

# **Critical Thinking and Problem Solving Skills**

(analysis, synthesis, evaluation, decision  
making, creative thinking)

Kevin Sumrall, M.A.  
Professor of Psychology

## An Introduction

“Hello, I’m Dr. Curry,” the history professor said to his new teaching assistants. “I suppose you think you’re here to teach history, you’re not. You’re here to teach students how to think.” The teaching assistants looked at each other and began to wonder: Should educators teach students *what* to think or *how* to think? <sup>1</sup>

That same question is before us today. “How to think” proponents have rallied together in a “critical thinking” movement that threatens to end higher education as we now know it. Shall we let it happen? Or should it be the “critical thinking” movement that is terminated.

Herewith, the case can be made against critical thinking:

1. Examining the nature of critical thinking
2. Exhuming the founder critical thinking
3. Exploring examples of critical thinking
4. Exposing the destructive forces of critical thinking

### I. What is Critical Thinking? Pandora’s Box

Critical thinking is the Pandora’s box of education. Should educators pry back that lid? Some have argued yes. Why?

*Not* satisfied that students **know** facts and figures

*Not* satisfied that students **comprehend** what they have heard, read and committed to memory

*Not* satisfied that students can **apply** what they have learned to a given situation

They ask for more. Inside this Pandora’s box of critical thinking they see three gifts:

**Analysis**

**Synthesis**

**Evaluation**

Let’s examine each of these in turn.

**Analysis.** Using analysis, students are asked how ideas are composed, how they are related and interconnect with other ideas. Students are encouraged to dis-cover assumptions and biases in order to un-cover evidence. The dangers of such analysis should be self-evident.

---

<sup>1</sup> Interview with C.J. Sumrall (former teaching assistant, University of Houston) on February 12, 2001

Do we suggest to students that they should question the professor? Assume he has made assumptions or has a bias?

Do we chance injuring a student's self-esteem by prompting him to analyze his own thoughts and actions?

Do we risk offending the taxpayers by calling into question community standards and the status quo of our great country?

Do we dare ask students to evaluate evidence as opposed to accepting long-held beliefs and cherished customs?

**Synthesis.** I quote from a leader of this critical thinking movement: *Synthesis involves the ability of putting together the parts you analyzed with other information to create something original. You reach out for data or ideas derived from a variety of sources.*<sup>2</sup> This reaching out for data from a variety of sources has already led institutions of higher education to consider the ideas and works of

The mentally ill (ex. Vincent Van Gogh)

Drug addicts (ex. Edgar Allen Poe)

Revolutionaries (ex. George Washington)

Religious zealots (ex. The Dalai Lama)

Homosexuals (ex. Michelangelo)

Perverts (ex. Plato)

Jews (ex. Albert Einstein)

Jewish perverts (ex. Sigmund Freud)

Democrats (ex. Franklin Delano Roosevelt)

Democrat perverts (ex. Bill Clinton)

**Evaluation.** This final step represents the empowerment of the thinker over the thought. In a total role reversal, the school of critical thinking invites *the students* to assess, rate and grade the information presented. Now, at the peak of folly, critical thinking "asks you to evaluate the information presented so that you can decide whether you ought to give assent or withhold belief, or whether you ought to take or refrain from taking action."<sup>3</sup>

What would happen if classrooms full of students refused to give their assent to certain beliefs? (Ex. Kent State, Ohio, 1970)

What would happen if based on their beliefs, students began to take action? (Ex. Tiananmen Square, Beijing, China, 1989)

What good has ever happened when people decided to take action and take to the streets? (Ex. March on Washington D.C., 1963)

This evaluative thinking simply invites the power of destruction. (Ex. Berlin Wall, Germany, 1989)

---

<sup>2</sup>Reichenbach, Bruce R. (2001). *Introduction to Critical Thinking*. Boston: McGraw Hill, page 25

<sup>3</sup>Reichenbach, page 26

Now to be fair, the purveyors of critical thinking do warn against a “rush to judgment.” They emphasize how “it is important not to put evaluation ahead of the other critical thinking steps, and in particular, not to put it first.”<sup>4</sup> But this writer knew critical thinking was driven from the very start. One only needs to look to its beginning.

## II. The Founder of Critical Thinking- Lost in Thought

Critical thinking is not a new method of intellectual inquiry. It should be noted that critical thinking was built upon the faulty foundation of its founder some 2400 years ago. Interestingly, in sharp contrast to today, this man realized and admitted his own ignorance. He was never published, he wrote nothing. He simply walked about town barefoot, waddling like a duck we are told, endlessly annoying people with questions as he rolled his eyes.

Eventually he was brought to trial on charges of being irreligious and corrupting the youth. His followers claimed his self-defense to be a masterful discourse and model of critical thinking. A jury of his peers, however, saw a man they couldn't trust, trapping the prosecutors in their own logic and confusing them with the facts. Accordingly, he was found guilty and sentenced to death. Shortly thereafter, this man named Socrates drank the poisonous hemlock that stilled his heart. Such is the sad tale of the founder of critical thinking who was lost in thought.

## III. Exploring Critical Thinking Today

Despite the death of Socrates, critical thinking lived on. It has most recently been spotted on the campus of a community college in Montgomery County, Texas, that shall remain nameless.

**Example lesson: The bomb.** On this campus General Psychology students were presented with a pipe bomb they were to disarm. The explosive to be removed was contained in a sphere the size of a ping-pong ball that rested at the bottom of a PVC pipe 10 inches in height and only a fraction wider than the explosive sphere. The pipe stood erect supported by a shoebox at its base. Students were given a paper bag containing a bologna sandwich, chips, a sucker, spoon, napkin, small piece of string, rubber band, paper clip, clothes pin and a standard sized sheet of paper warning them not to risk detonating the bomb by turning it over or taking it apart.

Once students found a way to remove the sphere, the supplies they made use of were taken away and they are asked to try again. Without assistance from the professor, students devised any number of methods to defuse the bomb, even contemplating urinating in the pipe to bring the explosive to the surface. Students wanting to know the “right answer” or the “best way” were led into a discussion of how it is not the method used that is as important as how the method was conceived. The professor commented that through critical thinking, psychology students discover for themselves their own

---

<sup>4</sup>Reichenbach, page 26

creativity and problem solving skills. This writer, however, has little interest in discovering how students conceived of the idea of urinating on a ping-pong ball.

**Further examples.** Other examples of critical thinking on this campus have been compiled by an astute conscientious librarian and placed in the permanent records of the college. Among these-

Nursing students taking trips to grocery stores  
Criminal Justice students pretending they are members of the US Supreme Court deliberating if Texas law banning homosexual contact is unconstitutional  
Calculus students in discussion groups! (Enough said)

#### **IV. Exposing the Destructive Forces of Creative Thinking**

The power of critical thinking should not be underestimated. Its objectives are clear.

Students will believe different perspectives which must be considered  
Students will want to examine new ideas  
Students will seek to determine the relevancy of the professor's teaching  
Students will question if their professor's teachings are valid  
Students will magnify inconsistencies between words and action  
Students will resist conforming without reason  
Students will call into question the values of our country  
Students will think on their own

#### **In Conclusion**

What can be done to stop this movement? Each professor must first look to his own teaching. Critical thinking is often instigated by a professor's communication. Most experienced professors know the dangers of asking students questions. Nevertheless, some professors (either unwittingly or recklessly desiring critical thinking) will ask the most perilous questions. Examples include:

Why do you think it's important to take this class?  
Does anyone see an inconsistency in our policy?  
Is this correct?  
What would another perspective be?  
Can anyone find something wrong in what I just said?  
How would this apply today?  
This is clear to everyone, isn't it?  
Who would like to respond to that?

Additionally, certain teaching methods seem prone to elicit critical thinking. Professors should be wary of the following:

- Experimentation
- Comparisons and contrasts
- Debates
- Socratic dialogues
- Case studies
- Unconventional guest speakers
- Creative expression
- Art

In the interest that no educator be unduly accused of promoting critical thinking, it should be noted that none of the above techniques insures critical thinking. Such teaching methods may increase the possibility, however, if one is not careful.

Together, educators can close the lid on critical thinking. Inside this Pandora's box is only academic rubbish:

- a question with no right answer
- a lonely pen without a fill-in-the-blank form
- a brush and pallet, yet no lines to color between
- a useless pencil with no scantron to give it meaning

All educators should daily remind themselves of the words of Ralph Waldo Emerson: *Beware when the great God lets loose a thinker on this planet. Then all things are at risk.*<sup>5</sup>

---

<sup>5</sup> Emerson, R.W. (1841). *Essays, First Series, Circles*.