

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**



**ACTVITIY:
CONNECTING
THE DOTS**



NEXT STEPS

The Changing Nature of Education



**Remembering
Information**

Finding Relevant Information

**Understanding & Evaluating
Information**

Using Information Effectively

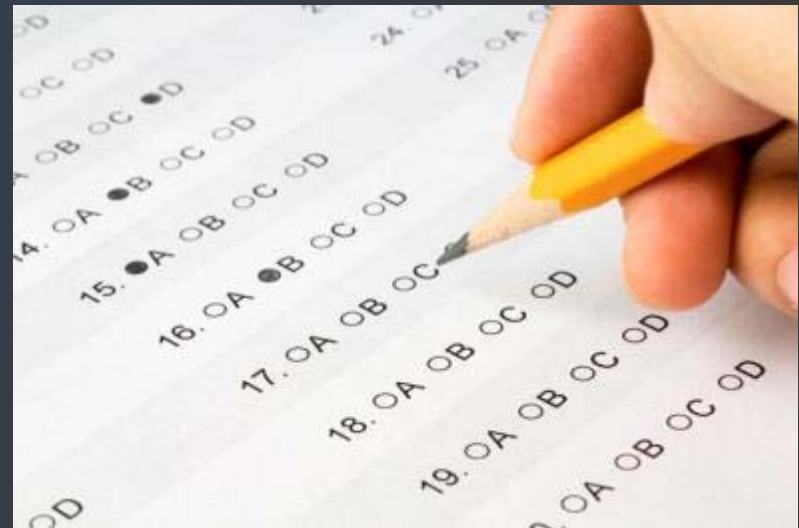
Teaching Critical Thinking



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

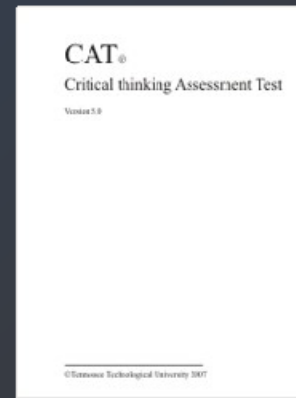
CAT Features

One hour exam

Mostly short answer essay

Faculty scored in workshops

Detailed scoring guide



Test Booklet



Additional Information Packets

**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

Sample Disclosed Question

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

CAT App: 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

CAT App: Chemistry

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**

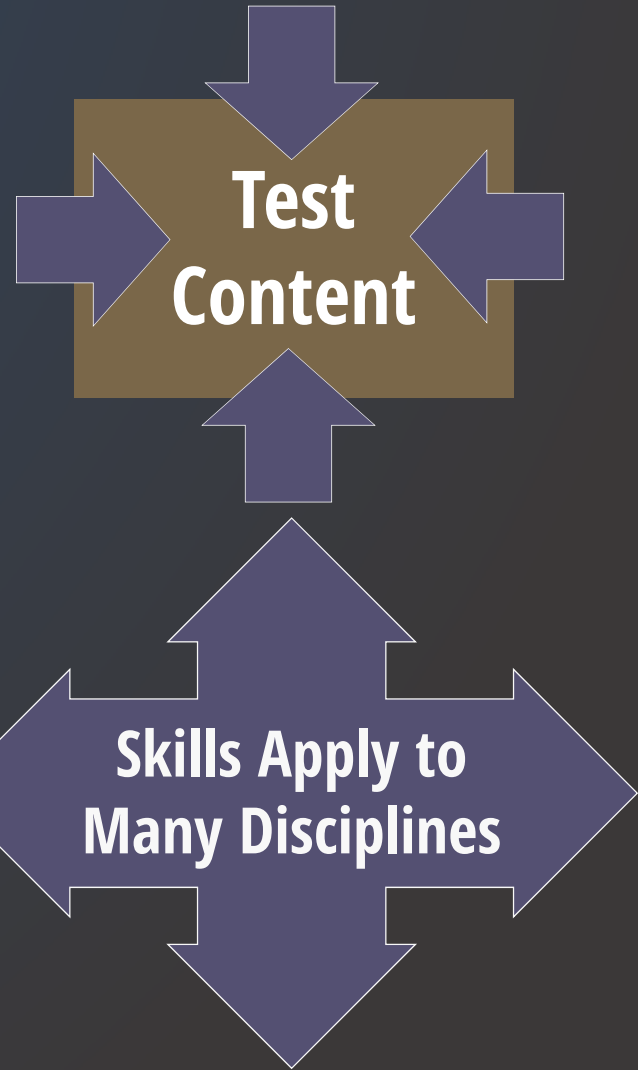
Teaching to the Test

Teaching to Content

Test
Content

Teaching to Skills

Skills Apply to
Many Disciplines



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



Identify Student Weaknesses

**Assessments Focus on
CT Skills**

**Faculty Recognize
Importance of CT Skills**

Implement Effective Practices



Connecting the Dots

www.CriticalThinkingTest.org



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