Connecting the Dots:
A Framework for Developing Course-Based Critical Thinking Assessments

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THE DISCONNECT

CRITICAL THINKING IN THE CLASSROOM

CAT APPS: PURPOSE AND DEVELOPMENT

ACTIVITY: CONNECTING THE DOTS

NEXT STEPS
Teaching Critical Thinking

Effective Practices

- Real World Problems
- Original Research
- Service Learning
- Team Based Learning
- Case Studies
- Debates
- Simulation
Understanding the Disconnect

Teaching Critical Thinking

Assessing Factual Knowledge
Relevant Skills Evaluated by the CAT

Evaluating Information
- Separate factual information from inferences.
- Evaluate evidence and identify inappropriate conclusions.

Creative Thinking
- Identify alternative interpretations for data or observations.
- Identify new information that might support or contradict a hypothesis.

Learning & Problem Solving
- Separate relevant from irrelevant information.
- Integrate information to solve problems.

Communication
CAT Features

One hour exam
Mostly short answer essay
Faculty scored in workshops
Detailed scoring guide
Use the CAT to Assess Critical Thinking

ASSESSING & IMPROVING CRITICAL THINKING

Use the CAT as a Model for Better Course Assessments
Benefits of Course-Based CT Assessment

How you learn determines how you will be able to use knowledge

**SOLVING REAL WORLD PROBLEMS**

Infusing critical thinking with discipline content prompts application
A scientist working at a government agency believes that an ingredient commonly used in bread causes criminal behavior. To support the hypothesis, the scientist notes the following evidence.

- 99.9% of the people who committed crimes consumed bread prior to committing crimes.
- Crimes rates are extremely low in areas where bread is not consumed.

Do the data described above strongly support the scientist’s hypothesis?  Yes____  No____

Are there other explanations from the data besides the scientist’s hypothesis? If so, describe.

___________________________________________________________________________________

What kind of additional information or evidence would help support the scientist’s hypothesis?

__________________________________________________________________________________________________
Critical Thinking Skill Set 1

- Determine how strongly information support an idea.
- Provide alternative interpretations for information or observations that have several possible interpretations.
- Identify additional information or evidence needed to evaluate the alternative interpretations.

Patterns of Data  Historical Events  Literature
“If We Must Die” by Claude McKay is a poem about having valor on the battlefield. The speaker is a military commander rallying his troops before a big battle. This is evident by looking at the war-like language McKay uses throughout the poem, such as "let us nobly die," "we must meet the common foe," "our precious blood," and "dying, but fighting back."

1. To what extent do the quotations provide support the student's interpretation of the poem?

2. Provide an alternative interpretation of McKay's use of war-like language.

3. Identify 3 types of additional information that would help you investigate McKay's intent in writing the poem and explain why each source would be helpful.

J. Todd, Xavier University
Michelle recently moved to Milwaukee, WI from Tallahassee, FL. Before moving, she bought a brand new Toyota Camry. On her way to work, Michelle noticed her tire pressure sensor light had come on. Michelle mentioned her tire problem to her co-worker Joe, who suggested that Michelle probably has a tire puncture. Joe recommends that Michelle get her tires patched as soon as possible to address the issue.

1. How strongly does the information provided support Joe’s idea that Michelle’s tires have leaks due to punctures?

2. List two alternative explanations.

3. What additional information is needed to evaluate these explanations?

M. Edington, Florida A&M University
Using Headlines to Develop CAT Apps

Want Your Daughter To Be A Science Whiz? Soccer Might Help

Is Comfort Food Causing Your Depression?

Growing Welfare State In America Creating Lower Average Life Expectancy
Teaching to the Test

Teaching to Content

Teaching to Skills

Skills Apply to Many Disciplines

Test Content
Motivating Faculty

- Establish a faculty teaching community to work together in the development of CAT Apps
- Provide small grants or incentives that provide resources for innovative practices

Opportunities for external funding and publication
Connecting the Dots

Assessments Focus on CT Skills

Faculty Recognize Importance of CT Skills

Implement Effective Practices

Identify Student Weaknesses