CHAPTER 1

Using Writing to Promote Thinking

A Busy Professor's Guide to the Whole Book

The premise of this book is that integrating writing and other critical thinking activities into a course increases students' learning while teaching them thinking skills for posing questions, proposing hypotheses, gathering and analyzing data, and making arguments. Professors who successfully integrate writing and critical thinking tasks into their courses often report a satisfying increase in their teaching pleasure: class discussions are richer, students are more fully engaged in their learning, and the quality of their performance improves.

But the use of writing and critical thinking activities to promote learning does not happen through serendipity. Teachers must plan for it and foster it throughout the course. This chapter suggests a sequence of steps that teachers can take to integrate writing and critical thinking into their courses. It then addresses four negative beliefs that often discourage teachers from taking these steps—the belief that integrating writing into a course will take time away from content, that writing assignments are not appropriate for some disciplines or courses, that assigning writing will bury a teacher in paper grading, and that assigning writing requires specialized expertise. Because these beliefs raise important concerns, I seek to supply reassuring responses at the outset.

This chapter provides, in effect, a brief overview of the whole book; subsequent chapters treat in depth each of the suggestions or issues introduced briefly here. Teachers who are pressed for time can read this chapter and then, using the cross-references provided,

turn directly to the other chapters that address their most immediate concerns.

Steps for Integrating Writing and Critical Thinking Activities into a Course

This section surveys seven steps teachers can take to integrate writing and critical thinking activities into a course.

Step 1: Become Familiar with Some of the General Principles Linking Writing to Learning and Critical Thinking

To appreciate how writing is linked to learning and critical thinking, we can begin with a brief discussion of how we might define critical thinking.

Critical Thinking Rooted in Problems. Although definitions in the pedagogical literature vary in detail, in their broad outlines they are largely elaborations, extensions, and refinements of the progressive views of John Dewey (1916), who rooted critical thinking in the students' engagement with a problem. "The most significant question which can be asked," says Dewey, "about any situation or experience proposed to induce learning is what quality of problem it involves" (p. 182). Problems, for Dewey, evoke students' natural curiosity and stimulate both learning and critical thought. "Only by wrestling with the conditions of the problem at first hand, seeking and finding his own way out, does [the student] think" (p. 188).

Part of the difficulty of teaching critical thinking, therefore, is awakening students to the existence of problems all around them. Meyers (1986), who agrees with Dewey that problems are naturally motivating, argues that teachers ought to begin every class with "something that is a problem or a cause for wonder" (p. 44). Meyers quotes philosopher and chemist Michael Polanyi, who claims that "as far down the scale of life as worms and even perhaps amoebas, we meet a general alertness of animals, not directed towards any specific satisfaction, but merely exploring what is there: an urge to achieve intellectual control over the situations confronting [them]" (p. 41). Presenting students with problems, then, taps into something natural and self-fulfilling in our beings. As Brookfield (1987) claims, critical thinking is "a productive and positive" activity. "Critical thinkers are actively engaged with life" (p. 5). This belief in the natural, healthy, and motivating pleasure of problems—and in the power of well-designed problems to awaken

and stimulate the passive and unmotivated student—is one of the underlying premises of this book.

The Special Nature of Academic Problems. Not all problems, however, are *academic* problems—the kinds of problems that we typically present to students in our classrooms or that we pose for ourselves in doing scholarly research. To grow as critical thinkers, students must develop the mental habits that allow them to experience problems phenomenologically, to dwell with them—to understand, in short, what makes a problem problematic. To a large extent, these mental habits are discipline-specific, since each discipline poses its own kinds of problems and conducts inquiries, uses data, and makes arguments in its own characteristic fashion. But some aspects of critical thinking are also generic across all disciplines. For Brookfield (1987), the two "central activities" of critical thinking involve "identifying and challenging assumptions and exploring alternative ways of thinking and acting" (p. 71). Similarly, Paul (1987) argues that critical thinking involves entering imaginatively into opposing points of view to create "dialogic exchange" between our own views and those whose thinking differs substantially from our own. Kurfiss (1988) likewise believes that critical thinkers pose problems by questioning assumptions and aggressively seeking alternative views. For her, the prototypical academic problem is "ill-structured"; that is, it is an open-ended question that does not have a clear right answer and therefore must be responded to with a proposition justified by reasons and evidence. "In critical thinking," says Kurfiss, "all assumptions are open to question, divergent views are aggressively sought, and the inquiry is not biased in favor of a particular outcome" (p. 2). Kurfiss's formal definition of critical thinking, which emphasizes that its outcome is *both* a tentative solution to the problem and a justifying argument, is particularly helpful. For Kurfiss, critical thinking can be defined as "an investigation whose purpose is to explore a situation, phenomenon, question, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that can therefore be convincingly justified" (p. 2).

The Link Between Writing and Critical Thinking. Given this view of critical thinking, what is its connection with writing? Quite simply, writing is both a process of doing critical thinking and a product communicating the results of critical thinking. As I show in Chapter Two, writing instruction goes sour whenever writing is conceived primarily as a "communication skill" rather than as a process and product of critical thought. If writing is merely a communication skill, then we primarily ask of it, "Is the writing clear?" But if writing is critical thinking, we ask, "Is the writing interesting?

Does it show a mind actively engaged with a problem? Does it bring something new to readers? Does it make an argument?" Academic writing, as Chapters Two and Three explain, begins with the posing of a problem. The writer's thesis statement is a tentative response to that problem, a "solution" that must be supported with the kinds of reasons and evidence that are valued in the discipline. Writers produce multiple drafts because the act of writing is itself an act of discovery or, in Dewey's terms, of "wrestling with the conditions of the problem" at hand. Behind the scenes of a finished product is a messy process of exploratory writing, conversation, discarded drafts, midnight agony. Chapter Two deals with this issue in depth.

Step 2: Plan Your Course with Critical Thinking Objectives in Mind

Once teachers are convinced of the value of critical thinking, the next step is to design a course that nurtures it. What is such a course like? In her comprehensive review of the literature on critical thinking, Kurfiss (1988) examined a wide range of successful disciplinary courses devoted to the teaching of both subject matter and critical thinking. In each case, she explains, "the professor establishes an agenda that includes learning to think about subject matter. Students are active, involved, consulting and arguing with each other, and responsible for their own learning" (p. 88). From this review, she derives eight principles for designing a disciplinary course that supports critical thinking:

1. Critical thinking is a learnable skill; the instructor and peers are resources in developing critical thinking skills.
2. Problems, questions, or issues are the point of entry into the subject and a source of motivation for sustained inquiry.
3. Successful courses balance challenges to think critically with support tailored to students' developmental needs.
4. Courses are assignment centered rather than text and lecture centered. Goals, methods, and evaluation emphasize using content rather than simply acquiring it.
5. Students are required to formulate and justify their ideas in writing or other appropriate modes.
6. Students collaborate to learn and to stretch their thinking, for example, in pair problem solving and small group work.
7. Several courses, particularly those that teach problem-solving skills, nurture students' metacognitive abilities.
8. The developmental needs of students are acknowledged and used as information in the design of the course. Teachers in these courses make standards explicit and then help students learn how to achieve them [pp. 88–89].

This book aims to help teachers develop courses that follow these guidelines. Of key importance are principles 2, 4, and 5: a good critical thinking course presents students with "problems, questions, and issues" that make a course "assignment centered, rather than text or lecture centered" and holds students responsible for "formulating and justifying" their solutions orally or in writing. This book particularly emphasizes writing assignments because they are perhaps the most flexible and most intensive way to integrate critical thinking tasks into a course and because the writing process itself entails complex critical thinking. But much attention is also given to class discussions, small group activities, and other teaching strategies that encourage students to work collaboratively to expand, develop, and deepen their thinking. Attention is also given throughout to the design of problems at appropriate levels of difficulty, to the developmental needs of students, and to the importance of making expectations and criteria clear (principles 1, 3, and 8).

Step 3: Design Critical Thinking Tasks for Students to Address

A crucial step in teaching critical thinking is to develop good problems for students to think about. Tasks can range from major disciplinary issues down to tiny questions about the meaning of a key passage in a course reading. The kinds of questions you develop for students will depend on the nature of question asking in your own discipline and on your own emphases in teaching critical thinking.

When I conduct workshops in writing across the curriculum, I like to emphasize a disciplinary, content-driven view of critical thinking by asking faculty to write out one or two final examination essay questions for one of their courses—questions that they think require both subject matter knowledge and critical thinking. We then discuss the kinds of critical thinking needed and the relative difficulty of each question, sometimes offering suggestions on ways to improve questions to elicit the kinds and levels of critical thinking the teacher seeks. When we have appreciated the value of these questions for promoting critical thinking, I suggest that it is a shame to waste them on a timed exam, where students spend only an hour or so on task. Such questions and dozens more like them can be integrated into the fabric of a course where they can stimulate curiosity, drive inquiry, and promote learning. Chapters Five, Six, and Seven focus specifically on the design of critical thinking tasks to serve as formal or informal writing assignments or as starting points for other critical thinking activities.

Step 4: Develop a Repertoire of Ways to Give Critical Thinking Tasks to Students

Once you have developed a stockpile of critical thinking problems based on your course's subject matter, you can choose from dozens of ways to integrate them into your course. This book presents numerous options for giving critical thinking problems to students. These include the following:

1. *Problems presented as formal writing assignments.* Formal writing assignments, which require revision and multiple drafts, keep students on task for extended periods and are among our most powerful tools for teaching critical thought. They can range in length from one-paragraph "microthemes" (see Chapter Five) to major research papers (see Chapter Twelve). As these chapters show, good academic assignments usually require that the student formulate and support a thesis in response to a problem. Such assignments are far more effective for developing critical thinking than traditional topic-centered assignments ("Write a paper on a topic of your choice").

2. *Problems presented as thought-provokers for exploratory writing.* Although students normally write only a few formal papers for a course, they can do behind-the-scenes exploratory writing on a daily basis. Chapters Two, Three, and Six provide a rationale for this kind of writing, which is a seedbed for critical thought. Exploratory writing records the actual process of critical thinking while simultaneously driving it forward. Perhaps more than any other instructional tool, exploratory writing transforms the way students study for a course because it can make active critical thinking part of each day's homework. Chapters Six and Eight give numerous suggestions for ways to integrate exploratory writing into a course, ranging from various kinds of journals to e-mail conversations.

3. *Problems presented as tasks for small group problem solving.* One of the most effective ways to use critical thinking problems in class is as collaborative learning tasks for small groups. Groups are given a set time to debate alternative solutions to a problem and to arrive at either a consensus or a reasoned "agreement to disagree." In a plenary session, groups report and justify their solutions to the whole class. The instructor usually critiques the groups' solutions and often explains how experts in the discipline (for whom the teacher is spokesperson) might tackle the same problem. During plenary sessions, the instructor becomes a powerful role model and coach of critical thinking. Chapter Nine focuses on the uses of small groups to promote critical thinking.

4. *Problems presented as starters for inquiry-based class discussions.* Discussion classes can begin with one or two critical thinking prob-

lems written on the chalkboard as "questions of the day." The teacher guides the discussion, encouraging students to appreciate and manage complexity. (If students have addressed the same questions the night before in a journal entry or some other form of exploratory writing, they will be both eager and prepared for class discussion.) Chapter Ten suggests techniques for leading class discussions that promote critical thinking.

5. *Problems presented as think-on-your-feet questions for in-class "cold calling."* The teacher calls on one person at a time to think aloud, systematically following one question with another, Socratic style. Professor Kingsfield, in the 1973 film *The Paper Chase,* is many persons' nightmare example of the cold-calling professor. Chapter Ten offers suggestions for softening Kingsfield's cold-calling strategy to make it a supportive yet challenging way to encourage students to use course material rather than just memorize it.

6. *Problems presented as focusing questions for in-class debates, panel discussions, cases, or fishbowls.* Other ways to get students actively addressing critical thinking problems in class include classroom debates, panel discussions, cases, and fishbowls. All of these techniques are described in detail in Chapter Ten.

7. *Problems presented as practice exam questions.* Chapter Eleven suggests ways to coax more student learning and critical thinking out of essay exams. One of the best approaches is to give practice exams that students write for homework on a self-timed basis. Feedback is provided through in-class discussion of representative essays.

The point of all these strategies is to model for students a view of knowledge in which inquirers must develop and support provisional answers to disciplinary problems. By actively using new concepts and information, students engage course material on a deeper level.

Step 5: Develop Strategies to Include Exploratory Writing and Talking in Your Courses

Good writing, I like to tell my students, grows out of good talking—either talking with classmates or talking dialogically with oneself through exploratory writing. A key observation among teachers of critical thinking is that students, when given a critical thinking problem, tend to reach closure too quickly. They do not suspend judgment, question assumptions, imagine alternative answers, play with data, enter into the spirit of opposing views, and just plain linger over questions. As a result, they often write truncated and underdeveloped papers. To deepen students' thinking, teachers

need to build into their courses time, space, tools, and motivation for exploratory thinking. Chapters Six, Eight, Nine, and Ten suggest numerous ways to make exploratory writing and talking a habit of students in your courses.

Step 6: Develop Effective Strategies for Coaching Students in Critical Thinking

Besides giving students good problems to think about, teachers need to critique students' performances and to model the kinds of critical thinking they want students to develop. According to Meyers (1986), teachers of critical thinking will often spend much of their class time as "referees, coaches, and mentors rather than as lecturers and purveyors of the truth. . . . For most of us," he continues, "this is a worthwhile but difficult shift" (p. 39). This book suggests numerous ways that teachers can coach critical thinking, including guiding discussions, critiquing solutions developed by small groups, writing comments on student drafts, holding conferences, sharing autobiographical accounts of their own thinking and writing processes, discussing strengths and weaknesses of sample papers, breaking long assignments into stages, and stressing revision and multiple drafts. An equally important aspect of coaching is providing a supportive, open classroom that values the worth and dignity of students. Suggestions for coaching writing and critical thinking are integrated throughout the book but occur especially in Chapter Thirteen. Chapter Eight focuses specifically on coaching students as critical readers of academic texts, and Chapter Fourteen focuses entirely on ways to comment on student papers to promote critical thinking.

Step 7: When Assigning Formal Writing, Treat Writing as a Process

In most kinds of courses, the student "product" that most exhibits the results of critical thinking is a formal essay or technical report. Often, however, what the student submits as a finished product is in effect an early draft, the result of an undeveloped and often sterile writing process. No matter how much we exhort students to write several drafts and to collaborate with peers, most of our students will continue to write their papers on the night before they are due unless we structure our courses to promote writing as a process.

Teachers can get better final products, therefore, if they design their courses from the outset to combat last-minute writing, to promote exploratory writing and talking, and to encourage substantive revision. Chapter Thirteen deals with this problem in detail.

Four Discouraging Beliefs and Some Encouraging Responses

The steps just described can help teachers integrate writing and critical thinking activities into their courses. However, many teachers who are tempted to do so may be held back by negative beliefs or misconceptions about what happens when a teacher begins developing a pedagogy using writing and critical thinking. It will be helpful, therefore, to address these beliefs at the outset. Based on discussions with faculty from across the disciplines, I find the following four misconceptions the most pervasive and potentially discouraging.

Misconception 1: Emphasizing Writing and Critical Thinking in My Courses Will Take Time Away from Content

Many faculty, understandably concerned about coverage of material, do not want to shift class time away from content. In my experience, however, emphasizing writing and critical thinking in a course increases the amount of subject matter that students actually learn and in many cases can actually *increase total coverage* of content. My assertion may seem counterintuitive until one realizes that the primary effect of adding writing and critical thinking components to a course is the restructuring and transforming of students' study time outside of class. Critical thinking tasks—which require students to *use* their expanding knowledge of subject matter to address disciplinary problems—motivate better study habits by helping students see their learning as purposeful and interesting. If tasks are designed to improve academic reading (see Chapter Eight), students often learn to read textbooks more powerfully and interact more critically with supplemental readings, reducing the teacher's need to explain readings in class. Students come to class better prepared, ready to ask questions, and looking forward to discussions. More confident that students can acquire "coverage" from assigned readings, teachers can, if they choose, redirect some class time away from explaining readings toward critical discussions, small group problem solving, or other critical thinking activities. To ensure that courses accomplish both the instructor's content and coverage goals for a course and the process goals of inquiry, analysis, and argument, instructors should first establish content goals and then develop critical thinking problems that will help students achieve those goals. Throughout, the emphasis of this book is on helping students learn the subject matter of a course at a deeper and more intellectually mature level. Chapter Five includes some suggestions for identifying both content and process goals for a course.

Misconception 2: Writing Assignments Are Unsuitable in My Course

Most teachers believe that writing applies naturally to English courses, to liberal arts courses, and to certain specialized courses in their fields. They may not, however, believe that writing is equally appropriate in their own courses. These doubts are frequently expressed by teachers of quantitative or technical courses or ones that focus on basic facts, concepts, or algorithmic procedures that according to the teacher must be "committed to memory" before the student can move on to problem solving and analysis. If we apply some conceptual blockbusting, however, we see that writing assignments can be used profitably in any course. (My point is exemplified by the wide range of disciplines represented in this book—accounting, physics, chemistry, all levels of mathematics, nursing, business, education, and engineering, as well as the humanities and social sciences.) By conceptual blockbusting, I mean primarily rethinking what constitutes a "writing assignment." Many of the assignments in this book are nongraded or are very short formal tasks designed to help students understand an important course concept. Others have a metacognitive aim—helping students reflect on their own thinking processes or productively altering their methods of studying or reading. Still others have a procedural aim—helping students learn disciplinary methods of inquiry and analysis. Whatever a teacher's goals for a course, writing assignments can be designed to help students meet them.

Misconception 3: Adding More Writing to My Course Will Bury Me in Paper Grading

Many teachers would gladly require more writing in their courses if it were not for marking and grading all those papers. If teachers do not currently assign any writing in their courses, adding a writing component will admittedly require extra work, although not necessarily more total time devoted to teaching if some of the teacher's current preparation or conference time is shifted toward responding to writing. If teachers already require writing in their courses (say, a couple of essay exams and a term paper), following the suggestions in this book might *reduce* the total time they spend on student writing while simultaneously making that time more rewarding for themselves and more productive for students.

There are many ways to work writing into a course while keeping the paper load manageable. Some methods require no teacher time (for example, in-class freewriting), some minimal time (perusing a random selection of entries from a guided journal), and

some very modest time (assigning write-to-learn microthemes using models feedback). Even when you require several formal essays or a major research paper, you may employ any number of timesaving strategies to reduce the paper load (see Chapter Thirteen). The key is to decide how much time you are willing to spend on student writing and then to plan your courses to include only what you can handle—always remembering that you do not have to read everything a student writes.

Misconception 4: I Am Not Knowledgeable Enough About Writing and Grammar to Help Students with Their Own Writing

Many teachers across the curriculum will admit that English was not their favorite subject. Although they produce competent professional writing in their own fields, they believe that because they struggle with their own writing and because they do not know grammatical terminology or composition theory, they lack the skills to help students. This book aims to allay these fears. Because the best teacher commentary focuses primarily on ideas and development, no special terminology is needed. Teachers simply need to be honest readers, making comments like these:

"I got lost in this part."

"You need more evidence here."

"You seem to be overlooking Baker's research on this problem. Can you summarize and respond to Baker's views?"

"Excellent point!"

A main key to teaching writing, as Chapter Two argues, is teaching students how to revise. The more teachers struggle to revise their own writing, the more they can serve as role models for students. In short, you should discover that your own experience as an academic writer and reader, combined with your expertise in how scholars in your field inquire and argue, should be all the background you need to help your students with their writing.

Conclusion: Engaging Your Students with the Ideas of Your Course

The steps suggested here for integrating writing and critical thinking assignments into a course can increase students' engagement with subject matter and improve the quality of their work. Moreover, these suggestions do not call for rapid, complete makeovers

of a course. It is possible to make changes in a course gradually, trying a few new activities at a time, looking for strategies and approaches that fit your discipline and subject matter, that work for your students, and that accord with your own personality and teaching philosophy.

Some teachers make only minimal changes in their courses. I know of one teacher, a brilliant lecturer, who has changed nothing in his courses except for adding a series of nongraded "practice essay exams." He collects the exams (written out of class, self-timed by students), keeps a record of who submits them, reads randomly selected ones in search of representative problems as well as models of excellent exams, and then holds class discussions of what constitutes a good answer. He is very happy with this minimalist approach and offers persuasive anecdotal evidence that this practice has improved students' study habits as well as the quality of their actual essay exams.

But I know of other teachers who have radically transformed their classrooms, moving from a teacher-centered to a student-centered pedagogy, from lecture-based courses to inquiry-based courses using exploratory writing, collaborative learning, lively discussions, and other strategies for engaging students in inquiry and debate.

In the pages that follow, I invite readers to find what works for them and for their students.