Critical Thinking with Objective Items?

Presented by:
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Outcomes

• Formulate discipline-relevant student learning outcomes that involve critical thinking (CT) & are suitable for you to assess
• To compose matching, multiple choice, & multiple true/false items that assess your students' targeted CT skills

Where CT applies

When a "claim" may or may not be valid, complete, or the best possible. "Claim" = belief, value, assumption, interpretation, problem definition, theory, generalization, analysis, viewpoint, opinion, contention, hypothesis, solution, inference, decision, prediction, or conclusion – not a fact or term definition.
Must-have CT learning outcomes

- Outcomes = statements of what students should *be able to do* by end of the day, week, unit, or course.
- Across the disciplines, CT involves, at a minimum, *interpretation/analysis* and *evaluation*.

Learning outcomes

“Performances” you can observe so you can assess and set *standards* for them
- *not* internal states of mind like “know,” “learn,” “feel,” “understand,” “appreciate”

(Supplementary Material)

Discipline-relevant CT skills/outcomes

(Supplementary Material)

- Check those relevant to your course.
- Add more if necessary.
- Write some CT outcomes.
- Start sequencing them: In what order will students achieve them?
Assessments should mirror outcomes.

Objective items should require & assess these:

- Interpretation
- Generalization
- Inference
- Problem solving
- Conclusion drawing
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

Types of objective items

- Fill-in-the-Blank/Completion
- True/False
- Matching
- Multiple Choice
- Multiple True/False
Fill-in-the-Blank/Completion
- Focus on memorization (which you may want) – not CT

True/False
- Can assess CT *IF* "stimulus-based"; see multiple choice & multiple true/false below.

Matching tests
Homogenous items within set—every option plausible for every item in list
- “Match each theory with its originator.”
- Cause with effect
- Definition with term
- Achievement/work with person/author
- Foreign word with translation

Matching tests (cont.)
- *Pictures of objects with names*
- Symbol with concept
- Organ/equipment/tool/apparatus with use or function
- Labeled parts in a picture with function
- Processes, sequences (less known/used)
Matching tests (cont.)

To Assess CT, Have Students Match …
Causes with likely effects
Concepts with new examples of them
New, hypothetical problems with tools, concepts, or approaches needed to solve them

Guidelines for Writing Matching Items
• Imperfect match between columns: “Some options may be used more than once, & others, not at all.”
• Short options (1-3 words, phrase)
• Up to 15-17 items, all on 1 page
• List options alphabetically, numerically, or chronologically.

Think about …

What two sets of items could you have your students match to assess their CT skills?
Multiple choice tests

Guidelines for Writing Multiple Choice Items
• Avoid phraseology & distracters that would prevent a knowledgeable student from answering the item correctly.
• Avoid giving clues that would help a poorly prepared student answer the item correctly.
(Suskie, 2009)

Multiple choice tests (cont.)
More specifically:
• List options alphabetically, numerically, chronologically.
• Make all distracters plausible, grammatically parallel, & just as long as correct response.
• Create distracters from elements of correct response.

Multiple choice tests (cont.)
Use sparingly:
- no, not, never, none, except
Use generously – not just when correct:
• all of the above
• none of the above
Multiple true/false tests

• Each option below stem is a T/F item.
• Superior flexible, efficiency, reliability
• Easier and quicker to develop
• More challenge, no process-of-elimination
• Stem must be clear.

Multiple T/F tests (cont.)

To Assess CT, Compose:

... a series of multiple choice or multiple T/F items (or both) around a new*, realistic stimulus that students must interpret/analyze correctly to answer the items accurately.

* New to the students

Possible stimuli for multiple T/F tests

• Text: claim, statement, passage, mini-case, quote, report, text-based data set, description of an experiment
• Graphic: chart, graph, table, map, picture, model, diagram, drawing, schematic, spreadsheet
Guidelines for writing stimulus-based items
(Supplementary Material)

• New stimulus, but students must have prior practice in the CT skills assessed
• Few interlocking items
• Be creative with stimulus!

Strengths and limitations of stimulus-based items

+ Assess more CT skills more efficiently than constructed responses
- Cannot assess abilities to communicate, create, organize, define problems, or conduct research. Only constructed responses can.

Think about …

What stimuli could you use for a series of multiple choice or multiple T/F items to assess your students’ CT skills?
Thank you!

Tell us what you think:

HTTPS://WWW.SURVEYMONKEY.COM/s/OBJITEMS.