

PHILOSOPHY PROFESSORS' CONCEPTION,  
TEACHING, AND ASSESSMENT  
OF CRITICAL THINKING

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## CHAPTER I

### INTRODUCTION

The concept of critical thinking has come to the forefront in higher education in the past twenty years (Leshowitz, DiCerbo, & Symington, 1999). There have been literally thousands of articles and books published on the topic (Ruminski & Hanks, 1995). In addition, the term has made its way into mission and goal statements in higher education from the national to the local level (Crow, 1989b; Facione, Sanchez, Facione, & Gainen, 1995; Olsen, 1995; Potts, 1994; Scriven, 1985).

Studies dealing with professors' conception, teaching, and evaluation of critical thinking have been conducted in recent years. These studies include professors in the fields of teacher preparation (Paul, 1997), veterinary medicine (Walsh, 1998), mass communication and journalism (Ruminski & Hanks, 1995), and adult education (Vaske, 1998). The studies were similar in that all included a self-reporting survey or questionnaire. The surveys for the veterinary medicine, mass communication and journalism, and adult education professors were administered by mail. The survey for professors of teacher preparation was conducted through telephone interviews. These studies did not

include observations of actual teaching, nor were assessment instruments used by professors collected.

These studies had similar conclusions: (1) Departments need to establish a consensus conception/definition of critical thinking. (2) Professors generally reported an increase in their students' development of critical thinking. However, there was no consensus definition of critical thinking. (3) Although professors generally agreed that students develop critical thinking in an atmosphere of discussion and questions, many professors reported their primary teaching method as being lecture. (4) Professors generally agreed critical thinking involved particular skills that could be evaluated. There seemed to be no clear understanding of how to go about evaluating, measuring, or assessing these skills.

On the other hand, Baiocco and DeWaters (1998) personally observed and interviewed ten award-winning teacher-scholars. Baiocco and DeWaters were not especially concerned with critical thinking, but with excellence in college teaching. In reporting their classroom observations, teaching for critical thinking was a recurring theme. Practices such as Socratic questioning, questioning accepted knowledge, guided reasoning, and



opportunity to practice thinking skills were commonly used in describing the classrooms of these excellent teachers.

### Background of Problem

Since the 1980's there has been a surge of literature discussing critical thinking in higher education. To illustrate, after conducting an ERIC computer search Paul (1985) "identified 1,894 articles written about critical thinking in the last seven years". I also conducted an ERIC search for the last seven years and netted 3,804 articles about critical thinking. When the search was narrowed to include only those articles concerning critical thinking and higher education, there were 1,577.

Some reviewers of critical thinking literature suggest there is a clear understanding of the term critical thinking; others suggest there are different perspectives and somewhat individualistic definitions of critical thinking. While Haas and Keeley (1998) claimed "the literature defines critical thinking in a fairly precise manner", King, Wood, and Mines (1990) stated, "research in [critical thinking] has been hampered by the lack of agreement about what constitutes critical thinking" (p. 168). Skinner (1976) stated, "after reading the various definitions of critical thinking, it becomes clear that

agreement upon a single, concise definition of this concept is difficult, if not impossible" (p. 293).

Some authors praise critical thinking; others denigrate it. Pearson and Nelson (1994) were quite emphatic in stating the importance of critical thinking:

Critical thinking is essential for all of us. If we do not develop the ability to engage in reasonable and reflective thinking about all the messages presented to us each day, we will become robots. We will relinquish our free will, and our lives will largely be determined by those in control of governments and industry. Critical thinking allows us the freedom and choice to determine what we will believe and what we will do (p. 98).

However, Scheurman (1996) suggests critical thinking is limited.

Educational and developmental psychologists have concluded that traditional conceptions of critical thinking and cognitive development fail to capture a larger set of reasoning abilities necessary for adults to make decisions in the face of situations that are inherently complex and uncertain (p. 3).

Interpreting critical thinking in a more narrow sense,

De Bono (1984) feels that the

emphasis on critical thinking has long been the bane of society and education. Critical thinking is reactive. It lacks the creative, constructive, and design elements necessary for social progress (p. 16).

For De Bono, critical thinking breeds arrogance.

This study dealt with the issue of critical thinking in three ways. First, this study examined individual professors' conception of critical thinking within the context of a specific discipline. Second, observation of classes provided insight into how each professor's conception of critical thinking may or may not be demonstrated in their classroom teaching. Third, each professor's assessment techniques was viewed in light of his/her conception and teaching of critical thinking. The research was qualitative in nature involving classroom observation, individual interviews, and analysis of materials used for class assignments and assessment.

#### Purpose of the Study

The purpose of this study is to describe how individual professors from the same academic department conceive, teach, and assess critical thinking. The department of philosophy was chosen for this initial study because first, philosophy is often considered to be the "home" for critical thinking courses and second, a large number of critical thinking textbooks are written by philosophers. The study addresses this research question: How do individual professors within the department of philosophy at a midwestern university conceive of, teach,

and assess critical thinking in introductory philosophy classes?

To provide a better understanding of the problem, Chapter II presents various authors' conceptions and perspectives of critical thinking. In addition, the chapter explores linkages between conceptions and definitions, teaching of or for critical thinking, and assessing critical thinking. Chapter III includes a discussion of the methodology utilized in the study. Empirical materials are presented and analyzed in Chapter IV. Lastly, Chapter V discusses the results of the study and presents questions for future studies.

## CHAPTER II

### REVIEW OF RELEVANT LITERATURE

In describing philosophy professors' conception, teaching, and assessment of critical thinking certain questions need to be examined to provide an understanding of the background of the problem. First, how is critical thinking conceived of in current literature on the topic? Second, what might critical thinking look like in the college classroom? Finally, what are authors' views concerning the assessment of/for critical thinking?

#### Conceptions of Critical Thinking

Despite the vast amount of literature about critical thinking, there seems to be no consensus definition of the term. This section presents different ways of understanding the concept of critical thinking.

Paul (1995), Burke (1988), and Halpern (1997) make the point that there are several definitions for the term critical thinking. Haas and Keeley (1998), Halpern (1997), and Walter (1987) find similarities among the various definitions. Skinner (1971) seemed to identify more differences than similarities. He stated: "After reading the various definitions of critical thinking, it becomes

clear that agreement upon a single concise definition of this concept is difficult, if not impossible" (p. 373). King and Kitchener (1994) and Terenzini (1995) would agree with Skinner. King, Wood, and Mines (1990) found that "research in this area has been hampered by the lack of agreement about what constitutes critical thinking" (p. 168).

In beginning to understand the concept of critical thinking, it is helpful to examine the concept from various perspectives. First, I will discuss the possibility of critical thinking as an essentially contested concept (Gallie, 1956). Next I will discuss grammatical usage of the term critical thinking. Finally, I will look at the linkage between one's conception and the assessment of critical thinking.

#### Critical Thinking as an Essentially Contested Concept

When various authors define critical thinking, the results seem to be conflicting. Critical thinking involves logical thinking, but it is more than formal or informal logic (Scriven, 1976; Sternberg, 1997). Critical thinking involves creativity (Walters, 1990), reflective judgment (King & Kitchener, 1994), and a disposition to think critically (Paul, 1995; Scheurman, 1996; Skinner, 1976).

McPeck (1981) and Ashby (1996) argue that critical thinking is be connected to some problem, activity, or subject area and that problem, activity, or subject area must be able to be thought about critically. Ennis (1985), on the other hand, believes critical thinking to be "reasonable thinking that is focused on deciding what to believe or do" (p. 44).

One way to look at critical thinking in literature might be as an essentially contested concept (Gallie, 1956). Gallie defined essentially contested concepts as "concepts the proper use of which inevitably involves endless disputes about their proper uses on the part of their users" (p. 169). Gallie outlines five basic requirements for a concept to be considered an essentially contested concept:

- I. Appraisitive in the sense that it signifies or accredits some kind of valued achievement.
- II. This achievement must be of an internally complex character, for all that its worth is attributed to it as a whole.
- III. The accredited achievement is *initially* variously describable.
- IV. The accredited achievement must be of a kind that admits of considerable modification in the light of changing circumstances; and such modification cannot be prescribed or predicted in advance.
- V. To use an essentially contested concept means to use it both aggressively and defensively (p. 171-172).

Using Gallie's framework, I will now take a closer look at critical thinking as a candidate for an essentially

contested concept. First, critical thinking must have value. Educators recognize critical thinking as a worthy goal for their classes. Second, critical thinking has an internally complex nature. Critical thinking seems to be dependent on various concepts such as creativity, judgment, and reflection as well as personal dispositions such as skepticism, openmindedness, and intellectual honesty. Third, critical thinking is initially ambiguous. There seems to be no totally agreed upon definition. Fourth, the understanding of critical thinking seems to be modified by the circumstances. Is there a difference in interpretation of the concept of critical thinking in different subject areas or disciplines? Fifth, critical thinking may be used aggressively and defensively.

In addition to the five basic conditions, Gallie (1956) listed two evaluative conditions that must be met for a concept to remain an essentially contested concept. Sixth, any derivation in meaning must be agreed upon by all that use the concept. In other words, those using the concept agree to consider other meanings dependent upon the context in which the concept is used. Seventh, there will always be some degree of disagreement upon the definition of the concept in question.



A cursory examination of literature on critical thinking tends to lead one to believe critical thinking could be an essentially contested concept.

### Usage in Practice

Perhaps the problem of understanding "critical thinking" lies not in an "essentially contested concept" (Gallie, 1956), but in usage. "Do not ask for the *meaning* of a word, ask for its *use*" (Wiggenstein as cited by McPeck, 1981). Usage refers to the function and relations of the term "critical thinking" in everyday grammatical structure such as conversations, interviews, memos, articles, as well as its use in classrooms.

### Grammar

Could context make a difference how the term critical thinking is used? The question now becomes three-pronged:

1. Is "critical thinking" used as a noun? Does the term "critical thinking" specifically name or refer to some thing or idea? When used in a sentence, does the term "critical thinking" answer the question "What?" (Obrecht, 1993). If "critical thinking" is used as a noun, can it be identified as a nominal kind of term, a nonstrict kind of term or a strict kind of term (Norris, 1992)

2. Is "critical" used as a noun phrase to describe a certain kind of thinking? What kind or type of thinking is "critical" thinking? When used in a sentence, does "critical" answer the question "what kind of" thinking?
3. Is "critical" used as an adverb to describe how thinking can, is, or ought to be done? Does the adverbial use of "critical" thinking imply a particular process? When used in a sentence, does "critical" answer the question "how" thinking happens? As an adverb, "critical thinking" could be used interchangeably with "thinking critically" (Kaplan, 1995).

Critical thinking as a noun implies a concept that can be defined or identified by certain characteristics. Norris (1992) further explained nouns as nominal kind terms, strict natural kind terms, and nonstrict natural kind terms. In understanding nominal kind terms, we must first understand intension and extension as it relates to the particular term - in this case, critical thinking.

The intension of a term, sometimes called the *concept* associated with it, contains a list of properties that determines the referents of the term. The set of referents makes up the extension. ... Thus, *intension determines extension*; if Frank has all the properties listed in the intension of "bachelor," then he is a bachelor.

The properties that constitute the intension of a term depend upon the conventional meaning of the term. Thus, the intension is *semantically*

associated with the term. If a community of language users alters the properties listed in the intension of a term, then it has altered its meaning (p. 5).

If in conversation or articles the "conventional meaning of the term" critical thinking is tied to logic, then the extension of the term would include such things as premises, inferences, fallacies, and so forth. The concept of critical thinking, therefore, would be recognized as a part of logic. If the intension of the term critical thinking changes from the conventional meaning, the extension, or list of referents, would also change.

Nonstrict natural kind terms do not rely on *semantic* interpretation, but on *empirical* data of underlying traits. Norris (1992) used gold and carbon as examples of nonstrict natural kind terms. Gold is not gold because it is a particular color, texture, or metallic. Gold is gold because it has an underlying trait of 79 as its atomic number. Therefore, if critical thinking is considered in the nonstrict natural kind sense, it must have an empirical quality about it. A particular score on a critical thinking test then would determine one's level or ability in critical thinking.

The third type of noun Norris identifies is the nonstrict natural kind term. "In addition to nouns that

derive their extensions via semantically related properties and empirically related underlying traits, there are those that derive their extensions via both routes" (p. 8).

Using "critical" thinking as a noun phrase would describe an expected kind of thinking about the content or particular skills. In other words, "critical" clarifies the kind of thinking to be accomplished. For example, students may be asked to identify an argument in a particular math problem by using skills related to logical thinking. They may, further, be required to ascertain if that argument is valid. Using reflective, creative, or intuitive thinking, they may be asked if they agree with the argument. Given a math problem, students may compare the solutions of two or more authors dealing with that problem. In other words, given problem A, how did authors X and Y arrive at their conclusions - what kind of thinking was employed? One may expect critical thinking used in this sense to be different in various subjects or disciplines (McPeck, 1981).

Content takes somewhat of a back seat when "critical" thinking is used as an adverb. Students are challenged to develop dispositions or attitudes in how to think critically. In an adverbial use of critical thinking, *why* and *how* a particular author made certain statements could

become more central than *what* the author said. In the development of critical thinking dispositions or attitudes "critical" thinking is presented as a process. Students would have ample opportunity to discover their own *why*, *how*, and *so what* questions. There are no completely right or completely wrong answers in the classroom where the instructor uses critical thinking in an adverbial fashion. Since *process* is stressed over *product*, one may expect adverbial critical thinking to be similar across disciplines.

#### Teaching Critical Thinking

Teaching critical thinking is frequently mentioned as a desirable educational goal (Brookfield, 1990; Cabrera, 1992; D'Angelo, 1971; Haas & Keeley, 1998; Kurfiss, n.d.; Olsen, 1995; Potts, 1994; Powell, 1992; Scriven, 1985; Skinner, 1971; Terenzini, 1993). How would critical thinking look in the classroom? Are there certain characteristics of a class engaged in critical thinking?

In an ideal class one would expect to find a supportive environment in which diversity of ideas would be encouraged and accepted. A major element in the critical thinking classroom is the use of questions. These questions could not be answered by memorizing a certain

portion of content. Instead, questions in a critical thinking classroom would deal with ill-structured problems that have no one correct answer. The problems or questions would have a high degree of reality; they would be more than mere exercises. The students would be rewarded for right thinking rather than right answers. Teachers would serve as role models. They would often verbalize their thought processing as examples for the students. There would be less focus on the content and more emphasis on the development of thinking skills. Active listening would be encouraged. There would be open interaction between students as well as between the students and the teacher. Above all, there would be ample opportunity for practice both in the classroom and through assignments to be completed outside of the classroom (Brookfield, 1987, 1997; Clarke & Biddle, 1993; Crow, 1989a; Crow, 1989b; Donovan, 1989; Erickson & Strommer, 1991; Kurfiss, n.d.; McKeachie, 1994; Norris & Ennis, 1989; Potts, 1994; Powell, 1992; Scriven, 1985; Skinner, 1976; Smith, 1989).

Literature mentions several reasons why teachers either are not teaching for critical thinking or are not successful at teaching critical thinking. Skinner (1971) gave three reasons teachers resist teaching critical thinking:

1. [The teacher] does not understand the true nature of critical thinking,
2. [The teacher] has no idea of how to go about the process of teaching for the development of critical thinking, and
3. [The teacher] has difficulty in designing tests for the evaluation of critical thinking (p. 372).

Lipman (1991) points out that teachers often buy into the myth that thinking more is equal to thinking better.

Other myths mentioned by Lipman include:

1. Teaching about critical thinking is the same as teaching for critical thinking.
2. Critical thinking is learned through "drills".
3. Teaching logic is teaching critical thinking.

Browne & Meuti (1999) stated that our culture discourages critical thinking. We look for the "quick fix" and "right" answers on tests. There is no time for reflection. Further reasons for not teaching critical thinking could include the fact that faculty members are generally satisfied with their teaching performance.

Browne & Meuti found that faculty frequently overestimate their instructional performance. Additionally, it is hard to break old habits.

Haas & Keeley (1998) discuss reasons faculty resist critical thinking.

1. Many professors have not experienced the critical thinking approach as part of their own education.
2. Professors are too busy covering necessary content to worry if students are thinking critically.
3. Textbooks are organized to cover content rather than stimulate critical thinking.
4. Assessment procedures stress memorization.
5. Professors tend to believe students acquire critical thinking techniques by a process similar to osmosis.
6. There is a general lack of understanding critical thinking by professors.
7. Most professors do not read literature about critical thinking.

Haas & Keeley also mention factors such as research pressures, large class sizes and faculty reward structures can cause faculty resistance to teaching critical thinking.

#### Assessing Critical Thinking

One of the first steps in preparing to teach critical thinking involves designing clear objectives that can be assessed (McKeachie, 1994; Rubin, 1990; Svinicki, 1999; Worthen, White, Fan, & Sudweeks, 1999). Teachers may have critical thinking as an objective/goal for the class but the tests given do not promote thinking (Milton, 1982;



Olsen, 1995; Paul, 1995) According to Angelo and Cross (1993):

Although most faculty in most disciplines place a high value on teaching students to think clearly and critically, few instructors are able at first to point out exactly where and how they teach - or assess clear thinking or critical reasoning in their courses.

Our impression is that college courses are more often "content-driven" than "goal-directed." As a result, although most courses probably address goals beyond simply "covering the content" - the learning of facts and principles - those higher-order goals may be woven throughout the course in a subtle and sporadic manner and therefore may be difficult to assess, even for those faculty who are clear in general about what their goals are and how they address them (p. 40).

Fisher & Scriven (1997) point out "the way one plans to assess critical thinking ... affects the way one teaches it" (p. 1). Skinner (1976) would agree. "Teaching for the development of critical thinking and the testing or evaluation for critical thinking go hand-in-hand" (p. 375). Wilen (1986) stated: "Theory suggests that teachers should ask higher-cognitive-level questions to have students apply learnings, while practice demonstrates that teachers ask low-cognitive-level questions to check recall of knowledge" (p. 5).

## Summary

There seems to be disagreement among authors when talking about conceptions, teaching, and assessing critical thinking. First, there is no consensus on a single definition of critical thinking. Second, different authors suggest there are different abilities, skills, and dispositions that are necessary to be successful in critical thinking. Finally, there are problems when it comes to assessing critical thinking.

Whether critical thinking is conceived of in the conventional sense of skills related to logic or in the more abstract sense of dispositions and character traits, it seems reasonable to expect the individual professor to have a clear conception of critical thinking in order to create course objectives and/or goals. The course objectives and/or goals then determine the teaching methods and assessment techniques. If the course objectives and/or goals include critical thinking, thinking critically, or similar terms the teaching methods should include opportunities for the students to observe the process of critical thinking through role-modeling, practice in thinking critically in a guided non-threatening atmosphere, and meaningful assignments for continued development of critical thinking outside of the classroom. Finally,

assessment techniques need to match the objectives and goals for the class as well as what is actually taught.

## CHAPTER III

### METHODOLOGY

This study used qualitative case study method with the constant comparative method of analysis. According to Merriam (1988), "The qualitative case study is a particularly suitable methodology for dealing with critical problems of practice and extending the knowledge base of various aspects of education" (p. xiii). Using case study methodology allowed a descriptive look at a problem of practice - defining, presenting, and assessing critical thinking by selected professors from a specific discipline in selected college classrooms. The constant comparative method provided a way of analyzing the information collected.

#### Techniques

Gathering empirical materials for the study involved observation of classes, collection of syllabi and other class materials, and interviews with the selected professors. The purpose of using a case study design was "to gain an in-depth understanding of the situation and its meaning for those involved" (Merriam, 1988, p. xii).

## Sample

The classes for the study were chosen from the philosophy department at a major public Midwestern university. The philosophy department was chosen because it houses a course entitled "Logic and Critical Thinking".

Classes chosen for the study, other than the course entitled "Logic and Critical Thinking", had to meet certain criteria. First, the professor must be tenure track. Adjunct professors, visiting scholars, Emeriti professors, and teaching assistants were not considered in this study. Second, the professor must make mention of "critical thinking" or a reasonable equivalent as found in current literature dealing with critical thinking - e.g., "logical thinking", "analytic thinking", "reflective thinking", "reasoning" - in the syllabus. Copies of syllabi for the various classes were printed from information on the Web at the end of the fall semester. If critical thinking or a comparable term was mentioned in two different class syllabi taught by the same professor, then that professor was considered a candidate for the study to be conducted during the spring semester. Third, specific classes were chosen by availability in the schedule and the willingness of the professor to participate in the study. After reviewing the syllabi, a decision had to be made due to the

frequent mention of critical thinking or comparable terms. A fourth criteria limiting the courses to the 1000-level was added. The fourth criteria added a consistency of course level to the study. Although there would be various academic classifications (freshman - senior) of students in each class, the language used for introductory courses was expected to be similar.

In light of the criteria, the following classes from the Philosophy department were selected for this study:

Philosophies of Life and Logic and Critical Thinking.

The two class titles are shared by four individual professors. Three professors teach separate sections of Philosophies of Life, one professor teaches one section of Logic and Critical Thinking.

Each of the candidate professors was given a copy of the proposal for the study. The researcher met with each professor prior to beginning the study for the purpose of explaining his/her role in the study, answering any questions, and acquiring a signed consent form. Each professor was given the option of withdrawing at any point in the study. Data are presented in the aggregate or in code (Drs. Guide, Logic, Argument, and Socrates) to protect anonymity.

## Methods

The original plan was to observe all class sessions during the first two weeks of the Spring semester. Once the semester began, however, the length of time spent in each class became dependent upon completion of a unit of study within that class. Three of the classes were observed four weeks for a total of eleven sessions. Each of these classes met three times per week for 50-minute sessions.

The fourth class was observed for nine weeks for a total of fourteen sessions. I was not able to attend two sessions and the professor cancelled two sessions. The first five weeks, the professor lectured about various aspects of philosophy that were not covered in the students' textbook. A decision was made to stay with this class until the students were responsible for reading material and discussion. By observing the class for the additional time, the researcher was able to see if the students would be responsible for discussing various topics. This class met twice per week for 75-minute sessions. As a follow-up I re-visited all the classes the last two weeks of the semester prior to finals week.

The purpose of the observations was to provide a description of how critical thinking was approached in

philosophy classes by various professors. Descriptive notes were taken during each class session. Each of the professors also approved the use of a micro-cassette recorder for memory jogging. These tapes were not meant to be used for transcription but to refresh the memory of the researcher. Notes taken during the class were fleshed out in computer files as soon as possible. Usually, this process was completed on the same day. Every effort was made not to allow more than twenty-four hours elapse between the class meeting and the typing of notes.

The researcher sat in the back row in approximately the same place for each class. Sitting in the back had certain advantages and disadvantages. By sitting in the back, it was easier to be an "invisible" observer. The students in the class also seemed to feel freer to make off-the-cuff - and at times, off the subject - comments to the researcher. The biggest disadvantage was not being able to hear all the questions or comments from students who sat closer to the front of the classroom. In all four classes, the questions and/or comments were not repeated for the benefit of the entire class. Not repeating the questions and/or comments hindered at times the researcher's ability to assess the questions and/or comments in terms of critical thinking.



In assessing the materials, the researcher used each professor's syllabus as the exemplar by which to evaluate the texts, handouts, and assessment techniques. Of particular interest was the match between the assessment techniques and the aims or goals stated in the syllabus. Each of the professors provided additional material for the students. At times these materials were in the form of handouts, other times the material was projected onto a screen or placed on reserve in a specified area.

### Interviews

Interviews of the professors took place during the fourth and fifth weeks of the semester. General questions for the interviews included:

- 1) What are your goals for this class?
- 2) What are elements of critical thinking?
- 3) How do you assess or recognize progress in the students' development of critical thinking?

Other selected questions were pursued as appropriate.

### Management of Empirical Materials

Each professor's class notes, materials, and relevant interview transcriptions were kept in separate notebooks. The class notes consisted of three separate sections.

First, there was a full description of what happened in each class. Second, the full description was summarized into main concepts, ideas, or questions. Third, the class session was analyzed to discover consistency in the emerging concept of critical thinking.

The description of materials and what happened in each class is in no way meant to be an evaluation of the professor or his teaching methods. As a non-participant observer, my task is to describe the materials, how they were used, and how critical thinking was assessed in the various classrooms. My primary focus is not teaching methods.

#### Constant Comparative Analysis

Data were analyzed using the constant comparative method of analysis (Glaser & Strauss, 1967). As these empirical materials were gathered - materials, observations, and interviews - they were coded into categories. Each new piece of empirical material - for example, a segment of a class observation, a quiz, or an answer to an interview question - was coded and compared to data previously coded in the same category. Self-memos were written as categories emerged and developed as a means of noting similarities, differences and/or new ideas.

Next, categories and their properties were integrated. "The constant comparative units change from comparison of incident with incident to comparison of incident with properties of the category that resulted from initial comparisons of incidents" (Glaser & Strauss, 1967, p. 108). By these means, incidents were subsumed under categories. Finally, categories were linked to present information and then compared across the professors.

In sum, the individual professor's empirical material elements were coded into categories. As more empirical materials were gathered and analyzed, the categories were compared resulting in refinement and limitation as determined by the empirical material. After each professor's empirical materials were coded and categories determined, empirical materials were compared and linked across professors. The final categories were linked to the questions of the study.

## CHAPTER IV

### PRESENTATION OF PROFESSORS

This chapter will describe how four philosophy professors at a midwestern university conceive of, teach, and assess critical thinking. Each professor will be introduced by a description of assessment techniques, classroom observations, and personal conception of critical thinking.

The order of presenting assessment techniques, classroom observations, and personal conceptions of critical thinking was chosen for three reasons: First, this was the order I used to approach the study. The syllabi and texts were available before the semester began. Most of the syllabi mentioned how the students would be assessed. If Fisher and Scriven (1997) and other authors were correct in that professors assess what they teach, then I would have some idea of what to look for in each class. Second, having looked over the syllabus and reading the assignments, I was able to focus more on each professor's teaching of/for critical thinking. Third, by presenting each professor's conception of critical thinking last, I wished to make it clear that the professors were not inclined to teach toward this study.

The final section of this chapter is a summary of how each professor's conception, teaching, and assessment of critical thinking compares and/or contrasts with the other professors' conception, teaching, and assessment of critical thinking.

Dr. Guide

### Assessment and Grading

The aim as stated in the syllabus of Dr. Guide's course is:

To *reflect* (emphasis mine) on what it means to live so that it is "the real thing;" to read and write about large scale structures of value which pervasively influence our thoughts and actions; to discuss these issues with candor and write about them with courage.

The basic means of achieving this aim is through a series of letters. Again, as stated in the syllabus, "The letters are the key learning activity for the course." The students were to write one letter each week "summarizing and commenting on your course activities for the prior week." Dr. Guide handed out questions for reflection each week. The students were not limited to writing about these questions; the questions were to serve as guides. The letters could "include social criticism, moral evaluation,

and general theories of obligation, but ultimately should concentrate upon what it means to live the good life."

The letters were exchanged with another student in the class. The students were each assigned a number. The odd numbered students addressed their letters to the next higher number; the even numbered students addressed their letters to the next lower number. For example, students numbered 11 and 12 were exchange partners. Four letters of the student's choosing were addressed to the professor at specific times during the semester for grading. The students were assured, both in the syllabus and by the professor verbally, that the "letters are confidential with me." The syllabus stressed in bold type:

your grade will depend upon the cogency and clarity of your articulation, the depth of comprehension resident in your expression, and the fecundity of your thought, especially as reflected in principles which extend to many features of life without losing their cogency.

The letters were due every Monday. However, Dr. Guide allowed students to turn in their letters "late without penalty" if the letters were placed in his mail slot before 5:00p.m. Tuesday.

Each of the four graded letters was worth 100 points. Class participation counted 280 points. The syllabus defined participation as follows:

Participation includes a) attendance (two points for each day of class, total 90), b) submission of letters on time (10 points for each letter, total 150), c) seriousness about writing the letters and questions and comments in class (50 points).

There was only one test. The final exam, which was a take-home exam, was worth 200 points.

### Classroom Observations

The first day of class started like most first days - professor introduces him/herself, writes the course number on the board, makes sure all students in room actually belong there, goes over the syllabus, course expectations, and so on. The students knew the usual routine of the first day of class and prepared to leave after Dr. Guide went over the syllabus. However, Dr. Guide continued explaining this was not a "usual" class.

Dr. Guide admitted to teaching differently than his colleagues. This course was not designed to be a "problems" course. Social problems come and go. He would rather do something to "change your life altogether."

After presenting the expectations for the course, Dr. Guide presented a scenario about a restaurant that sells bean soup. The soup is terrible. Nobody likes the soup.

What can the restaurant owner do? The following represents the essence of the discussion.

Student 1 - The guy could just pitch it out and not sell it anymore.

Dr. Guide - But then he would lose money.

Student 2 - He could change the name of the stuff.

Dr. Guide - That might work for awhile. Then the people would say, "Yuck, this tastes just like that awful bean soup!"

Student 3 - He could change the recipe so it would taste better.

Dr. Guide - But would the people buy it since it always tasted so terrible?

Student 4 - He could market it differently.

Dr. Guide - He could get endorsement from famous people. If Michael Jordan eats this bean soup, it must be good.

Dr. Guide then gave a brief introduction to Brave New World. Dr. Guide directed a short conversation on what the future will hold.

Dr. Guide - Do you think we will go to having numbers on the forearm and do away with names?

Student - No. Names tell who we are. I am not a number. I am a name.



Dr. Guide - What difference does it make whether I call you by your name or 1-2-3-4? Aren't you still the same person?

Student - Yes, but I am not a number.

Dr. Guide - You don't have a social security number, a student number?

Student - Well, yes . . .

Dr. Guide - And when you order food at a fast food restaurant, don't they give you a number?

Student - Yeah.

Dr. Guide - So what's the difference? Do *you* change?

Student - I just like my name better than being called a number, I guess.

Dr. Guide concluded the conversation by instructing the students to consider two questions when reading Brave New World: 1) How far does it resemble this world and 2) How plausible does it look in the future. The discussion of the book would begin in ten days.

In concluding the first day Dr. Guide recapped specific items in the syllabus. There will be no tests in this course except for the final exam, which will be a take-home exam. His reasoning for not giving tests was because "this is not like any other course." There will be nothing to memorize and spit out on a test. Dr. Guide

explained this course would offer a new way of thinking, a more comprehensive way of looking at yourself and the world. The students were encouraged to think of this course as an "opportunity."

Although the bean soup discussion and the conversation with the student about names vs. numbers may have seemed irrelevant at the time, Dr. Guide would use the same illustrations in the following class session.

Dr. Guide started the second class session with the question, "What did we talk about the last time?" Students responded with various answers: bean soup, the future, the syllabus, and no tests. Dr. Guide affirmed all the answers as being correct, but there was a larger issue he had in mind. The first class had given the students an idea of Dr. Guide's expectations and direction for the class. Again, he emphasized the importance of seeing the larger picture.

Since the students had learned about what Dr. Guide expected the first session, he wanted to learn about them in this session. He handed out 5"x7" index cards. Dr. Guide asked for the following information. He made it clear that the only information he could legally ask for was name and student ID number. He would appreciate



Dr. Guide read an article in class the third day. Certain portions of the article were projected on a large screen. The article served as a precursor for the discussion of Brave New World.

The article "I do, I do - Maybe" (Newsweek, Nov. 2, 1998) deals with the place of marriage in the future as well as in the present. Over the course of my observation I came to see that Dr. Guide's questioning style generally progressed from questions with little or no degree of risk to students' personal beliefs toward questions with a greater degree of risk to students' personal beliefs.

First, Dr. Guide was concerned with the students' general reaction to the article. Did they agree or disagree? Could they defend their position? Students did not know the people in the article. The students had no ties to the family described in the article. The article also presented national statistics about marriage and families. Only a few of the students in the class were married or had children. The general attitude of the students seemed to be that the statistics may be true in other parts of the country, but we don't live that way here. There was little or no risk to the students' beliefs involved in the first line of questioning.

Second, in considering the situation in a more personal manner, the students had to think through their personal beliefs. Did they personally feel that marriage was necessary? Does a piece of paper "make" the marriage? The risk factor had increased for some students. They were being asked to defend their personal beliefs in a public setting.

Third, Dr. Guide asked the students to consider the implications of the article on the future. In considering the implications for the future, Dr. Guide was encouraging students to use imaginative thinking. Would they encourage their children to be married? What do they want for their children? Will marriage be important to them? Again, some students expressed strong feelings about family. Some students in the class were married and had formulated strong beliefs about what they wanted for their children.

Over the course of the observation I saw that Dr. Guide was careful in the questioning not to express his feelings on the subject. He was also careful not to embarrass students or put them on the spot. Open discussion was encouraged. Students also questioned Dr. Guide. Rather than give one "correct" answer, Dr. Guide would often take the role of devil's advocate to illustrate a different way of thinking about a given situation.

The next eight class sessions were spent in discussing the book Brave New World by Huxley (1932). Dr. Guide did not review the book for the students. The students were given the assignment of reading the material; it was clear early on that the assignment was the students' responsibility.

Dr. Guide opened the first class session on this book with the question, "How did you like the book?" One student spoke up that he did not like the ending. It was too confusing. Dr. Guide asked, "What happened in the end?" The student responded, "This guy was rolling back and forth or something like that. Facing east then west. I don't know. I just didn't get it." Dr. Guide asked if anyone could explain the ending. Another student replied, "He hung himself." Dr. Guide affirmed this student's answer. The first student wondered why the author just didn't say that the guy hung himself. Dr. Guide indicated that was a good question and rephrased it for the class: "Why didn't the author say John hanged himself and the reporters found the body?" A third student responded, "Because the other way is more descriptive." Dr. Guide agreed and added that telling often doesn't have the same impact as a full description.

Dr. Guide led the class through the descriptions of the two worlds represented in the book contrasting various events and situations with our current world. The Reservation (Res) represented the past, and Brave New World (BNW) represented the future. Dr. Guide referred to our present world as Cowardly Old World or COW. As in previous questioning, Dr. Guide started with the periphery issues and worked toward the core issue. For example, one thing the students mentioned that was held onto in the Res but held onto less in COW was marriage. This fit well with the discussion of the Newsweek article. Marriage was important in the Reservation and there were no marriages in BNW. Where do we stand in COW?

Another example the students provided was childbirth. Dr. Guide drew three columns on the blackboard representing Res, COW, and BNW. Students named descriptors of childbirth in each world. In the Reservation childbirth was natural, messy, painful, and loud. In the BNW children were 'hatched' (non-natural), everything was clean and sterile, there was no pain, the process was mechanical, and there was quality control. In our COW childbirth is mostly natural, not so messy as the reservation - not so sterile as BNW, we have drugs to ease the pain, there can be surrogate mothers, and technology is playing a larger role.

Dr. Guide directed the discussion to "drugs, sex, and Rock 'N Roll - the three great triumvirates of COW." As the students began to describe the use of drugs, sex, and entertainment in the three worlds, Dr. Guide began tying responses to the concept of happiness. For example, all three worlds used drugs to enhance feelings. Why do we need drugs to enhance feelings? To make us *feel better*, even for a short time. The Res generally used drugs for special occasions; COW uses drugs for feeling (marijuana, cocaine, speed, booze, nicotine) and behavior modification (Ritalin, Prozac, Viagra); BNW used the drug *soma* to eliminate bad feelings (depression, frustration, anger) and behavior modification ("vacations"). How close are we to BNW? What place does genetic engineering play in our world? What about all the natural herbs that claim better performance, better memory, better moods?

The place of sex in society was reviewed briefly. Since the topic had already been covered in the discussion of the Newsweek article, this discussion served to be more of a review than as a presentation of new ideas.

The last element of the COW triumvirate to be considered was entertainment. To begin the discussion Dr. Guide asked, "Are there any differences between 'feelies' in BNW and dances/parties in the Res?" A student responded



that the parties and dances in the Res involved other people. They were social events. The "feelies", on the other hand, involved interaction between a person and a movie screen.

So, Dr. Guide wondered, where do we fit in? Students could see us being involved in both. We enjoy social events, but we also enjoy our headsets and virtual reality. A student pointed out that entertainment is a form of distraction. It is a time when we do not have to think.

Dr. Guide reminded the students that the people in BNW were distracted so they would not think. Is that where COW is headed? Do we engage in entertainment for pure pleasure? Is reading a good book entertainment? Is the use of drugs and sex a form of entertainment?

As a conclusion to the discussion, Dr. Guide asked if the students would want their grandchildren to live in BNW?

They (your grandchildren) have not adopted your values yet. Do you want them to adopt those values in BNW? Think about it:

1. Everyone was a contributing member of society
2. Everyone enjoyed going to work.
3. Everyone had good health.
4. Everyone was happy with his/her life.

Isn't that what we say to our children; what your parents say to you? "I don't care what you do as long as you are happy."

What kind of world would the students design for their grandchildren?

The theme of happiness was covered the next four class sessions and was to be a recurring theme throughout the semester. Dr. Guide wrote the following quote from Aristotle on the board: "Happiness is the end of human life." Dr. Guide indicated that this is a very important matter. What is it that makes one happy? Does one ever attain happiness? How do you know when you are happy? Can happiness be experienced in the present or is that called pleasure? Can we only know happiness in a reflective, meditative sense? Dr. Guide allowed students time to think before responding. Many questions were left unanswered and were meant for pondering.

I revisited Dr. Guide's class during the last two weeks of the semester. Although I was not present for the discussion of the book Money and the Meaning of Life (Needleman, 1991), both Brave New World and Money and the Meaning of Life were used in the discussion of The Death of Ivan Ilyich (Tolstoy, 1981). Dr. Guide reminded the class that Ivan's "life had been most simple and commonplace - and most horrifying" (p. 49). Was it horrifying because it was commonplace?

Another quote from the questions Dr. Guide handed out for reflection states, "Nothing did so much to poison the last days of Ivan Ilyich's life as this falseness in

himself and in those around him" (p. 105). This quote was compared with the "false and lying happiness" mentioned in Brave New World.

Dr. Guide reminded the class that although the semester was over, he hoped the students would continue to reflect on the concepts presented in this class. Their letters written for an assignment could be viewed as a journal on ways of thinking. He encouraged the students to re-read their letters three to six months from now and again maybe twenty to forty years from now. How had their perspective and way of thinking changed?

#### Dr. Guide's Personal Conception of Critical Thinking

This section is primarily based on an interview with Dr. Guide. I have added examples from happenings in the classroom to illustrate how Dr. Guide's conception of critical thinking was played out in the classroom.

Dr. Guide's aim for the class as stated in the syllabus is:

To reflect seriously on what it means to live so that it is "the real thing;" to read and write about large scale structures of value which pervasively influence our thoughts and actions; to discuss these issues with candor and write about them with courage.

He elaborated on this aim by adding:

An attempt to have these students think, I think mostly for the first times of their lives, about their lives as a whole. About the good life, rather than just ... this piece of knowledge or that piece of knowledge. So my interest is in certainly trying to get them to ask themselves about questions that make up the whole ... melody of life.

While Dr. Guide's syllabus does not explicitly mention critical thinking, I had interpreted the phrase "to reflect seriously" as an element of critical thinking (King & Kitchener, 1994). Dr. Guide's definition, however, was much narrower than my understanding of the term critical thinking. He first made the distinction in terms what he seeks as opposed to the "ordinary" or "usual" sense of the term critical thinking.

The kind of critical thinking that I emphasize is only a question of trying to formulate concepts; ... So we do sort of have to make some distinctions. In the ordinary sense of critical thinking where you are talking about examining a person's premises, go over their arguments, make sure there is valid movement of thought and so forth is *not* something I give very much.

While students must do this "ordinary" internal thinking, e.g., go over arguments, the kind of thinking Dr. Guide is hoping for in his class is "more of an enlargement, an imaginative, a more meditative kind of thinking".

Dr. Guide mentioned four types of thinking involved in this enlarged, imaginative thinking process. First, "I

think it might be as much a function of imagination as it is anything else. They sort of just see that you can go farther and farther out." As I understand Dr. Guide, it is not necessarily where one can go with a concept, but how far one will allow the concept to take him/her.

In his classroom discussion of happiness, students were pressed by questions from Dr. Guide to find the boundaries they had placed on that concept. Boundaries suggested by the students included money, success, and a good feeling. The following class session Dr. Guide guided the class in discovering happiness beyond their pre-conceived boundaries. His guidance in thinking usually took the form of questions such as: How do you know you are happy? How much money do you have to have before you are happy? If you do not have that "good feeling" does that mean you are not happy? Students responded with comments such as: "It's different for different people", "It changes", "You can't be happy all the time", and "You need a contrast". Dr. Guide mentioned some students had enlarged the boundaries generally associated with happiness by imagining what happiness might be.

Second, enlargement of ordinary critical thinking involved meditative thinking.

And then meditative in the sense of being able, again I suspect for the first time, to not think of knowledge as something which is like a machine. You take one part of it and you put it together with another part of it and so what they are doing in most of their classes and most of their study is taking really small bits and then somehow or other sort of putting it together.

For Dr. Guide meditative thinking is being able to understand some whole, rather than separate segmented units, for seeing how different subject matter can be put together in different ways. This type of thinking involves analyzing and synthesizing, such as materials from different classes, and in a larger sense, concepts in one's life. Meditative thinking requires looking at and listening carefully not only to the given, such as classes, but also looking ahead to the implications for the future. In other words, now that the students have all these small bits, what effect will these "bits" have when they are put together in each student's life?

For example, as discussed in class, in the book Brave New World people lived as they were programmed to live. They were happy because they were told they were happy - "one hundred fifty times every night for twelve years" (Huxley, 1932, p. 75). Will the students in the class be happy because by societal standards or will they consider

the bits and pieces of their lives and discover or create their own happiness?

Third, as concepts and bits are reflected on:

There are dimensions and ambiences to ideas. [There are] things that you can't just simply specify the first moment you enter but you have to sort of live with it and wait and sort of play around with it a little bit.

To illustrate, we re-visit the concept happiness as discussed in the classroom. Dr. Guide suggested in the classroom that most of the students in the class had not thought deeply about the difference between happiness and pleasure or the relationship between happiness and unhappiness. There are many subtle shadings to the concept of happiness. Dr. Guide presented the concept of happiness as a "vital matter" in one's life. He demonstrated how to enrich thinking about happiness by asking probing questions about the students' personal understanding of happiness.

The fourth kind of thinking is reflective thinking.

It's quite reflective in the sense in which I usually think of reflective as going back upon something - background. Meditative is maybe a bit reflective in that sense, but this isn't exactly that sense of getting the idea you've got and putting it out *front* and then thinking about it.

Reflective thinking, then, is bringing the background to the front to see if you want to return to or change that background.

I understand Dr. Guide metaphorically to mean that, when taking a road trip, an individual can change routes for the return home, or go the same way he/she came. To examine this option, a roadmap needs to be brought to the front. Options must be evaluated. Do you choose to take the same road again knowing there are miles of construction taking place, or do you choose to go twenty-five miles out of your way to avoid the construction?

Reflective thinking according to Dr. Guide includes looking at the past, bringing it to the front, choosing or creating options, and evaluation to make the best choice. This also suggests the linkage among these four parts. One of the comments about happiness from a student during the classroom discussion of happiness was "it changes". This student was reflecting on what brought her happiness in the past as compared to what brings her happiness now. As was pointed out in class by Dr. Guide, what makes one happy at age ten may not be the same thing that makes that same person happy at age 19.

#### Presentation and Analysis of Dr. Guide

According to Dr. Guide, understanding critical thinking in his class goes beyond the "usual" or conventional way of looking at critical thinking as



informal logic. To think critically, according to Dr. Guide, means to use one's imagination when searching for the boundaries of a concept; meditative thinking to understand how bits and pieces create a larger whole; dimensional thinking to discover the ambiances and subtle shading of concepts; and, reflective thinking to bring the background into the present when evaluating choices.

The texts provided situations that Dr. Guide used to meet the portion of the aim "to reflect seriously on what it means to live so that it is "the real thing"". The questions in class are posed as ill-structured problems, situations that have no "correct" answer. Although the students did not set up formal arguments in the sense of stating premises, and establishing validity and soundness, they were pressed to defend their position during class discussions. "In critical thinking, all assumptions are open to question, divergent views are aggressively sought, and the inquiry is not biased in favor of a particular outcome" (Kurfiss, 1988, p. 2).

Students were challenged to "think" about what is really important in life. Is there more to life than getting a degree that will get me a good job, so I can make money and be happy? The students were pressed to see beyond, in this sense, immediate gratification to what is

meaningful in life as a whole. This process of seeing beyond their present understanding fits with Dr. Guide's view of thinking critically as an enlargement of thought involving imaginative, meditative, discovery or dimensional, and reflective thinking.

Dr. Guide can discuss critical thinking either as the name and content of a specific class or as a particular kind of thinking. However, after reviewing the material for his class and observing his class for eleven sessions, he does critical thinking more as process. He is concerned about the progression of thinking in terms of depth and breadth in the students' understanding of their personal beliefs. Dr. Guide indicated in the interview that the kind of thinking he is hoping for in class goes beyond a technical skill. Thinking he is referring to involves "familiarity, experience, repetition, sensitivity to context, and desire." The way Dr. Guide goes about promoting this type of thinking in the classroom is closely related to Brookfield's (1987) four-step outline.

First, students were asked to identify and challenge assumptions. What is happiness? How do you know when you are "happy"? Do the same things that made you happy ten years ago make you happy today? How important is happiness in determining one's life goals? Second, the students were

to challenge the importance of the context. Was the concept of happiness different in the Reservation, the brave new world, and our cowardly old world? If so, why, and what caused the difference in meaning? When Ivan Ilyich was dying, he tried to recall all of the "best moments of his pleasant life. Yet, strangely enough, all the best moments of his pleasant life not seemed entirely different than they had in the past" (Tolstoy, 1981, p. 119). Third, Dr. Guide led the students to imagine and explore alternatives. Does wealth lead to happiness? How much money does it take to be happy? What role does success play in happiness? Can one be happy without wealth and success? Fourth, through the writing of letters, the students were to engage in reflective skepticism. What is the cost of happiness? Am I living a life of "real things"?

Dr. Guide asked the students to evaluate their own world in light of the reading material. What did the students see as living the "real" life? What were they willing to do to live the "real" life?

The four types of thinking mentioned by Dr. Guide - imaginative, meditative, discovery, and reflective - are taught by demonstration and practice in his class. When

asked during the interview why the Wall Street Journal was chosen as required reading, one reason was:

to encourage their interest in the world and try to cement, as far as I can at least, the both explicit and implicit claims that I'm making that the material in the course is material you're supposed to understand and use, if you will, in the world. It's not just stuff that goes on in the classroom.

The process of thinking critically in Dr. Guide's classroom goes beyond acquiring a particular set of skills. "If you only perfected the skill, you still wouldn't be doing it. It goes beyond anything technical".

The link to taking critical thinking beyond the "technical" seems to be the element of desire. Desire is not necessarily an element of critical thinking, but it acts as a catalyst to thinking critically. Dr. Guide quoted Thoreau the first day of class, "Most men live their life in quiet desperation." Due to lack of desire to think critically, many live in "quiet desperation" most of their life. Desire as a catalyst to thinking critically can lead to a life of "real things".

Dr. Guide's metaphor for thinking critically is a puzzle. He handed out questions for students to "try to puzzle out the answer." The search for happiness was considered a "puzzle".

During the interview the discussion turned to skills necessary for critical thinking. Learning particular skills but not learning how to think critically was like "trying to put a square peg in a round hole" - another kind of puzzle. Finally, choosing the right piece of the "puzzle" depends on one's perspective. One's perspective is a result of reflection, imagination, discovery, and meditation plus the catalyst of desire.

The assessment techniques used by Dr. Guide stressed the use of reflection, self-examination, and evaluation of beliefs and assumptions. The most important means of grading was through the writing of letters rather than a test that requires recall. The letters required students to reflect on discussions and reading material on a weekly basis. Examining one's beliefs and/or assumptions through critical reflection can lead to transformative learning (Mezirow, 1991). Writing on a weekly basis provided the means for the students to develop the habit of reflection as a more comprehensive way to view the world. During class discussions students were given the opportunity to express and defend their beliefs and/or assumptions. These discussions were times to "try out" new ideas, beliefs, or assumptions. Students then had new material to think about for the coming week.

According to Dr. Guide, thinking critically is a never-ending cycle of reflection, discovery, imagination, and meditative evaluation. For Dr. Guide, this type of thinking is developed through demonstration by the professor, through guided practice in the class, and opportunities for practice outside of class. Through practice, thinking critically can become a part of one's life, if one desires it. Dr. Guide's goal of teaching a "course that can change your life forever" can be a reality for those who have the desire. In that sense, thinking critically becomes a character trait (Passmore, 1967; Smith, 1990).

Dr. Logic

#### Assessment and Grading

Dr. Logic presents an *Overview* of his course in the syllabus:

This course is intended to help develop skills at logical reasoning. Topics include informal analysis and evaluation of arguments, recognition of fallacies, and an introduction to truth-functional and categorical logic.

To track the development of logical reasoning skills, there would be four exams plus a comprehensive final exam. The four exams were scheduled about a month apart and covered the four major topics for the class as stated in

the Overview. In addition to the exams, homework was required on a regular basis.

*Homework.* To develop skill at logic practice is important. Therefore homework assignments will be given on a regular basis. The homework will be collected but not graded. As long as a reasonable attempt is made at doing the homework and it is turned in on time, full credit will be given. If more than three assignments are not turned in, the course grade will be docked one fifth of a letter grade for each missing homework beyond the three. If you receive full credit for all the homework assignments your base grade for the course will be raised by three tenths of a letter grade. If you receive full credit for all but one of the homework assignments your base grade for the course will be raised by two tenths of a letter grade, and if you receive full credit for all but two of the homework assignments your base grade for the course will be raised by one tenth of a letter grade.

The homework consisted mainly of problems in a workbook written by the professor. Answers for selected problems were provided in the back of the workbook. Students were encouraged to work the problems for which the answers were provided in addition to their homework assignment. These problems could serve to aid the students in understanding the various skills necessary to improve one's everyday thinking. Dr. Logic wrote the assignment for the next class session on the board at the beginning of each class session. Homework assignments were due at the beginning of the class session and were returned to the students at the beginning of the following class session.

Some days, rather than collect the homework, Dr. Logic walked up and down the aisles looking at the students' homework. If the student had completed the assignment, Dr. Logic handed the student a slip of paper. The student was to sign his/her name and return the paper to Dr. Logic at the end of the class session.

Dr. Logic worked through the homework with the students. He often asked the students how they worked a particular problem. He pressed them to explain their reasoning as he put their responses on the board. Dr. Logic frequently asked if the students understood the reasoning or if someone had a different answer. He encouraged the students to write the correct answer in their workbook. The workbook problems were from former quizzes and provided an excellent guide for their quizzes.

The tests were primarily objective in nature. For example, test #1 asked students: 1) to diagram given arguments; 2) to identify arguments as valid or invalid; 3) to respond to true/false statements; 4) to complete a short answer section; and, 5) to solve an extra credit problem. Test #4 asked students: 1) to create Venn diagrams and, 2) to discuss three types of fallacies. Dr. Logic handed out answer sheets when returning the tests. These answer



sheets gave students the opportunity to see where they made mistakes.

### Classroom Observations

As stated in the *Overview*, "this course is intended to help develop skills at logical reasoning." Skills in logical reasoning as explained by Dr. Logic include formulating arguments, evaluating arguments, understanding validity, inconsistency, soundness, and recognizing fallacies. A purpose of the class mentioned by Dr. Logic during the first class session is to "improve everyday reasoning." Dr. Logic emphasized the purpose of improving everyday reasoning again during the fifth class session.

Although four tests plus a comprehensive final exam were to be given during the semester for assessment purposes, the primary means of developing skills at logical reasoning was through the homework assignments and attending the class lectures. As stated in the syllabus, "To develop skill at logic, practice is important. Therefore, homework assignments will be given on a regular basis."

Every class session began with a logic puzzle for students to work through while Dr. Logic wrote the

assignment for the next session on the board. The following is an example of the puzzles:

In this popular puzzle, a man has committed a crime punishable by death. He is to make a statement. If the statement is true, he is to be drowned; if the statement is false, he is to be hanged. What statement should he make to confound his executors?

There was usually quite a bit of discussion among the students as to how to solve the daily puzzle. This puzzle was no exception. Spontaneous groups of two or three students were trying to figure out what the man could say. When Dr. Logic asked for possible solutions, several groups were willing to share their ideas. All responses were considered. Rather than say an answer was right or wrong, Dr. Logic asked questions guiding the students through their reasoning process. The students were given the opportunity to defend their responses. There was no stigma for being incorrect. One person did give the correct answer and was able to explain his answer so the other students could understand his logical reasoning. The answer to the puzzle is: I will be hanged.

#### Dr. Logic's Personal Conception of Critical Thinking

According to Dr. Logic, critical thinking has to do with "logical reasoning and thinking critically. If you

want to be able to reason well, you have to be able to see what implications follows ... and then you want to see especially what *doesn't* follow what you are told." Dr.

Logic further explained,

Critical thinking is largely a matter of understanding ... what can reasoning get us from a certain set of beliefs. What's entailed by them. It can also say what's *not* entailed by them. I think that's the major part of logic.

Dr. Logic sees critical thinking as a part of logic. Critical thinking includes but is not limited to the elements of creativity, consistency, open-mindedness, the ability to recognize fallacies, and the ability to draw inferences.

Dr. Logic also sees critical thinking as requiring much practice. He provided practice in the classroom in the form of homework, puzzles, and handouts. It takes practice to get in the "habit of thinking critically."

#### Presentation and Analysis of Dr. Logic

The syllabus stated "this course is intended to help develop skills at logical reasoning." Dr. Logic elaborated on this intention the first day of class. One of the purposes of the class is to try to "improve everyday reasoning." Another purpose will be to look at theoretical

underpinnings of reasoning - validation, consistency, and evaluation.

Dr. Logic's stated purpose is evident in his choice of materials. He wrote the workbook with homework exercises to deal with contemporary issues. His test problems were designed to illustrate "everyday reasoning". For example, one problem dealt with floppy discs, viruses, and computers; another dealt with watching TV and studying.

The class was interactive. Students felt free to ask questions, confer with each other, or request that something be repeated. A student wanted to know how to think differently. Dr. Logic explained practice is the answer. He provided ample opportunity to practice logical reasoning in the classroom. He worked through the homework assignments with the students, guiding their reasoning with appropriate questions. The puzzles at the beginning of each class provided a non-threatening, fun way to test and develop one's logical thinking skills.

Dr. Logic understands critical thinking as a component of logical thinking. Critical thinking as a component of logic involves understanding arguments and fallacies. There are certain skills that need to be presented to furnish the students with sufficient background and vocabulary. These particular skills include, but are not

limited to, consistency, understanding inferences and fallacies, understanding the difference between a valid argument and a sound argument, open-mindedness, looking at the context of the situation, and creativity.

Critical thinking, to Dr. Logic, is closely intertwined with logic. Logic is the larger concept that names different types of thinking. Critical thinking is one of the types of thinking related to logic.

For this class, assessment was objective testing of the presented skills. The design and purpose of the class was to provide students with a background in logical reasoning. Practice in logical reasoning was represented in the homework assignments and puzzles presented at the beginning of each class session. Although students did not receive a grade on their homework assignments, the homework assignments did add or detract credit from their final grade.

Dr. Argument

#### Grading and Assessment

The course objective in the syllabus states:

This course will examine some of the more prominent moral issues of our time. ... Think of this course as not only offering you the opportunity to familiarize yourself with what others have said, but also an opportunity for you to think about the arguments for and against what

you presently believe. ... The theoretical material will introduce you to various abstract principles and conceptual tools which can help your analytical and argumentative skills. ... Assignments will test your comprehension of the readings as well as your ability to develop arguments for and against the positions found therein.

Assessment and grading techniques included

"approximately 10-12 brief multiple choice quizzes", participation in a scheduled debate or writing an essay in lieu of debate, and three take-home tests. The quizzes were unannounced and usually consisted of four multiple-choice questions. The first quiz did not count toward the students' grade, but served as an example of the type of quizzes the students could expect throughout the semester. The quizzes were projected onto a screen at the beginning of the class session. Students could not use their texts, but were encouraged to use their notes during the quizzes. The quiz answers were discussed immediately after the quizzes were handed in and served as a review or introduction for the class session. According to Dr. Argument, the quizzes served at least three purposes. First, students were held accountable for the daily reading. Second, by keeping up with the reading students would hopefully absorb more and be able to use reflective reasoning in evaluating issues. Third, by allowing the

students to use their notes during the quiz, they may learn how to take better notes.

The quizzes were worth a total of 100 points. "The three lowest quiz grades (including 0's from missed quizzes) will not be counted."

There were six scheduled debates. Topics to be debated included drug laws, abortion, animal rights, euthanasia, capital punishment, and affirmative action. Grading on the debates was based on the team effort. There were no individual grades given for the debates. Students were given the opportunity to choose whether they wanted to debate the pro or con side of the topics.

To assist the students in preparing to debate, Dr. Argument handed out directions for preparing and presenting the debate. Dr. Argument also required that each team meet with him prior to the debate. The purpose of this meeting was to get hints on what the opponent may be thinking, to receive specific questions to be addressed in the debates, and to serve as a check on how the team was going to present their perspective. Dr. Argument emphasized the importance of developing a tight, well thought-out argument for the debates. The debate or essay was worth 100 points.

In lieu of participating in a debate, students could write a five-page essay. If the student wanted to choose a

topic other than those chosen for debates, the topic must first be cleared with Dr. Argument.

The third means of grading and assessment were three take-home tests. Each test was worth 100 points. "Each student will have one test graded by the professor and the other two by the teaching assistant". Students were given the tests at least a week before they were due. Each test consisted of five essay questions. The students were to answer two of the questions. According to the instructions on the tests,

Each answer should be 2½-3 pages long, double spaced, with 1" margins and typed in a 12pt font. ... Grades will be based upon the clarity, accuracy and organization of one's answers as well as the quality of one's analysis and argumentation. *Merely* stating what you believe is unacceptable. Your grade is crucially dependent upon how well you argue.

The tests required the students to develop an argument on both sides of an issue. What Dr. Argument was looking for in the tests is the "ability to *articulate* both positions and the ability to weigh the strength of both positions."

In assessing critical thinking in this particular class, Dr. Argument watches and listens carefully to who communicates, how they communicate, how they make their point, and how they write. Dr. Argument tries to "foster discussion not only because it is something that helps



connect students to the material ... but also because it exercises their mind."

### Classroom Observations

The first day of class, Dr. Argument read the syllabus to the class. He emphasized that notes, but not the text, could be used during the quizzes. Dr. Argument stated one purpose for allowing the students to use notes during the quiz was to encourage good note taking. Dr. Argument mentioned good note taking would be useful in their other classes; this class would offer the opportunity to improve that skill.

When talking about the exams, Dr. Argument encouraged conciseness. He would prefer only a couple of pages; some may write a little more, some may write a little less. One student wanted to know if Dr. Argument would count off if she wrote more than a couple of pages. She indicated she usually wrote "quite a bit". Dr. Argument assured her that he did not count off, but he would continue to encourage conciseness. The aim of the tests is not to write a book, but to learn to express thoughts logically and concisely.

After going over the syllabus, Dr. Argument explained the debate process. He emphasized keeping the debate sheet handy. The debate sheet provided guidelines for preparing

and presenting the debates. The text was to be the main source of material used for the debates; other material was not required. Dr. Argument left the decision of how much information is enough up to the debate team. He did stress, however, that to have a strong argument, one must understand both sides of the issue.

The class content covered three major theories: personal liberty, models for moral decision making, and justice and the scope of government. Three sessions were spent discussing Mill's theory of personal liberty. The reading assignment was divided into very small chunks, usually covering only two to three pages of reading.

To begin the discussion of the first theory section, Dr. Argument projected Mill's Harm Principle on the screen: "No one has (not even the government) the right to interfere with another person unless what the person is doing is harmful to others." Dr. Argument further explained that we can persuade someone to change his/her behavior but no force or law should be used to coerce people to behave in certain ways when it does not involve others. To illustrate, Dr. Argument presented a series of three scenarios. The following represents the essence of those scenarios.

Scenario 1: Suppose a man lives alone in the woods. This man decides to commit suicide. He digs his own grave. He has no responsibility to anyone. A hiker comes by and sees this man sitting by a grave with a gun to his head. What is the hiker to do according to Mill?

One student commented about the psychological effect on the hiker. Some students felt the hiker should just walk away. Other students felt that the hiker should try to talk the man out of committing suicide.

Scenario 2: You have a friend with a really bad temper. This friend just bought a super nice stereo system. He has the system all set up and cranks up the volume. He decides the quality of sound is not what he thought it would be. He wants to take a baseball bat to the stereo. You see your friend getting angry. He is storming around the apartment looking for his baseball bat. Would you hide his bat?

While the students were pondering that situation, Dr. Argument presented the third and last scenario for the day.

Scenario 3: Your friend wants to elope with this girl. They have been together three or four weeks. You know she is no good for him. Would you hide his car keys?

The last scenario sparked a good bit of discussion. A female student felt you should not hide his car keys. It

is his choice and he will have to live with it. A male student concurred. He felt you should give the guy his car keys and the other guy his bat and say, "Go to it!"

The scenarios served as an introduction to the discussion between self-regarding and other-regarding acts. Dr. Argument wondered, "How many of the important actions of our lives are really self-regarding?" Does Mill's theory always work?

The discussion of Mill's theory provided the basis for the next three topical discussions. The topics covered under the theory of personal liberty included free speech, drug laws and abortion. There were debates over drug laws and abortion.

During the topical discussions, Dr. Argument helped the students see the connection between each writer and Mill. Questions dealt with how would author A respond to author B about this matter? How would Mill respond?

#### Dr. Argument's Personal Conception of Critical Thinking

When asked what his ultimate goals were for his class, Dr. Argument talked about wanting the students to recognize the importance of analyzing one's beliefs, to think critically about what they believe, to be able to justify those beliefs, and to consider the implications of those

beliefs. He wants students to see that justifying their beliefs is a "duty they have to themselves."

Other goals for the class Dr. Argument mentioned in the interview include developing skills in

terms of the evaluation of their beliefs: what counts as good reasoning or good justification for their beliefs - developing their critical abilities, becoming more skeptical, realizing that beliefs need to be justified and developing some sensitivity to what counts as good justification.

A primary ability related to critical thinking Dr. Argument stated he is hoping to develop in students is clarity. Clarity involves being able to express a belief with "sufficient precision". Clear, precise articulation leads students to "see the implications, the consequences, the presuppositions that are bound up with one's beliefs".

Another critical thinking ability Dr. Argument mentioned he is hoping to develop in students is the ability to "formulate an argument; to be able to evaluate the merits of different arguments in adjudicating beliefs". This is the kind of thinking that Dr. Argument presumes that "most people are capable of, but they've had very, very, very little practice with."

## Presentation and Analysis of Dr. Argument

Critical thinking was not mentioned explicitly in the syllabus or in the classes I attended. One of the objectives for the class, however, was to provide an "opportunity for you to think about the arguments for and against what you presently believe." This objective is closely related to Ennis' (1985) definition of critical thinking.

Dr. Argument provided opportunity for thinking about individual beliefs through the use of scenarios. After presenting a scenario, Dr. Argument usually asked a question concerning how a particular author would respond in the given situation. By asking this question, he was confirming the students' understanding of the reading for the day.

Following a brief discussion on the author's position, Dr. Argument would then ask if the students agreed with the author. The student's were led to defend or justify their response. This gave the students an opportunity to think about theory in dissimilar situations.

The topics chosen for discussion dealt with emotionally charged issues. Dr. Argument assumed the students held some sort of belief concerning the topics chosen for discussion. With the wide variety of topics,

more students would hopefully be involved in the discussion at one point or another. Although the students may have held certain beliefs about the various topics, they more than likely had not been called upon to think deeply about, defend, or justify those beliefs. Dr. Argument's class provided them the "opportunity ... to think about the arguments for and against what you presently believe."

Dr. Argument used three varieties of formal assessments in his class. First, there were "10-12 brief multiple choice quizzes" (Syllabus). The quizzes were very short - only three or four multiple-choice questions. The questions came directly from the required reading.

Second, there were three take-home tests. These tests were handed out at least a week in advance of the due date. The tests consisted of five essay questions. The students were required to answer two of the questions. As stated in the test instructions:

Grades will be based upon the clarity, accuracy and organization of one's answers as well as the quality of one's analysis and argumentation. Merely stating what you believe is unacceptable. Your grade is crucially dependent upon how well you argue.

The teaching assistant graded two of the tests; Dr. Argument graded one test. Along with each test, Dr.

Argument provided suggestions for "developing your answers" and "how to format your answers".

The third means of formal assessment was the in-class debates or essays. Dr. Argument recognized that some students might feel very uncomfortable speaking in front of the class, therefore, if one chose not to debate, he/she could write a 4-5 page essay on one of the debate topics. According to a handout informing students how to prepare for a debate, "Debate questions will be available in advance, usually one week prior to the debate." Appropriate preparation for a debate should "include the development of responses to all four questions as well as the development of responses to what the opposing team is expected to say." Grades were assigned to the team rather than to individual members of the team.

Dr. Argument indicated in his interview he also used class discussion as an informal means of assessment. He watched carefully who responded and who did not. Dr. Argument mentioned he may call on a student to respond. During the times I was in class Dr. Argument used location to further discussion. For example, if the discussion seemed to be focused on the right side of the room, Dr. Argument might ask what someone on the other side of the



room or in the back of the room thought about the situation under discussion.

Dr. Argument is concerned with the development of a specific kind of thinking, or reasoning, in his students. One of the main elements of this kind of thinking involves clarity in expressing beliefs. In expressing one's beliefs one must be able to create an argument including an understanding of the context, implications, and presuppositions of that belief. Using critical thinking and practice in examining one's beliefs leads to the "worthwhileness of having that belief."

Dr. Socrates

#### Grading and Assessment

Dr. Socrates' syllabus had very little to say about grades.

Grades will be assigned using the standard grading scale: 100-90=A, 89-80=B, 79-70=C, 69-60=D, 59-0=F. The final grade for the course will be determined as follows:

Quizzes: 70% of final grade (quiz average X .70)  
Final Exam: 30% of final grade  
(final exam score X .30)

Dr. Socrates mentioned in the syllabus as well as in class that "a student who approaches the instructor seeking information that was missed as a result of an unexcused

absence will automatically have 2.5 points subtracted from his or her final grade average."

The students were given approximately twenty minutes to complete the first quiz. The quiz consisted of matching, multiple-choice, and true/false sections. The material covered was basic vocabulary necessary for the students to understand the readings and discussion during the remainder of the semester.

The second quiz was a take-home essay quiz. There were six essay questions with the following instructions:

Answer each of the following questions. Strive for precision, clarity, and cogency. Do not simply restate what is printed in the text. You are expected to demonstrate that you understand the reading by expressing yourself with your own words. Defend your answers. Your answers should be typed. You should use 7 pages as follows: on the first page you should state your name, student identification number, and indicate that this is Quiz #2; for the remaining six pages, you should use one and only one page for each of the six questions/answers. You should submit the 7 pages, stapled together in the upper-left corner.

The second quiz was handed out on Tuesday, there was no class on Thursday of that week; Spring Break was the following week. The quiz was due the Tuesday after Spring Break.

## Classroom Observations

The first day of class, Dr. Socrates pointed out what he considered as "the highlights" of the syllabus -- office hours, required texts, attendance, quizzes, and he does not grade on the curve. He did not read the syllabus to the students. The students were instructed to read the syllabus on their own and contact the professor if they had any questions.

Dr. Socrates also gave the students their first assignment. The students were to look at the Table of Contents in the text Twenty Questions, rank their four favorite topics or what looked like to be interesting topics, and bring the rankings to the next class session. Dr. Socrates would compile the responses and the most requested topics would be what would be covered from that text. The first session lasted 15 minutes.

The first five weeks of class were spent familiarizing students with various philosophical terms. Dr. Socrates prepared a four-page, front and back, lecture notes handout for the class. He stressed several times the importance of understanding these terms; not only were the terms important for understanding succeeding classes, the terms would also be basis for the first quiz and would re-appear on the comprehensive final exam. Dr. Socrates explained

that "each discipline has its own language to make communication more effective within that discipline. These are just the bare bones of what is needed to engage in philosophical discussion."

The first term on the lecture notes was "philosophy". Dr. Socrates explained that "philosophy" consisted of two root words - "philo" and "sophy". He explained that studying the root meaning of words is called etymology. Dr. Socrates then explained that "philo" means love, and "sophy" means wisdom. Therefore, "philosophy" is the love of wisdom. He pointed out it is important to distinguish wisdom from knowledge.

To understand wisdom in philosophy we must understand Socrates. Socrates was famous for elenchus. Elenchus was defined as "the Socratic method of refutation by means of repeated questioning." Closely related to elenchus is aporia. Aporia is "a feeling of frustration, confusion, bewilderment, resulting from being subjected to elenchus." Socrates would leave a person with the feeling of aporia. Aporia is experienced when one cannot explain his/her beliefs. Dr. Socrates explained it is one thing to blame another person for making you look like a fool in public; it is quite another matter when you make yourself look like a fool in public.

The goal of philosophy is to examine how your beliefs stand up under criticism. According to Dr. Socrates, you do not really learn a lot of facts in philosophy; you actually should end up with more questions. "The aim is not to tell you what to think, but to show you how to think."

Dr. Socrates mentioned we are usually not trained to think. We are trained to remember, but not to think. As an example, Dr. Socrates asked the class, "If you had \$1 million and I had \$5,000 and we were campaigning in the same election, who would win?" The students immediately responded that they would win. Dr. Socrates asked, "Why?" The students mentioned, "We have more money to spend on media and advertising." Dr. Socrates responded, "You say you would win based on the money and no one even asked about the issues."

Dr. Socrates often used contemporary examples when explaining philosophical terms. For example, when he related Socrates trial and death, he likened it to Socrates and "Face the Nation". Socrates was sentenced to death and had to drink hemlock. That, according to Dr. Socrates, would be like sentencing a person to death by lethal injection then handing him the needle, or putting the

person in the electric chair and giving a the person a button to push for the electric current.

When discussing Plato, Dr. Socrates mentioned Plato's book Republic. Most people think democracy is a good thing, but is it really? For example suppose you were to have brain surgery. To be democratic, the surgeon asks representatives from the hospital staff - clerks, housekeepers, maintenance, and others - which procedure should be used in this particular brain surgery. That is democracy. If people are generally concerned about how to make a living for the family, have a little fun, and don't care much about politics, why should they be allowed to vote?

Dr. Socrates led the class through a brief history of philosophy. Following Plato was Aristotle. Aristotle did a little bit of everything. He created logic. He invented scientific families. Dr. Socrates presented a challenge to the class: trace the history of whatever you are interested in - it will either be invented by Aristotle or refer to him. Aristotle also tutored a young man named Alexander. At the age of 18, Alexander was conquering the entire known world. Alexander died from malaria. "Think about it - a guy who conquers the entire known world is taken out by a mosquito."

Dr. Socrates ended the class with a recap of concepts. He reminded students they were not there to learn facts but what kind of questions need to be asked and whether they willing to have an open mind. He warned that it is especially hard to be open-minded when you have strong beliefs about something.

When discussing ethics and metaethics, Dr. Socrates asked several "thought" questions. He introduced metaethics by asking how many students could explain the difference between history and math. Are there different ways of thinking in history and math? Are they different kinds of intellectual activities? Are they the same kind of intellectual activities except one deals with facts and the other deals with numbers? Metaethics deals with what it takes to do ethics. What makes something an ethical decision? Dr. Socrates provided the following example for consideration:

I did not tape the Minnesota Vikings game on Sunday. Is that ethical? I need to rotate my tires. Is that ethical? Suppose I said there is a guy that is really down. Business has slacked off. I really don't need my tires rotated but I am going to pay this guy to rotate them anyway. Is that ethical? What makes it ethical?

After the first quiz, the class started the discussion of the place of religion in one's life and the existence of God. That topic was the most popular topic in the text

according the ranking of chapters turned in the second week of class. Students were to come to class prepared to answer the following questions:

1. What do I think God is - Spirit, Metaphor, etc?
2. What, if any, evidence can one provide to prove there is a God?
3. Does it really make any difference in the world whether there is a God or not?

The questions did not have to have written answers. The questions were to be considered in light of the readings and the students' background.

#### Dr. Socrates' Personal Conception of Critical Thinking

Dr. Socrates mentioned several times in the beginning sessions that he did not teach critical thinking, yet he mentioned the students should "think carefully" or "deeply" about the topics they would be discussing. In defining critical thinking, Dr. Socrates said, "From a philosophical point of view, I suspect it is primarily, first and foremost, looking at the fundamental assumptions that you make that shape your world view." The critical notion is the "need to be open to the possibility that these assumptions - once you identify them - could be mistaken." Critical thinking involves always examining the foundation of one's beliefs.



Critical thinking is typically taught as a logic class in which you are taught how to make use of reason in guiding you through this process. ... Using reasoning is basically the same as applying the rules of logic. I want to make sure I'm being consistent -- I'm not being contradictory. If I am making assumptions, then I try to articulate "what am I assuming". [I must] be willing to put my reasoning to the test of logic. So not only use logic in trying to formulate my arguments, but be willing to, after I make an argument go back and check it for things like validity and the others. ... I think that's why philosophers typically latch [critical thinking] together with logic. ... Because it is the tool to not only formulate arguments but to analyze and assess arguments.

In this sense, Dr. Socrates is referring to critical thinking as a specific class with a particular set of skills to formulate and assess arguments.

Dr. Socrates mentioned the importance of language in critical thinking. For example in reading literature or essays in a philosophy text, critical thinking is articulating the points the author is trying to make and how the author is making those points. "What is the link between what the author's trying to convey and what the author does?" What is it the author is trying to accomplish? Is the author successful in that accomplishment? How is language used in the coordination of ideas and the chain of arguments that is given?

Critical thinking, according to Dr. Socrates, is not always cut and dry.

Sometimes you need to be able to interpret other means of communication. Attention to language is one main ingredient. ... It's seeing how the language is working to make claims and to convey information - to convey insight. I don't think you can apply critical thinking to something that doesn't use language. [The] first task in critical thinking is to identify what the person is writing, or speaking (what are they trying to say, what are they trying to accomplish, what are they trying to do). ... The second phase is trying to find inconsistencies. Contradictions point out that something is inconsistent. It is being able to recognize that, I think, that separates somebody who can think critically.

Dr. Socrates explained his goals for the particular class I observed as that whatever topic you pick, "that the more you try to find answers, typically, the more questions you raise, and the more you reveal how much you don't know. I think the goal is sort of a revelation of ignorance." He elaborated by stating:

My main aims are to say: Here are some of the questions you can explore in your life. ... And here are some philosophers' attempts to add their views to those issues. ... If you want to try to answer these questions here are some approaches, here are the kinds of question you ask. If you try to arrive at answers, here's how you make your case; here's how you try to present the issue. ... And if somebody else makes a case, here's how you can critically assess their answer; or if you are just writing your own account, here's how you can critically assess your own.

When discussing how to go about assessing critical thinking, in an ideal world Dr. Socrates would rather have small classes so they could be conducted as oral

conversations. At the end of the semester there would be "some sort of paper, giving them the chance to put their thoughts into words." This way he could guide their development of reason and they could learn from each other. Traditional grading seems to inhibit learning how to think critically. Students are more concerned with getting the "right" answer on a test.

#### Presentation and Analysis of Dr. Socrates

If I were to use one word to describe Dr. Socrates' teaching, that word would be "questions". He started asking questions the first day of class - "Does anyone know what philosophy means?" - and continued to question in every class session I attended.

Although Dr. Socrates referred to critical thinking as a particular class, and as a kind of thinking, he seemed to use the term "critical thinking" as a process in the class I attended. For example he said, "I'm not teaching them *how* to think critically. I am just getting them to think critically." Dr. Socrates accomplishes this by role modeling the process. Rather than guide the students through systematic steps or procedures, he allowed them to watch him think critically through a belief or idea. He addressed both sides of the issue to formulate reasons and

to point out fallacies or inconsistencies. The students were exposed to critical thinking in class through Dr. Socrates' modeling of the kinds of question that one should ask to think critically.

Dr. Socrates' assessment techniques mirrored his goals and classroom behavior. Realizing the majority of the students had not been exposed to philosophy, Dr. Socrates provided the necessary language background for the course. The first quiz was an objective quiz covering vocabulary and concepts on which the remainder of the semester would be built.

The second test provided an opportunity for the students to demonstrate they understood the terms covered in the first portion of the class. The essay exam asked them to defend their answers regarding their understanding of various authors.

Dr. Socrates' questioning techniques demonstrated various types and depth of questions students should be asking when thinking critically. Critical thinking was practiced in class rather than assessed by a test. Dr. Socrates provided the necessary background information, examples of pro and con literature concerning particular topics through the use of the textbook and additional

readings, and modeled critical thinking through appropriate questioning techniques in the classroom.

#### Comparison of Drs. Guide, Logic, Argument, and Socrates

Critical thinking seems to be a generally understood concept among these four philosophy professors. First, all professors identified critical thinking as a class in which one systematically learns about arguments and their evaluation. Second, all see critical thinking as a particular set of skills involved with logic. These skills include but are not limited to clarity, formulating arguments and assessing arguments. Third, each professor mentioned the improvement of critical thinking through practice. Fourth, each professor encouraged student responses in class and considered all possibilities presented by the students. In sum, each professor attempted to guide the students to thinking with greater clarity, with skills of how to formulate arguments, and skills for assessing arguments or beliefs.

#### Conceptions of critical thinking

Dr. Guide does not see critical thinking as a contested concept, but one in which certain distinctions must be made. These distinctions tended to be more a

matter of semantics than empirically defined distinctions (Norris, 1992). Dr. Guide sees critical thinking as composed of different kinds of thinking such as imaginative, meditative, dimensional, and reflective thinking. Ennis (1985) and Dr. Guide would probably agree that the combination of these kinds of thinking could be referred to as "reasonable" thinking. Therefore, Dr. Guide viewed critical thinking more as a nominal kind term (Norris, 1992).

In addition, Dr. Guide sees desire as a catalyst to thinking critically. Smith (1990) and Passmore (1967) consider the element of desire as a necessary character trait for critical thinking. One can understand and be able to apply skills related to logic in controlled circumstances such as homework or test questions, but one must have the desire to use those same skills in everyday life. In that sense, critical thinking, as Dr. Guide put it, "goes beyond anything technical".

Dr. Logic would agree with the idea that "critical thinking relies upon criteria, is self-correcting, and is sensitive to context" (Lipman, 1988, p. 38). Criteria, according to Lipman, are reliable reasons.

By means of logic we can validly extend our thinking; by means of reasons such as criteria we can justify and defend it. The improvement of

student thinking ... depends heavily upon students' ability to identify and cite good reasons for their opinions. For a reason to be called good, it must be *relevant* to the opinion in question and *stronger* ... than the opinion in question (p. 40).

Dr. Logic views critical thinking as a skill related to logic that can be improved or developed through practice. The skill of critical thinking is a part of the larger concept of logic. Moreover, as a subset of logic, critical thinking could involve, among other elements, identifying arguments, recognizing assumptions, inferences, fallacies, and checking for validity and soundness of an argument.

In discussing the skills of critical thinking, Dr. Argument mentioned the importance of analyzing one's beliefs and thinking critically about those beliefs. Thinking critically about one's beliefs included justifying and considering the implications of those beliefs. A primary critical thinking skill Dr. Argument mentioned he hoped to develop in students was clarity in expression as they defend their beliefs.

Dr. Socrates refers to using skills related to logic to examine the foundations of one's personal worldview. In addition, Dr. Socrates expressed understanding the linkage of language and critical thinking.

In sum, all of the professors mentioned the linkage of logic and critical thinking. Another similarity between Drs. Guide, Logic, Argument, and Socrates' conceptions of critical thinking included the presumption that people have an innate ability to think critically and that this ability can be developed through guided practice.

Differences lie mainly in breath of conception. Although they are clearly related, Dr. Logic could be placed at one end of a continuum which sees critical thinking as limited and Dr. Guide at the other end which sees critical thinking as broad. Dr. Argument would probably fit closer to Dr. Logic and Dr. Socrates would be placed closer to Dr. Guide.

#### Teaching critical thinking

The differences among the professors become greater in how they teach critical thinking in their classrooms. Although they generally agreed on a minimal conception of critical thinking, differences became apparent in their classroom techniques and their assessment techniques.

Dr. Guide used textual material for the purpose of concept discovery. Dr. Guide was hoping to present a process of thinking that would "change your life forever". Rather than present particular definitions, skills or



authors' viewpoints, Dr. Guide's focus was thinking beyond the content. There was a flow of real-life situations related back to the textual concepts and from the textual concepts to real-life situations. Dr. Guide's primary means of assessment involved letters the students wrote on a weekly basis. Ideas of content, context, and concept were covered in classroom discussions. There were no specific problems or answers.

Dr. Guide indicated in the beginning of the study that he was not sure I would find anything useful in his class since he did not teach critical thinking. Dr. Guide here meant critical thinking as a specific class with specific skills. Dr. Guide was correct, therefore, in stating he did not teach critical thinking. He did, however, teach thinking critically. Thinking critically involved an enlargement of thinking. Therefore, Dr. Guide seemed to accept a noun-like understanding of critical thinking, but expanded this conception adverbially in the encouragement of thinking critically.

Dr. Logic approached teaching critical thinking as the development of a particular skill. His teaching involved presenting and solving problems and puzzles that called on specific skills.

Dr. Argument used dissimilar scenarios to help students understand concepts presented in the text. Problem situations in the scenarios were approached by how the various authors would respond. Occasionally students related the content materials to outside situations. Although Dr. Argument allowed a certain amount of discussion when that occurred, it seemed his primary aim was to relate various situations back to the textual material.

Dr. Argument promoted a particular way of thinking in his class - one that involved clarity and reflective thinking. Dr. Argument encouraged a way or method of thinking by relating dissimilar scenarios to the textual content.

Dr. Socrates lectured the first five weeks of class. There were certain terms and concepts he felt the students needed to fill the gap for a better understanding of the course.

When the students became responsible for reading their text, Dr. Socrates' classroom became question driven. Dr. Socrates modeled thinking critically and Socratic questioning. Dr. Socrates gave the students the tools - the types of questions they could be asking in various contexts, and models of various authors' thinking - but the

decision to use these tools was left up to the individual student.

In sum, Dr. Logic taught the development of logic-related skills through drills. Discussion was directly related to the homework assignments. Dr. Socrates resembled Dr. Logic the first five weeks of the semester.

Dr. Guide, Dr. Argument, and later Dr. Socrates used discussion to relate concepts and real-life situations. There were no correct or incorrect answers, but students were required to defend their positions.

#### Assessment of critical thinking

Dr. Guide's primary means of assessment was a series of weekly letters. These letters were to provide an opportunity of reflection about assigned readings or class discussions. Dr. Guide used the letters as a means of assessing the students' thinking process and progress. There were no "right" answers. The only test was the final take-home essay exam.

Dr. Logic used regular quizzes and a comprehensive final for assessment purposes. The completion of homework assignments also figured into the final grade. Quizzes were primarily logic-type problems, true/false, and short answer questions. The quizzes and homework assignments

served as checks for the students and the professor to ascertain that the concepts presented in class were understood.

Dr. Argument used unannounced short quizzes to monitor the students reading of the text. These quizzes consisted of usually four multiple-choice questions based solely on the assigned reading material. Dr. Argument also used debates and three take-home essay exams for assessment purposes. The debates and essay exams provided students the opportunity to defend their beliefs based on assigned reading material. There were no "right" or "wrong" answers for the debates or essay exams. As Dr. Argument put it, "Your grade is crucially dependent upon how well you argue."

Dr. Socrates' first quiz was based entirely on lecture notes. This quiz consisted of matching, multiple-choice, and true/false sections. There were definite right and wrong answers. Other quizzes were essay. Those quizzes were designed for students to illustrate their understanding of required readings.

#### Summary

Drs. A, B, and C's assessment techniques matched their concept and teaching of/for critical thinking. Dr.

Guide understood critical thinking as an enlargement of thinking, challenged students to think deeply about various concepts presented in class, and assessed the process and progress of the students thinking through the writing of letters and an final essay exam. The essay exam required the students to have thought about the concepts rather than content covered in class.

Dr. Logic saw critical thinking as a part of the larger concept of logic. Thus, his teaching focused on logic-related terms and problems. His assessment techniques measured the extent to which the students understood the terms and could apply that knowledge to logic-related problems.

Dr. Argument mentioned the need for clarity in defending one's belief as being connected to critical thinking. This was reflected in his teaching through the use of pro/con issues for discussion. Students were given the opportunity to defend their position on various topics using the text as a guide. Dr. Argument's assessment techniques of debates and essay exams in which students were required to defend their position reinforced his teaching.

Dr. Socrates' concept of critical thinking involved the use of logic in looking at one's fundamental beliefs.

He emphasized a constant questioning process and the "need to be open to the possibility that these assumptions ... could be mistaken." The first five weeks gave the students bare bones background knowledge in philosophy. In those five weeks, Dr. Socrates' teaching resembled Dr. Logic's teaching. Dr. Socrates' assessment technique for those five weeks was also much like Dr. Logic's. Students were tested on their comprehension and recall of the particular terms.

During remainder of Dr. Socrates' classes I attended, his teaching mirrored his concept in that he modeled Socratic questioning. One of his goals was to show the students the process of critical thinking or thinking critically. The exam to which I had access, however, did not mirror either his concept of critical thinking or his teaching through Socratic questioning. The questions on the essay exams dealt with the students' understanding of the textual material. The students were asked to defend their answers in regard to what various authors had written. For example, one question dealt with determining the main point of an essay. Thus, Dr. Socrates' assessment techniques that I saw were only partially congruent with his concept and teaching.

## CHAPTER V

### FINDINGS, CONCLUSIONS, AND IMPLICATIONS FOR FUTURE STUDY

The purpose of this study was to describe how individual professors from the same department conceive of, teach, and assess critical thinking. The study addressed the research question: How do individual professors within the department of philosophy at a midwestern university conceive of, teach, and assess critical thinking in introductory philosophy classes?

The findings are organized around the conceptions, teaching, and assessment of critical thinking in introductory classes of four philosophy professors at a midwestern university.

#### Findings

Research question #1: How do philosophy professors conceive of critical thinking?

Drs. Guide, Logic, Argument, and Socrates each identified critical thinking in two broad categories. First, critical thinking was identified as a specific set of skills related to logic that is taught in a specific class. Each professor mentioned specific skills generally taught in a particular class as being identifying skills

necessary for critical thinking. These skills included being able to defend arguments, clarity in expression, and recognizing fallacies.

Second, critical thinking was identified as a character trait (Passmore, 1967; Smith, 1990). Each professor mentioned how his class could help students in real, everyday life. This would indicate an expected change in the student's character - a change to better thinking. Specifically, how the individual professors approached the teaching of critical thinking was linked to their identifying critical thinking as a particular set of skills related to logic or as a character trait to be developed.

Research Question #2: How do philosophy professors teach critical thinking?

There are important differences in the teaching of/for critical thinking among these four professors. These differences were linked to the proportion of logic/character traits stressed by the professor. Dr. Guide stressed his was a class that could "change your life forever". Thus, Dr. Guide focused on critical thinking as character development. Dr. Logic used contemporary examples for students to practice skills related to logic.



Thus, Dr. Logic focused more on logic related skill development. Dr. Argument used content material to improve clarity and conciseness in reasoning. Although logic-related skills were not taught as a separate entity, certain skills were used in the defense of arguments. Dr. Argument's goal in critical thinking seemed to be more character trait focused in that he was concerned that students learn how to defend their personal beliefs. Dr. Socrates introduced the students to a basic vocabulary list necessary for understanding philosophy. This vocabulary served as a background of essential knowledge for understanding the lectures and readings for the remainder of the semester. Initially, Dr. Socrates approached critical thinking more as a skill related exercise. Later, Dr. Socrates modeled questioning skills as a means of changing one's way of thinking if one chose to do so.

Hence, the balance between skill building and character building seemed to be a determining factor in how each professor approached the teaching of critical thinking.

Research Question #3: How do philosophy professors assess critical thinking?

We have seen that three of the professors' conception and teaching of/for critical thinking was congruent with their assessment techniques. One professor's conception and teaching of/for critical thinking was only partially congruent with his assessment techniques. Therefore, the literature that suggests that one's teaching of critical thinking is determined by assessment techniques is not always valid (Fisher & Scriven, 1997; Skinner, 1976; Rubin, 1990; Svinicki, 1999; McKeachie, 1994; Worthen, White, Fan, & Sudweeks, 1999).

## Conclusions

### Conceptions of critical thinking

In reviewing the conceptions of critical thinking among the four professors, critical thinking does not initially qualify as a contested concept (Gallie, 1956). All four professors indicated a linkage of critical thinking to logic. All four mentioned some degree of character building. The differences lie primarily in the breadth of conception.

Current literature also emphasizes the combination of skill and disposition (Dewey, 1933; Lipman, 1988; Paul, 1995). Therefore, one could speculate that most philosophy

professors value both the skills related to logic and the disposition to think critically.

### Teaching critical thinking

In considering the teaching of critical thinking among philosophy professors, we would expect to find differences in approach. The teaching of critical thinking tends to involve explicit practice of specific skills. Teaching critical thinking, in this sense, involves teaching and practicing skills directly related to logic. When critical thinking is taught as a skill or set of skills, exercises providing practice in using various concepts is stressed.

Teaching for critical thinking seems to stress acquisition of dispositions for thinking critically. Teaching for critical thinking tends to be more discussion driven. Skills related to critical thinking may be mentioned but not practiced in the same sense as in the teaching of critical thinking. Skills related to logic are used and developed in the defense process, but the teaching of the particular skills is not the focus of the class. There is no one correct answer. In addition teaching for critical thinking tends to be more implicit than explicit. Role modeling is a major means of teaching for critical thinking.

## Assessing critical thinking

Assessment of/for critical thinking tends to be problematic. Literature (Olsen, 1995; Paul, 1995; Milton, 1982; Angelo & Cross, 1993; Wilen, 1986) identifies reasons teachers may not be effective in testing of/for critical thinking.

Assessment of critical thinking leans toward objective testing. This type of testing is represented in most nationally used standardized critical thinking tests (Kurfiss, n.d.; Norris & Ennis, 1989). Students are generally given situations and asked to choose the best answer. The same type of testing techniques is generally used in classes designed to teach critical thinking.

Assessing for critical thinking can be more problematic. In testing for critical thinking, ill-structured problems are used in which there is no one correct answer. These tests are subjective in nature and require more time in grading. Additionally, the professor must understand critical thinking enough to recognize the progress in thinking critically.

### Implications for Future Study

When studying critical thinking, the methodology used is important. Previous studies (Paul, 1995; Walsh, 1998;

Vaske, 1998; Ruminski & Hanks, 1995) often used quantitative methods. Information was self-reported and options on surveys tend to be limited. Using qualitative methods of observation and interviews produced a richer and fuller description of how professors in the same discipline conceive, teach, and assess critical thinking. Had I sent a survey asking these four professors asking them to define or describe critical thinking, most likely all of them would have referred to logic. Furthermore, three out of the four would have probably stated that they did not teach critical thinking this particular semester. Critical thinking in that sense refers to the name of a particular class in which one stresses particular skills related to logic.

Using self-reporting surveys could lead to incorrect conclusions due to a misunderstanding of language in a particular context. For example, using language related to logic or philosophy could be misinterpreted in the field of education or science.

Qualitative methodology provided the means to watch Dr. Guide encourage thinking critically that could change a life forever, Dr. Logic provide practice in developing critical thinking skills to improve everyday thinking, Dr.

Argument stress clarity and conciseness in defending one's position, and Dr. Socrates model Socratic questioning.

When considering individual professors' conception of critical thinking, one must ascertain whether the individual professor understands critical thinking more as a particular set of skills or as a character trait. Questions might include: 1) Does the professor's conception of critical thinking vary in emphasis according to class content? 2) Is the professor's conception of critical thinking consistent across various classes? 3) Is there more variance of emphasis between professors within a single department or between a single professor's conception when dealing with various content areas within the department?

Theoretically, the individual professor's conception of critical thinking should be evident in his/her teaching. Questions concerning the professor's teaching may include: 1) Does the professor teach critical thinking as a particular set of skills, for critical thinking as a character trait, or about critical thinking? 2) Is teaching of/for critical thinking implicit or explicit? 3) Is the professor's teaching of/for critical thinking congruent with his/her conception of critical thinking?

In assessing critical thinking does the professor focus on "right" answers or "right" thinking? Are the professor's assessment techniques congruent with his/her conception and teaching of critical thinking?

Additional studies could include questioning the students from the classes that were observed. Did the students "get" what each professor was trying to "give"?

Finally, does years of teaching experience affect one's conception, teaching, and assessment of critical thinking? In this study, Dr. Guide expressed the broadest conception of critical thinking. Of the four professors, Dr. Guide also has had the most years of teaching experience.

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APPENDIX

FORMS

OKLAHOMA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD  
OKLAHOMA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD -  
CONTINUATION

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD

**DATE: 12-16-98**

**IRB #: ED-99-066**

**Proposal Title: PHILOSOPHY PROFESSORS' CONCEPTION OF CRITICAL  
THINKING**

**Principal Investigator(s): Martin Burlingame, L. Elaine Bowman**

**Reviewed and Processed as: Expedited**

**Approval Status Recommended by Reviewer(s): Approved**

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Signature:



Date: December 16, 1998

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Carol Olson, Director of University Research Compliance  
cc: L. Elaine Bowman

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modification to the research project approved by the IRB must be submitted for approval. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

**OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD**

**DATE: January 25, 2000**

**IRB#: ED-99-066**

**Proposal Title: PHILOSOPHY PROFESSORS' CONCEPTION OF CRITICAL  
THINKING**

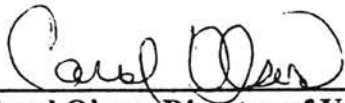
**Principal                      Martin Burlingame  
Investigator(s):              L. Elaine Bowman**

**Reviewed and  
Processed as:                  Continuation**

**Approval Status Recommended by Reviewer(s): Approved**



**Signature:**



**Carol Olson, Director of University Research Compliance**

**January 25, 2000  
Date**

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modification to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA

Louise Elaine Bowman

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