Using Critical Thinking to Enrich Teaching and Learning

Presented by

Barbara J. Rodriguez, Ph.D.
Michelle Jackson, Ph.D.

35th International Conference on Critical Thinking and Educational Reform
Berkeley, California
July 29, 2015
Session Objectives

During this session, participants will:

- Examine critical thinking assignments from multiple disciplines.
- Review outcomes-based assessment results for CT assignments.
- Engage in an activity that fosters critical thinking.
Broward College

- Offers baccalaureate and associate degrees and certificates
- 49,144 credit enrolled students (unduplicated headcount)
- 85.4% Part-time students
- 14.6% Full-time students
- 57.3% Female students
- 41.4% Male students
- 36.5% Black
- 35.4% Hispanic
- 19.9% White
- 3.7% Other

Broward College Data: 2014-2015
Paul and Elder’s Definition of Critical Thinking:

Critical thinking is that mode of thinking - about any subject, content, or problem - in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. (Paul and Elder 2008)
Characteristics of a Critical Thinker

A well cultivated critical thinker:

• raises vital questions and problems, formulating them clearly and precisely;
• gathers and assesses relevant information, using abstract ideas to interpret it effectively comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
• thinks open mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
• communicates effectively with others in figuring out solutions to complex problems. (Paul and Elder 2008)
Critical Thinking Framework

Elements of Thought (reasoning)
- Making sense of something by giving it meaning in our minds.
  - Purpose, questions, point of view
  - Inferences, concepts, implications
  - Information, assumptions

Intellectual Standards
- We use these standards to validate our reasoning. Intellectual standards are applied to the elements of thought (reasoning)

Intellectual Traits
- Intellectual traits are characteristics of a cultivated critical thinker. As the critical thinker uses the elements of thought and intellectual standards, s/he develops these traits.
Incorporating the Elements of Thought and Intellectual Standards into Interdisciplinary Assignments

In “A Model for the National Assessment of Higher Order Thinking,” Richard Paul and Gerald Nosich (1992), lists twenty-one objectives of a process to access higher order thinking. In short, Paul and Nosich give educators a framework for designing critical thinking assignments.

- It should assess students’ skills and abilities in analyzing, synthesizing, applying, and evaluating information.
- It should concentrate on thinking skills that can be employed with maximum flexibility, in a wide variety of subjects, situations, contexts, and educational levels.
- It should focus on fundamental, enduring forms of intellectual ability that are both fitted to the accelerating pace of change and deeply embedded in the history of the advancement of the disciplines.
- It should account for the integration of communication skills, problem-solving, and critical thinking, and it should assess all of them without compromising essential features of any of them.
- It should test for thinking that is empowering and that, when incorporated into instruction, promotes (to quote the September, 1991 Kappan) “the active engagement of students in constructing their own knowledge and understanding.”
SYG 2000: Principles of Sociology
Scholar Bonnie Flory

1. Find a bill currently being discussed in the state congresses and write an advocacy letter for or against the bill. You must include the Bill’s Name & Number in letter. Use the websites:
The Florida Senate https://www.flsenate.gov/Session/Bills

2. Find independent academic research on the topic to incorporate into your advocacy letter. You are an academic scholar therefore you must write like one by paraphrasing and citing current academic research that supports your argument. This is easy, go into the library and ask a librarian for help finding “peer reviewed” academic research on the topic. You must cite the researchers’ findings and their findings must support your argument. You are expected to include at least TWO “peer reviewed” sources in your letter by using footnote citation. You must paraphrase the information you get from your academic sources!

3. Write an advocacy letter that includes TWO academic sources by following the advocacy letter example given on the back of this paper. Make sure to address the letter to your congressional representative either in the FL House or FL Senate, which means you are responsible for looking up the person’s name and LOCAL work address. You must address it to the right person otherwise it may end up in her/his trash.

4. As you review and proofread your advocacy letter, use the following Intellectual Standards and ask yourself the questions to ensure your thought process is high quality.

<table>
<thead>
<tr>
<th>Intellectual Standards</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>Did you provide appropriate information, so the reader can find out if what you said was true?</td>
</tr>
<tr>
<td>Relevance</td>
<td>Have you demonstrated how the information you provided relates specifically to the bill being discussed?</td>
</tr>
<tr>
<td>Depth</td>
<td>Did you consider the factors that informed your decision to be for or against the bill?</td>
</tr>
<tr>
<td>Logic</td>
<td>Does what you say follow from the evidence?</td>
</tr>
<tr>
<td>Fairness</td>
<td>Have you systematically represented the viewpoints of others (peer reviewed articles)?</td>
</tr>
</tbody>
</table>

5. The paper must be written in business letter format. [My goal is to give you a skillset for the “real” world.]
Assignment Design: Making the Connection Between the Paul-Elder Model and Bloom’s Taxonomy

Bloom’s Taxonomy

Creating:
- Can the student create new product or point of view?
- Assemble, Construct, Create, Design, Develop, Formulate, Write

Evaluating:
- Can the student justify a stand or decision?
- Appraise, Argue, Defend, Judge, Select, Support, Value, Evaluate

Analyzing:
- Can the student distinguish between the different parts?
- Appraise, Compare, Contrast, Criticize, Differentiate, Discriminate, Distinguish, Examine, Experiment, Question, Test

Applying:
- Can the student use the information in a new way?
- Choose, Demonstrate, Dramatize, Employ, Illustrate, Interpret, Operate, Schedule, Sketch, Solve, Use, Write

Understanding:
- Can the student explain ideas or concepts?
- Classify, Describe, Discuss, Explain, Identify, Locate, Recognize, Report, Select, Translate

Remembering:
- Can the student recall or remember the information?
- Define, Duplicate, List, Memorize, recall, Repeat, Reproduce, State
Critical Thinking Assignment
#2: SEE-I Model for Race and Gender Equality

Critical Thinking (CT) Portfolio Writing Assignment
Title: SEE-I Model for Race and Gender Inequality

Format
- The answers MUST BE TYPED (double-spaced; 12" font; 1 page only) and they will be turned in at the beginning of class.

Instructions
- Complete a SEE-I Model for each of the following concepts
  1. Institutional Discrimination – chapter #3 (1 paragraph)
  2. Gender Division of Labor – Chapter #4 (1 paragraph)

State (S)
- Most basic but precise definition.
- State your idea in one simple sentence.
- Complete the phrase “I think...” about the concept.

Elaborate (E)
- To elaborate on the statement above is to expand it, explain it in your own words at a greater length.
- Elaborate your basic statement more fully (2-3 sentences)
- Complete the phrase “In other words...” about the concept.

Exemplify (E)
- To give a good example of a concept is to clarify for yourself or your audience what you mean after “stating” and “elaborating.”
- Complete the phrase “For example...” about your concept.

Illustrate (I)
- An illustration of a concept provides a picture to clarify one’s thinking.
- It can be a metaphor or analogy that captures the meaning.
- It might be a drawing, graph, or diagram.
- Complete the phrase “It is like...” about your concept.

I think institutional discrimination is...
In other words, ...
For example, ...
It is like...

I think the gender division of labor is...
In other words, ...
For example, ...
It is like...
Critical Thinking Assignment
#3: Principles of Macroeconomics

- Writing Assignments (SEEI Format)
  - In each SEEI, students will be required to:
    - State the concept or idea in a single sentence or two
    - Elaborate on the concept in your own words.
    - Exemplify the concept by giving concrete examples
    - Illustrate the concept by creating an analogy or metaphor to explain it
  - When writing a SEEI, students will be asked to consider ALL of the elements of reason (Purpose, Question at Issue, Point of View, Information, Concepts, Assumptions, Inferences, and Implications) and the content of each SEEI’s will be evaluated against 8 The Foundation for Critical Thinking Intellectual Standards (Clarity, Accuracy, Precision, Relevance, Depth, Breadth, Logic, and Fairness)
  - Each SEEI will involve 1 or 2 classroom activities that will help the student think and reflect about course content, identify Elements of Thought and apply the Intellectual Standards.
  - The assignment sequence will involve reading, writing, speaking, and listening.

- Student engages in classroom Activity 1, using SEEI Handout 1
  - Student Writes his/her paper at home
  - Reads, Think, Write, Speak, Listen about the content

- Student engages in classroom Activity 2
  - Student Writes his/her paper at home
  - Thinks deeply about content and writes

- Self evaluates using the standards, thinks deeper about the content, and writes
  - Self evaluates using the standards, thinks deeper about the content, and writes
  - Student Re-writes his/her paper at home

- Illustrate the concept by creating an analogy or metaphor to explain it

- Exemplify the concept by giving concrete examples

- Elaborate on the concept in your own words

- State the concept or idea in a single sentence or two
Using Socratic Questioning to address the Elements of Thought and the Intellectual Standards

• Socratic questioning represents the core of critical thinking. It is an essential strategy that is used to guide students from lower order thinking to higher order thinking.

• The categories of the Socratic questioning model designed by Richard Paul are designed to lead students from basic recall and knowledge to evaluating and creating.
REL 2300: World Religions  
Scholar Lawrence Marshall, D.Min.

“The expressions of religion or the sacred (secret-mystery) in this world can be diverse and make any belief system a collection or network of many different things, not just one thing” (Ellwood 17).

After reading chapter 1, you are to take the Elements of Thought identified below and use them to answer the questions. Every question will not require you to apply each Element of Thought. When you are responding to the questions, keep in mind the importance of applying the Intellectual Standards as you talk to group members and as you respond to the questions.

Use the following Elements of Thought and Intellectual Standards:

<table>
<thead>
<tr>
<th>Elements of Thought</th>
<th>Intellectual Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point of View (Perspectives)</td>
<td>Clarity (Elaborate)</td>
</tr>
<tr>
<td>Concepts (Theories, Definitions, Principles)</td>
<td>Precision (Give specifics)</td>
</tr>
<tr>
<td>Question at Issue (Problem, Issue)</td>
<td>Breadth (Consider another perspective)</td>
</tr>
</tbody>
</table>

In your assigned groups, respond to these questions:

1. What is the most important problem to consider when contemplating the complexities of religion?

2. What facts must be considered to bring a valid, relevant, and logical conversation to the group?

3. What is the central idea to focus on?
Critical Thinking Assignment
#5: Composition II

ENC 1102 Critical Thinking Assignment #2: Analysis: "What do Social Issues Reveal About the Society in Which We Live?"

Assignment Purpose/Goal
The purpose of this assignment is for you to write a 6-8 page essay in which you analyze an issue (recent or past) in society. Your paper will explore what ramifications of the issue tell us about society. For example, what did the Michael Newdow situation reveal to us about the values or beliefs of our society?

Main Research Question
What three characteristics did ___________reveal about society?

Purpose/Point of View
Your answer to your main research question will be the thesis of your essay.

Process Description
Information
After you have chosen the issue you would like to analyze, thoroughly research the issue by answering the following questions about your issue.

1. When did this issue occur (date, year(s), time period)?
2. Who are the main people or groups involved in the issue?
3. What are the main sides of the issue?
4. What caused the issue? How did the issue originate?
5. Why is/was it an issue? What made it an issue?
6. How did society receive or treat the issue (look at media coverage of the issue)?
7. Has the issue been resolved?
8. What societal (local or national) changes did the issue bring about?

Interpretation and Inference, Assumptions
Other areas to consider:
When analyzing your issue, look at the rhetoric surrounding the issue. Who’s saying what? What words are they using? What actions are they taking? Who are they considering when speaking and acting? Who are the major stakeholders? Where do they fall in society? If the media was involved, were things distorted or accurate?

Concepts, Implications and Consequences
After you have thoroughly researched the issue by answering the questions above, you should be able to answer the question: What three characteristics do/did this issue reveal about society? The answer to this question will be the foundation of your thesis.

The body of your paper will discuss the three characteristics listed in your thesis. You will discuss how the issues were revealed.

Intellectual Standards
After you have written your essay, review it for the following Intellectual Standards:

Clarity: Is your thesis clearly written and supported?
Logic: Do the assumptions you provide in your paper stem from your research?
Accuracy: Are the facts and accounts included in your paper correct?

This assignment uses questioning in two ways:
1. To aid students in researching
2. As a checklist/rubric to check reinforce the elements of thought.
# Assessment

## Critical Thinking Scoring Guide

**Broward College’s QEP: Question Every Possibility—Think Critically**

Broward College defines critical thinking as a process of evaluating information by questioning and testing assumptions, accepting or rejecting arguments and/or perspectives, and applying reasoning to make informed decisions. This scoring guide is designed for use with many different types of assignments and disciplines.

<table>
<thead>
<tr>
<th>Explain questions, problems, and/or issues</th>
<th>Exceeds Standard 4</th>
<th>Demonstrates Standard 3</th>
<th>Approaches Standard 2</th>
<th>Below Standard 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearly states and describes the hypothesis, question, problem, or issue in a way that demonstrates a comprehensive understanding and provides all relevant information necessary for full understanding of the hypothesis, question, problem, or issue</td>
<td>States and describes hypothesis, question, problem, or issue in a way that demonstrates a fundamental understanding and provides relevant information necessary for a general understanding of the hypothesis, question, problem, or issue</td>
<td>States but does not describe the hypothesis, question, problem, or issue in a way that demonstrates a fundamental understanding, nor provides relevant information necessary for understanding the hypothesis, question, problem, or issue</td>
<td>Does not state and/or describe the hypothesis, question, problem, or issue</td>
<td></td>
</tr>
</tbody>
</table>

| Analyze and interpret relevant information | Clearly identifies and systematically breaks down the purpose, argument, information, or key idea/concept/term, using relevant factors to offer in-depth insights | Identifies and breaks down the purpose, argument, information, or key idea/concept/term, using relevant factors to offer insights | Identifies, but does not break down the purpose, argument, information, or key idea/concept/term, using relevant factors to offer insights | Does not identify or break down the purpose, argument, information, or key idea/concept/term |

| Evaluate information to determine potential conclusions | Thoroughly assesses and questions the credibility or significance of the purpose, argument, information or key idea/concept/term to determine potential conclusions | Assesses and questions the credibility or significance of the purpose, argument, information or key idea/concept/term to determine potential conclusions | Assesses and questions the credibility or significance of the purpose, argument, information or key idea/concept/term, but not enough to determine potential conclusions | Does not assess or question the credibility or significance of the purpose, argument, information, or key idea/concept/term to determine potential conclusions |

| Generate a well-reasoned conclusion | Conclusion is comprehensive, logical and reflects the ability to thoroughly integrate thoughts relevant to the stated hypothesis, question, problem, or issue | Conclusion is sufficient, logical and reflects the ability to integrate thoughts relevant to the stated hypothesis, question, problem, or issue | Conclusion is somewhat logical and partially reflects the ability to integrate thoughts relevant to the stated hypothesis, question, problem, or issue | Conclusion is inconsistent and does not reflect the ability to integrate thoughts relevant to the stated hypothesis, question, problem, or issue |

Student Artifact Results

Comparison of Student Artifacts Average Scores by Outcome
Enhanced n=73 and Non-enhanced n=64

<table>
<thead>
<tr>
<th>Rubric Scale Scores</th>
<th>Explain</th>
<th>Analyze &amp; Interpret</th>
<th>Evaluate</th>
<th>Generate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced</td>
<td>2.81</td>
<td>2.85</td>
<td>2.75</td>
<td>2.53</td>
</tr>
<tr>
<td>Non-Enhanced</td>
<td>2.55</td>
<td>2.29</td>
<td>2.53</td>
<td>2.25</td>
</tr>
</tbody>
</table>

Action Research conducted by nine General Education faculty, Spring 2014
Student Artifact Results
Term-to-Term

Comparison of Student Artifacts Average Scores by Outcome
Spring 2014 (n= 147) and Spring 2015 (n=197)

<table>
<thead>
<tr>
<th>Rubric Scale Scores</th>
<th>Explain</th>
<th>Analyze &amp; Interpret</th>
<th>Evaluate</th>
<th>Generate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>2.82</td>
<td>2.73</td>
<td>2.63</td>
<td>2.49</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>3.10</td>
<td>2.93</td>
<td>2.80</td>
<td>2.64</td>
</tr>
</tbody>
</table>
Critical Thinking Assignment: One Pager

- A one pager is a single page response to one’s learning experience. It is a way for students to demonstrate their understanding of the material.
- One purpose of a one pager is for the student to take ownership of his/her learning experience. A second purpose a one pager can serve is to promote critical thought by allowing students to create their own unique schema of a concept.
- Similar to the SEE-I activity, the one pager connects words to images.
Let’s Try a One Pager

1. Use the blank sheet of paper provided to you to complete this activity. YOU MUST FILL THE WHOLE PAGE. The topic for your one pager is the concept of “Teaching and Learning”

2. Place the title of the concept or reading at the top of the page (your title should be “Using Critical Thinking to Enrich Teaching and Learning”)

3. Find two quotes that jump out at you and write them down anywhere on your page. (in a class, you may have them use different colors to note the different quotes)

4. Use a visual image, either drawn, cut out from magazines or computer generated to represent what you have in your mind about the concept, reading or assignment. (the visual creates a “visual focus” for your one pager)

5. Make a personal statement about the concept, reading or assignment. What does this concept mean to you? Do you have a personal connection? Final thought?

6. Ask a question about the concept or assignment and answer it.
Contact Information

www.broward.edu/qep

Barbara J. Rodriguez, Ph.D.
District Director, Quality Enhancement Plan
954-201-7948
brodrig5@broward.edu

Michelle Jackson, Ph.D.
Assistant Professor of English
954-201-2953
mjackso3@broward.edu