



teaching learning committee  
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**Critical Thinking As Problem Solving**

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Critical thinking and the processes involved therein are essential elements of university curriculum and subsequent student development. Nowhere is it more apparent than at this level of academia, where students acquire the skills of testing hypotheses, collecting data, reporting, generalizing conclusions, and communicating results that will be important intellectual tools in their university career and subsequently, as lifelong learners. Moreover, combining critical thinking and analysis to the area of cooperative learning and problem solving will not only enhance process acquisition, but increase relevancy and the affective domain to prepare students for an increasingly interdependent and connected world.

Lipman defines critical thinking as skillful, responsible thinking that facilitates good judgment because it relies upon criteria, is self-correcting, and is sensitive to context. He also argues that we as teachers must begin with the raw subject matter of communication and inquiry and cultivate all the skills that the mastery in such processes entails (1988). It has been my experience that students benefit greatly from the afforded opportunity of learning through their own discoveries. Specifically, I have observed increased intellectual potency, intrinsic rewards and motivation, useful learning techniques, and increased basic skills.

Critical thinking occurs when students construct meaning by interpreting, analyzing, and manipulating information in response to a problem or question that requires more than a direct, one-right-answer application of previously learned knowledge (Adams, 1994). This can be characterized by specific core thinking skills, which can be developed in the classroom through instruction and guided practice. The list of applicable skills includes, but is not limited to: focusing, information gathering, referencing, organizing, analyzing, integrating, and evaluation.

It is my belief that we as instructors should emphasize the process used to attain knowledge more than the knowledge itself. It is the process of learning itself that is most applicable, and relevant to students. By keying on the process of learning, students activate prior schema that

includes related facts, concepts, and generalizations, and I have observed students integrate new subject matter into meaningful knowledge structures. From a relevancy standpoint, this process of critical thinking from a problem-oriented vantage is both a way to better organize and interrelate existing knowledge, as well as acquire more information.

With this in mind, I have taught this process to potential high school teachers by using the example of Christopher Columbus and how his endeavors are portrayed in history textbooks. We begin by examining a text selection outlining his life and legacy. I then have students discriminate between what is definitive fact (very little, indeed), and that which is not known to be historically factual. Then, the process is initiated to generalize as to the mythical notion of Columbus, and as to what purpose his story has served throughout history.

Another text-based critical thinking activity I have used is to have students pick out a list of names from a selected chapter. Students are then asked to group and categorize by some label, invariably by gender- with a very high proportion of men in the list. The students then generate questions, which generally include the following:

- 1) Why are men included more than women in textbooks?
- 2) What makes a person historically important?
- 3) What women should have been included?
- 4) Who writes the textbooks used in schools- men or women?

The concept for written and recorded history is then introduced, with subsequent hypotheses, i.e., only a few women did anything important, women were busy at home, and men have historically written history books, leaving out women on purpose. In this way, it is the applicable process of inquiry that is learned, and in a highly relevant manner.

It seems evident that if students are to learn the working technique of critical thinking and analysis, they must be afforded the opportunities of problem solving. Further, the classroom environment must be conducive to this endeavor. In this student-centered and engaging classroom, the emphasis shifts from end-product to process- the essential of critical analysis. In this process-oriented environment, learning elements involve not merely the acquisition for information but also the development of skills for evaluating and interpreting facts.

John Dewey introduced a basic five-step model for inquiry and problem solving. Interestingly enough, Dewey also saw the benefits of mirroring the actual society that perspective citizens would engage (1933). As we know, this society is a social entity, with a premium on group behavior and interaction. Thus, combining the process elements of critical thinking with

cooperative learning and grouping techniques is a powerful and effective combination with significant outcomes for students, schools, and society at large.

In these cooperative groups, it is most beneficial and applicably relevant to encourage activities that involve not merely a social and affective aspect, but teach thinking skills and the construction of meaning whereby students assess information and make creative and critical judgments. I was moved listening to TheodoreSizer, who passionately argued that thinking skills are learned in many ways- through interaction with the environment, mass media, peers, and subject matter. Opportunities for all these interactions must not be neglected.

Cooperative endeavors are more effective, almost by definition, when they emphasize the process of learning and acquiring skills. The act of peer relations begs for this process, and a quasi peer review and tutoring comes into play; students actually teach other students. The subsequent benefits for meeting the needs of all students in a classroom are enormous. Within the cooperative framework, a large number and greater magnitude of differences can be accommodated because all students in a class would not be required, or even expected to be functioning at an identical level- a novel thought indeed, given our current stratified society.

Students need mental flexibility and critical thinking skills to survive in such a rapidly changing world with a future that is by definition, uncertain. This involves engaging students in discovering how to analyze, synthesize, make judgments, create new knowledge, and to apply those skills to real-world situations. Teaching that ignores the powerful ideas of students will miss many opportunities for students to illuminate the human condition in a most relevant manner- for themselves, each other, and the teacher.

## References

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