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Strategies for Teaching Critical Thinking in a Large-Enrollment Course: Tales from the Front

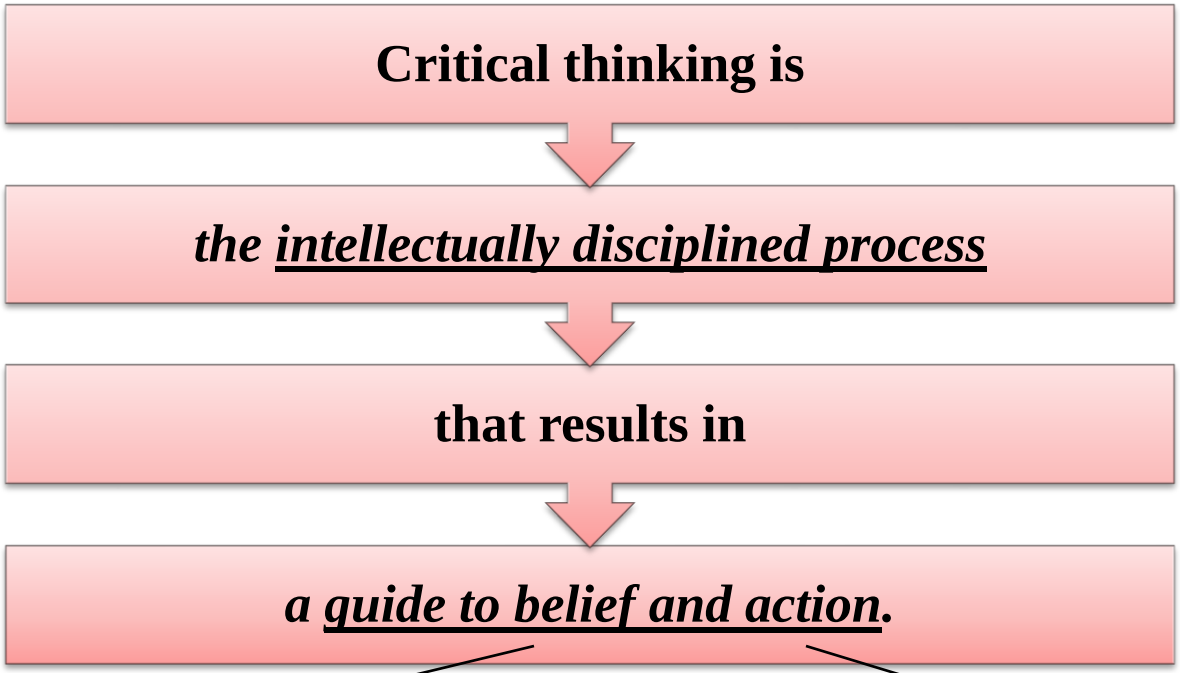
Edna Ross, Ph.D.
Associate Professor Psychology
i2a Specialist for Critical Thinking

View handouts at:
https://louisville.edu/ideastoaction/resources/presentations/30th-international-conference-on-critical-thinking-concurrent-sessions

Session Objectives

- Define critical thinking
- Provide overview of Paul-Elder Critical Thinking Framework
- Demonstrate and explain the use of various teaching strategies to infuse critical thinking in the course
- Demonstrate mapping of intellectual traits to course structure

Critical Thinking Definition adopted for i2a



Understanding
Concepts
Appreciation

Decisions
Synthesize
Application

(From: Scriven and Paul, 2003)

Critical Thinking is…

Analysis of thinking by focusing on the parts or structures of thinking ("the Elements")

Evaluation of thinking by focusing on the quality ("the Standards")

Improvement of thinking by using what you have learned ("the Intellectual Traits")

Critical Thinkers:

- Address a question or problem
- Think it through using the elements of reasoning
- Monitor their reasoning using the critical thinking standards

Critical Thinking Framework Adopted for i2a

Richard Paul-Linda Elder Framework

The Critical Thinking Community

- ✓ **Agreed upon by all reviewers (virtually perfect inter-rater reliability)**
- ✓ **Most comprehensive (many 'models' merely narratives)**
- ✓ **Discipline neutral terminology**
- ✓ **Provides a common language/terminology for discussing, modeling and measuring critical thinking that can be readily applied to and across all disciplines**
- ✓ **Has a wealth of discipline specific resource materials**

Paul-Elder Critical Thinking Model

Model has three components:

1. **Intellectual Standards**
   a) Also called the 'standards of critical thinking'
   b) Can be viewed as 'filters'

2. **Elements of Thought**
   a) Also known as the basic building blocks of reasoning
   b) The "parts" included in complex thinking

3. **Intellectual Traits**
   a) Also known as "virtues of mind"
   b) Are acquired as a result of constant application of intellectual standards to the elements of thought

Paul-Elder Critical Thinking Framework

Intellectual Standards

Accuracy
Precision
Clarity
Depth
Relevance
Significance
Logical
Fairness
Sufficiency
Breadth

Must be applied to

Elements of Reasoning

Purpose
Inferences
Question
Concepts
Point of view
Implications
Information
Assumptions

Which leads to deeper

Intellectual Traits

Humility
Perseverance
Autonomy
Empathy
Fair-mindedness
Integrity
Courage
Confidence in reasoning

to develop

The Intellectual Traits

- Intellectual Humility
- Intellectual Courage
- Intellectual Empathy
- Intellectual Autonomy
- Intellectual Integrity
- Intellectual Perseverance
- Confidence in Reason
- Fairmindedness

Miniature Guide, 2008, p. 13-15

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

Intellectual Traits recognize that critical thinking involves the whole person.

"Genuine intellectual development requires people to develop intellectual traits…Skills, values, insights, and intellectual traits are mutually and dynamically interrelated. It is the whole person who thinks, not some fragment of the person."

-Richard Paul

Critical thinking: how to prepare students for a rapidly changing world (1995)

Psych 201: Introduction to Psychology

- Two sections 300-350 students each semester (600-700 students)
- Survey course
- Freshmen (typically right out of high school)

Course Syllabus includes:

- All due dates (including exams)
- Content covered on each exam
- Course mapping of ‘how-tos’ on Blackboard
- Course policies (including NO EXAM MAKEUP policy)
- Grading rubric for critical thinking assignments

In class critical thinking activities

- View video on You-tube and whether or not students agree with selected reviews

http://www.youtube.com/watch?v=6BYxbvsbNTA

- Deliberately try to lead astray with misleading information

Cat flushing toliet

- http://www.youtube.com/watch?v=WofFb_eOxxA

Random number generator

Your number came in….

Objectives:

- Encourage class attendance
- Encourage students to think through consequences for missing class

Typical student questions illustrating the LACK of _____

- When is the exam?
- What will be covered on the exam?
- When is the assignment is due?
- When can I make-up the exam I missed?

Lack of _____

- I got “A’s” on all my writing assignments back in high school so why did I get a “C” on this assignment?

- I came to UofL on a scholarship so there must be a mistake with my grade on this assignment

Lack of _____

- This assignment was too hard…requires too much reading and thinking.

Cognitive Skills and "The Elements of Thought": Psychology 201

Students should be able to:

- **Identify** the **purpose** and **point of view** of assigned readings
- **Distinguish** between **behavioral data** and i**nferences** or **subjective/ anecdotal interpretations**
- **Evaluate** conclusions as to **the type of information** that is used as supporting data
- Critically e**valuate the implications and consequences** of specific theoretical points of view.
- **Distinguish** between scientific and pseudo- scientific **points of view** of psychological phenomena

Psych 201 Assignment:

1. **INTRODUCTION**

What basic **question** is the Experimenter trying to answer? What is the general problem area?

2. **METHODS**

a) What or who were the experimental subjects?

b) What task did they perform, or what test(s) did they take, or what characteristic(s) were measured?

c) What was the design of the study? Was it experimental or correlational?

If experimental: Were there different groups of subjects or were the same subjects exposed to different treatments at different times, or both? What independent variable or variables were manipulated? What dependent variable or variables were measured?

If correlational: How many variables were measured, and what were they?

3. **RESULTS**

What were the results? Did groups differ in performance, or did subjects' performance differ under as a result of treatment? If correlational, what were the relationships found among the variables measured?

4. **DISCUSSION**

What are the **implications** of the study? What questions remain for further research? This is the section to summarize the contribution of the study to research in the area of the study focus.

BEFORE

Psych 201 Assignment

1. What is the main **purpose** of this article?
(State as accurately as possible the author's purpose for writing the article or for doing the research.)

2. What is (are) the important **question(s)** the author of this article is trying to address?
(Figure out the key question(s) in the mind of the author when s/he wrote the article about the research that was conducted.)

3. What kind of study was done? (Case study, survey, etc.)
3a. Justify your answer as to why it is what you say it is.
3b. What are the independent and dependent variables?
3c. Who are the subjects?

4. What facts, data**,** **evidence** or experiences does the author use to address the important question of the article?

5. What are the main i**nferences/conclusions** in this article?
(Identify the key conclusions the author comes to and presents in the article)

6. Do the author's **conclusions** follow from the data/evidence presented? Why or why not?

7a. What are the **implications i**f we take the author's line of reasoning seriously? (What consequences are likely to follow if people take the author's line of reasoning seriously?)
7b. What are the implications if we fail to take the author's line of reasoning seriously?
(What **consequences** are likely to follow if people **ignore** the author's reasoning?)

AFTER

Psych 201 Assignment

- Instead of summarizing, we are now asking students to critically analyze.

Metacognition

- Metacognition involves awareness and control of one's thoughts.
- Self-regulation, part of metacognition, involves control of one's behavior, motivation and affect, and thoughts related to thinking and learning.
- Metacognition is essential to critical thinking.