



ENGAGING IDEAS

The Professor's Guide to
Integrating Writing, Critical
Thinking, and Active Learning
in the Classroom

Second Edition

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How Writing Is Related to Critical Thinking

The writing-across-the-curriculum movement—along with a surge of new interest in composition theory and practice—began in the 1970s as a reaction against traditional writing instruction that associated good writing primarily with grammatical correctness and style and thus isolated writing instruction within English departments, the home of the grammar and style experts. The problem with traditional writing instruction was that it led to a view of writing as a set of isolated skills unconnected to an authentic desire to converse with interested readers about real ideas.

A classic “Shoe” cartoon from the late ‘80s illustrates the traditional view. Skyler, a bright young bird of a student, sits at his school desk writing essays—an activity that he apparently relishes. “They give me an opportunity to perfect a verbal skill I can use all my life,” he says with a self-satisfied smile. In the last frame of the cartoon, his smile turns to a triumphant grin as he discloses the skill he has in mind: “the ability to disguise total ignorance with good writing.”

To the general public this is a funny cartoon; to me it symbolizes what was wrong with traditional writing instruction. Skyler believes that the act of writing can be separated from thinking, that writing is merely packaging and thus a separate thing from “content,” which he assumes exists independently, apart from language. To put it another way, writing is like the box and wrapping paper into which we put our already formulated ideas. Once writing is imagined as “packaging,” students find little use for it. Separated

from the act of thinking and creating, writing becomes merely a skill that can be learned through grammar drills and through the production of pointless essays that students do not want to write and that teachers do not want to read. This is the view of writing held by many first-year students when they show up at our gates to begin their college careers. It is the challenge of faculty across the disciplines, along with their colleagues in writing programs and writing centers—to show them other ways of imagining writing.

To gain a different perspective on writing, let's see what writing looks like through the metaphors of a different language. In French, the word for a rough draft is *brouillon*, derived from a verb meaning "to place in disorder, to scramble." This metaphor suggests a writing process that begins as a journey into disorder, a making of chaos, out of which one eventually forges an essay. Perhaps driven by their awareness of disorder in the term *brouillon*, the French place an equally strong emphasis on a *plan* (roughly equivalent to the English *outline*), which is the principle of order that the mind must impose on the scrambled *brouillon*. Together the metaphors *plan* and *brouillon* reveal a creative tension between order and disorder. In English, we have no equivalent word for a *brouillon*. Our phrase "rough draft" suggests something that must be smoothed and polished, but not something deliberately scrambled, something placed in disorder, something that must be wrestled into form. Nor is our word *outline*—suggesting an inert structure—exactly equivalent to *plan*, which like the English word *plan* implies a sense of human purpose and intention.

Viewed in the light of the metaphorical *brouillon* and *plan*, traditional writing instruction seems impoverished indeed. Traditionally, we have seldom suggested to students that writing has a *brouillon* stage, a creative period of confusion and disorder; rather, we have taught that writing begins with an outline (which we dutifully correct for proper indentation and placement of periods and capital letters). Without the *brouillon*, we have eliminated from our writing classes the rich, creative source of ideas and substituted instead a sterile order that leaves us obsessed with correctness, neatness, and propriety. The message from our schools has often been that writing is a joyless activity, an opportunity mainly for displaying errors for teachers to red-pencil. The social cost is incalculable: when writing gets separated from what the writer really thinks, the experience of "really thinking" can be quickly lost from the curriculum.

The writing-across-the-curriculum movement is thus rooted in a radical reenvisioning of what it means to be a writer. It is the purpose of the four chapters in Part One to sketch for the reader a general overview of the theory, principles, and rationale that underlie a revised approach to writing, one that can accelerate students' growth as thinkers and learners. The

present chapter discusses how writing can be best understood as a process of critical thinking. Chapter Three examines the role of critical thinking in addressing rhetorical problems of audience, purpose, and genre. Extending the ideas developed in Chapters Two and Three, Chapter Four shows how different genres—for example, an academic article versus a personal reflection—promote different kinds of critical thinking. Finally, Chapter Five examines current theory about the best way to respond to grammatical problems and errors in student writing. Together, these chapters provide the underlying theory for the rest of the book's pragmatic focus on classroom strategies for improving students' writing and critical thinking.

Overview of the Writing-Across-the-Curriculum and Critical Thinking Movements

Before we turn to the way that writing promotes critical thinking, let's take a brief look at the overlapping histories of the writing-across-the-curriculum and critical thinking movements. Since its origins in the 1970s, writing-across-the-curriculum has developed into a nationwide (and increasingly a worldwide) network of practitioners and researchers, often loosely organized into programs shaped by local exigencies and culture. (For a history of writing across the curriculum, see Bazerman and others, 2005, and Russell, 2002.) Sometimes a distinction is made between writing-across-the-curriculum (WAC) and writing-in-the-disciplines (WID). The former is often associated with "writing to learn," the aim of which is to use a variety of writing activities to promote deep learning of a course's ideas, concepts, and skills. The latter is more often associated with "learning to write," particularly with learning to write within the discipline-specific genres and styles of the student's major. In places where speaking is paired with writing, programs are often designated as "communication-across-the-curriculum" (CAC). A related movement emerging in Europe, sponsored by the European Association of Teachers of Academic Writing (EATAW), focuses specifically on academic writing in specialized settings, often targeting graduate students writing theses. Lately, many institutions have added quantitative literacy to this mix so that students often write papers analyzing quantitative data and using numbers or other empirical data to support claims. What this kaleidoscope of movements has in common is a commitment to the empowerment of students through a constructivist view of knowledge that demands critical thinking rather than memorization and regurgitation.

A parallel movement has focused on teaching critical thinking. The literature reveals considerable consensus on how critical thinking can be

defined. A widely cited definition comes from Paul and Elder (2009), who characterize critical thinking as follows:

A well cultivated critical thinker:

- *raises vital questions and problems, formulating them clearly and precisely*
- *gathers and assesses relevant information, using abstract ideas to interpret it effectively*
- *comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards*
- *thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and*
- *communicates effectively with others in figuring out solutions to complex problems. [p. 2]**

In Chapter One, I summarized the definitions of Brookfield (1987) and Kurfiss (1988). Similarly, Perkins, Jay, and Tishman (1994) argue that critical thinkers question assumptions and seek out alternative perspectives that they analyze open-mindedly. All theorists agree that skilled critical thinkers demand justification of claims, seek to disconfirm hypotheses, avoid hasty conclusions, and provide reasons and evidence for their own claims.

Although experts largely agree on what critical thinking means, they often disagree on how to teach it or to assess it. One approach, which we might characterize as “psychometric,” disaggregates critical thinking into a variety of subskills such as making inferences, recognizing assumptions, and detecting fallacies. Practitioners then design exercises aimed at developing each subskill. Different scholars identify different sets of subskills. For example, Ennis (2006, 1996) has developed a taxonomy categorizing dozens of subskills under the headings of “dispositions” (three kinds) and “abilities” (fifteen kinds), while one researcher, as reported by Fawkes (2001), identifies 250 subskills. (For a comprehensive bibliography of the research literature and critical thinking textbooks arising from this approach, see Ennis, 2006.) Psychometric researchers have developed a variety of machine-gradable multiple-choice instruments to assess critical

* From *Miniature Guide to Critical Thinking Concepts and Tools* by Richard Paul and Linda Elder, 2009, Dillon Beach, CA: Foundation for Critical Thinking Press, p. 2. www.criticalthinking.org. Used by permission.

thinking skills. The most widely used of these are the Watson Glaser Critical Thinking Appraisal, the California Critical Thinking Skills Test, the Cornell Critical Thinking Test (Levels X or Z), and the California Critical Thinking Disposition Inventory (see Fawkes, 2001, for information about these tests).

However, this approach to critical thinking doesn't illuminate the relationship of critical thinking to writing—that is, to the generation of ideas and to the production of one's own arguments. Another strand of the critical thinking movement—focused on making arguments—is more helpful. Within this approach, critical thinking is both taught and assessed by asking students to construct arguments in response to what cognitive psychologists call “ill-structured problems”—that is, problems that cannot be solved algorithmically to yield a single right answer. Kurfiss (1988) defines critical thinking 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). According to Kurfiss, an effective assessment of critical thinking would typically ask students to develop a “best solution” to an ill-structured problem and to justify the proposed solution with appropriate reasons and evidence. This approach has influenced the developers of the Collegiate Learning Assessment (CLA) to design a critical thinking assessment based on writing rather than a multiple choice test (see Hersh, n.d.).

The rest of this chapter explores in more detail the relationship between writing and critical thinking. It focuses first on the dialogic view of knowledge that characterizes academic writing. It then describes students' difficulties in producing thesis-based organizational structures, explores various theoretical explanations for these difficulties, and suggests pedagogical strategies for overcoming them through improved critical thinking. It concludes with an examination of the writing processes through which experienced writers, in a series of drafts, discover, complicate, and clarify their ideas.

Writing, Thinking, and a Dialogic View of Knowledge

Our friend Skyler believes that he can disguise total ignorance with “good writing” because he sees knowledge as discrete bits of information to be studied and stored in memory. Before he can connect thinking with writing, he needs to understand “knowing” in a different way. Asking a first-year

student to write a college-level essay is really asking for a baffling new view of knowledge itself.

The View of Knowledge Underlying Academic Writing

For the most part, formal academic writing requires analytical or argumentative thinking. Such writing is initiated by a problem or question and is typically characterized by a controlling thesis statement supported by a hierarchical structure of reasons and evidence. The thesis statement is the writer's one-sentence summary of his or her argument—the writer's "answer" or "solution" to the question or problem that drives the essay. Thesis-governed writing entails a complex view of knowledge in which differing views about the nature of truth compete for allegiance.

However, as William Perry (1970) has shown in his influential study of students' cognitive growth through college, most of our students do not come to college seeing the world this way. Perry shows that most beginning college students view education dualistically, imagining knowledge as the acquisition of correct information and right answers. They see themselves as empty buckets being filled with data by their professors. To dualists, the only academic use of writing is to demonstrate one's knowledge of the correct facts—a concept of writing as information rather than as argument or analysis. Students in Perry's middle stages of multiplicity are beginning to accept the notion of opposing views, but they see these simply as "opinions"; because "everyone has a right to his or her own opinion," they see little purpose in defending any particular view and thus are not compelled through the process of rigorous thinking that intellectually mature writing demands. It is not until they reach Perry's highest stages of development that a real need for reasoned argument begins to emerge.

What our beginning college writers do not understand, therefore, is the view of academic life implied by writing across the curriculum, where writing means joining a conversation of persons who are, in important ways, *fundamentally disagreeing with each other*, or, to make the matter less agonistic, *jointly seeking answers to shared questions that puzzle them*. In other words, they do not see that a thesis implies a counterthesis and that the presence of opposing or alternative voices implies a view of knowledge as dialogic, contingent, ambiguous, and tentative.

It follows that teaching thesis-governed writing means teaching students an unfamiliar way of looking at their courses and at knowledge itself. For a brief glimpse of a student being initiated into this uncomfortable world, consider for a moment the following transcript of a writing center conference in which the student had been asked to support one of

two opposing theses: "The U.S. involvement in Central America is or is not imperialism."

Tutor: If I said, "Tell me whether or not this is imperialism," what's your first gut reaction?

Writer: There are very strong arguments for both. It's all in how you define it.

Tutor: Okay, who's doing the defining?

Writer: Anybody. That's just it—there's no real clear definition. Over time, it's been distorted. I mean, before, imperialism used to be like the British who go in and take Hong Kong, set up their own little thing that's their own British government. That's true imperialism. But the definition's been expanded to include indirect control by other means, and what exactly that is I guess you have to decide. So I don't know. I don't think we really have control in Central America, so that part of me says no, that's not imperialism. But other parts of me say we really do control a lot of what is going on in Central America by the amount of dollars and where we put them. So in that sense, we do have imperialism . . . So the other big question on that, and why I brought in the balance of power, is, where are we allowed to cross the line and where are we not?

Tutor: Okay then, if you're going to ask that question—where are we allowed to cross the line?—it implies that a line is drawn. So what I guess I'm trying to get you to say is [pause]

Writer: Whether I'm for or against.

Tutor: Yes!

Writer: The reason why I'm undecided is because I couldn't create a strong enough argument for either side. There are too many holes in each side. If I were to pick one side, somebody could blow me out of the water.

The student writer, obviously engaged with the assignment, is keenly aware of the tentativeness of both positions, either of which can be "blown out of the water" by the other side. Both the facts of the case and, more troublingly, the definition of imperialism are open-ended problems. The student longs for a "right answer," resisting the frightening prospect of having to make meanings and defend them. Good writing assignments produce exactly this kind of discomfort: the need to join, in a reasoned way, a conversation of differing voices.

We thus need to help our students see that academic writing involves intellectual and often emotional *struggle*. The struggle is rooted in the

writer's awareness that a problem exists—often dimly felt, unclarified, and blurry—and that the writer's thesis must be a tentative, risky proposition in response to that problem, a proposition that competes for readers' allegiance with other differing propositions.

Teaching Multiple Drafts as a Thinking Process

Fortunately, the writing process itself provides one of the best ways to help students learn the active, dialogic thinking skills valued in academic life. Students need to understand that even for the most skilled writers, composing an essay is a tortuous process because, as writing theorist Peter Elbow (1973) has argued, "meaning is not what you start out with but what you end up with. . . . Think of writing then not as a way to transmit a message but as a way to grow and cook a message" (p. 15). Thus, the elegance and structure of thesis-governed writing—as a finished product—evolves from a lengthy and messy process of drafting and redrafting. An across-the-curriculum emphasis on multiple drafts encourages the messy process whereby writers become engaged with a problem and, once engaged, formulate, develop, complicate, and clarify their own ideas. The habit of problem posing and thesis making does not come naturally to beginning college students, who write more clearly when given assignments that do *not* challenge them as thinkers. The next sections explore this phenomenon in more detail.

Avoiding a Thesis: Three Cognitively Immature Essay Structures

To see more clearly the relationship between a dialogic view of knowledge and the approach to writing instruction advocated here, let's examine several cognitively immature organizational structures that students often resort to when unable to produce thesis-governed prose.

"And Then" Writing, or Chronological Structure

By "and then" writing I mean a chronological narrative in which the writer tells what happens between time point A and time point B without focus, selection, pacing, or tension. Students produce "and then" writing when they resort inappropriately to chronological organization. Typical examples are students' writing a plot summary of a film or short story instead of an analysis. Another example, commonly encountered in the sciences, is students' writing a literature review that simply summarizes articles in the order in which the student read them without creating an argument about what's known or unknown.

“And then” writing can be illustrated by the following student’s difficulty in producing an interpretive argument about Shakespeare’s *The Tempest*. This excerpt is from the introduction of the student’s first draft:

Prospero cares deeply for his daughter. In the middle of the play Prospero acts like a gruff father and makes Ferdinand carry logs in order to test his love for Miranda and Miranda’s love for him. He is also very cruel to the servant Caliban. In the end, though, Prospero is a loving father who rejoices in his daughter’s marriage to a good man.

Here the student seems to be summarizing the plot of *The Tempest* without forecasting an argument or proposing a thesis. The body of this draft contained similar passages of lengthy plot summary. However, in an office conference the instructor discovered that the student actually intended an argument. She thought that Prospero was a loving father, in contrast to several of her classmates who thought that Prospero was a tyrannical ruler and parent. The instructor helped her recast the introduction to set up a thesis.

Many persons believe that Prospero is an evil person in the play. They claim that Prospero exhibits a harsh, destructive control over Miranda and also, like Faust, seeks superhuman knowledge through his magic. However, I contend that Prospero is a kind and loving father.

The student is now prepared to make an argument. The paper poses a problem (What kind of father is Prospero?), indicates an opposing view (Prospero is harsh and hateful), and asserts a contestable thesis (Prospero is loving). She now needs to develop her reasons for arguing that Prospero is loving and organize her paper hierarchically to support these reasons with appropriate textual details.

It must be noted, however, that it is not just inexperienced writers who produce chronological structures. In their classic study, Linda Flower and John R. Hayes (1977) show that long passages of chronological writing characterize the early drafts of expert writers (see also Flower, 1979). In fact, they argue that chronological thinking provides a natural way of retrieving ideas and details from long-term memory. But experienced writers convert “and then” material into hierarchically focused material as they revise, whereas novice writers seem satisfied with the draft at the “and then” stage.

“All About” Writing, or Encyclopedic Order

Whereas the “and then” paper strings details on a chronological frame, the “all about” paper tries to say a little bit of everything about a topic. When well written, such papers may seem organized hierarchically because the writer usually groups data by category or topics. But the categories do not function as reasons in support of a thesis. Rather, like the headings in an encyclopedia article, they are simply ways of arranging information that do not add up to an argument.

Unfortunately, educators in America have a long tradition of rewarding “all about” writing. We encourage such writing when we assign a “report on North Dakota” in fifth-grade social studies, a “library paper on General Rommel” in eleventh-grade history, or “a term paper on schizophrenia” in college psychology. Assignments like these have endured because they have one major virtue: they increase students’ general store of knowledge about North Dakota, General Rommel, or schizophrenia. But they often do little to increase students’ maturity as writers and thinkers.

Consider the difference between a student who is asked to write a traditional “term paper” on, say, Charles Darwin versus a student who is asked to write a research paper on Darwin that must begin with the presentation of a problem or question that the writer will investigate and try to resolve.

Without guidance, the first student will tend toward “all about” writing, perhaps producing an initial outline with headings like these:

- I. Early childhood
- II. How Darwin became interested in evolution
- III. The voyage of the *Beagle*
- IV. An explanation of Darwin’s theory
- V. Darwin’s influence

This paper promises to be encyclopedic and devoid of surprise. But when the student is guided toward a focus on a significant question that grows out of the writer’s interests and that demands critical thinking, undergraduate research writing can spring to life. Flower (1993, p. 299) describes a successful undergraduate term paper on Darwin written at Carnegie Mellon University for a course in cognitive psychology. Flower’s student Kate, a sophomore, posed the following problem about Darwin at the end of her introduction:

In this paper I will look at the creativity of Charles Darwin by asking two questions. Does Darwin's work support or contradict current psychological definitions of creativity? And secondly, what is the best way to account for Darwin's own kind of creativity? Which of the major theories best fits the facts of Darwin's life and work?

Within her paper, Kate presented different theories of creativity and examined Darwin's work in the light of each theory. She proposed that Darwin was indeed creative and that his creativity could best be accounted for by the "problem-solving theory" of creativity, as opposed to the "romantic imagination theory," the "Freudian sexual energy theory," or "Wallis's four-stage theory."

Kate's essay reveals how successful undergraduate writing can be when students are actively engaged in posing and exploring questions. Emphasizing inquiry and question asking is thus a promising antidote to "all about" writing.

Data Dump Writing, or Random Organization

Both "and then" writing and "all about" writing have discernible organizational plans—chronological in the former case and encyclopedic in the latter. Data dump writing, by contrast, has no discernible structure. It reveals a student overwhelmed with information and uncertain what to do with it. Commonly encountered in research papers, data dump writing patches together quotes, statistics, and other raw information without a thesis or a coherent organizational plan. It takes all the data the writer gathered about topic X and dumps it, as it were, on the reader's desk. Data dump writing is particularly facilitated by the Internet because it is so easy to cut and paste material from websites; students often lift material word for word without assimilating it into their own language. Data dump papers can create nightmares for teachers with their exasperating mix of incomprehensible structure and possible plagiarism. Because data dump writing is familiar to all teachers, it needs no specific illustration here.

What Causes These Organizational Problems?

The "and then" paper, the "all about" paper, and the data dump paper all reveal a retreat, in some manner, from the kind of reasoned analysis and argumentation that we value in academic writing. Why do these problems occur? A number of explanations have been posed. For example, writing theorists influenced by the Swiss psychologist Jean Piaget have

hypothesized that the immature organizational patterns just described are symptomatic of concrete operational reasoners, who tend to focus on data, objects, or things as opposed to propositions or forms (Lunsford, 1979; Bradford, 1983). In writing, concrete operational reasoners can string details together chronologically ("and then" writing) or arrange them in simple informational categories ("all about" writing). But creating the kinds of nested hierarchical structures required in propositional writing requires the abstract thinking that characterizes formal operations.

Other explanations focus on theories of intellectual development such as Perry's developmental theory (1970) based on research with male students at Harvard or by Belenky, Clinchy, Goldberger, and Tarule (1986), who focus on women. In both schemas, students come to college imagining knowledge as the acquisition of correct information rather than the ability, say, to argue a position. Eventually, students develop a complex view of knowledge, where individuals have to take stands in the light of their own values and the best available reasons and evidence. Composition scholars using these theories have hypothesized that students will produce cognitively immature prose as long as their attitude toward knowledge remains in the early stages of intellectual growth (Hays, 1983; Lunsford, 1985). The best teaching strategies for accelerating students' growth are tasks that ask students to consider multiple points of view, to confront clashing values, and to imagine, analyze, and evaluate alternative solutions to problems. Many of the assignments used as illustrations throughout this book have these aims.

Still other explanations focus on the different cognitive processes of novices versus experts (Beaufort, 2007; Graff, 2004; Alexander, 2003; Bransford, Brown, and Cocking, 2000; Voss, 1989; Kurfiss, 1988; Sommers, 1980; Flower and Hayes, 1977). Novice/expert theory provides perhaps the most hopeful of all explanations because it implies fairly quick improvements in student writing derived from improved teaching practices. In this view, students simply have not been taught the kind of writing admired in the academy. "And then" structures, "all about" structures, and data dumping are the result of poorly designed writing assignments and uncoordinated teaching.

For example, many teachers report improvement in their students' writing when they use Booth, Colomb, and Williams (2008) to explain how expert academic writers construct an introduction: early in the introduction the writer must identify a problem, show why the problem is problematic, and motivate readers to see the problem's importance. Other teachers report the benefits of teaching students what Graff and Birkenstein (2009) call "the moves that matter in academic prose." Building on Graff's

(2004) earlier analysis of students as outsiders to academic prose, Graff and Birkenstein set out to demystify academic prose by showing students how to insert their own voices into academic conversations. (Later in this chapter I summarize some of the “moves” taught by Graff and Birkenstein—see pages 31–32.)

Pedagogical Strategies for Promoting Critical Thinking

This overview of writing and critical thinking points toward a consistent set of teaching practices aimed at promoting critical thinking about subject matter problems. If we are to create a pedagogy truly aimed at the development of thinking skills, we should consider adopting the following strategies.

Create Cognitive Dissonance for Students

According to Meyers (1986), “Students cannot learn to think critically until they can, at least momentarily, set aside their own visions of the truth and reflect on alternatives” (p. 27). A good way to promote this process is to create what psychologists call *cognitive dissonance*, which undermines students’ confidence in their own settled beliefs or assumptions. Research in neuroscience, as summarized by Zull (2002), offers a material explanation for how cognitive dissonance helps restructure neuronal networks in the brain. Zull explains how knowledge exists as elaborate networks of neurons and synapses. Because learners build new knowledge on existing neuronal networks, these existing networks must be partially dismantled if the learner is to create new networks that embrace fuller, more detailed knowledge. To encourage new networks, Zull recommends assignments that help students dismantle an older mistaken or inadequate view. Thus a physics teacher might facilitate this process by giving an assignment like this:

Many people believe, mistakenly, that summer is hotter than winter because the summer sun is closer to the earth. Imagine someone who holds this mistaken belief (your kid brother, for example). Send this person an e-mail attachment that explains why this belief seems logical but is in fact wrong. Then offer a better explanation.

In similar fashion, a teacher might challenge views that oversimplify a concept or make the concept too comfortable. Here is a professor’s assignment for a first-year seminar on the nature/nurture controversy in gender identity:

In class yesterday, almost 90 percent of you thought that Lawrence Summers was wrong in offering a biological hypothesis for why there are so few tenured female professors in math and physics at major research universities. Tomorrow's homework asks you to read the article by Harvard psychologist Steven Pinker, who supports Summers' biological hypothesis. Write a one-page thinking piece in which you summarize Pinker's argument and then explore ways that the research he cites causes you to view this issue more complexly.

Another strategy is to create “decentering” tasks that encourage students to see a phenomenon from an unfamiliar perspective or to teach them to play what Peter Elbow calls the “believing and doubting game” (1973, p. 147), a strategy that I explain in detail in Chapter Nine. The point of these strategies is to present students with conflicting interpretations of material and to encourage them to confront the inadequacies and contradictions lying dormant in the views they bring to college.

Present Knowledge as Dialogic Rather Than Informational

In addition to creating cognitive dissonance for our students, we need to show them that our course readings (and our lectures) are not “information” but arguments. In many academic disciplines—particularly the humanities and social sciences—introductory courses often initiate students into disciplinary examples of opposing views (Plato versus the pre-Socratics in philosophy, competing interpretations of *Hamlet* in literature, behaviorism versus humanism in psychology). In other disciplines—particularly the physical sciences and engineering—introductory courses must build up a disciplinary knowledge base presented largely as information. But much of what is now “known” in the sciences—and passed on to students as current knowledge—was once unknown and subject to theory, hypothesis, and empirical study. If science teachers can promote awareness of the historical development of knowledge—the original questions that gave rise to the currently accepted facts—they will be foregrounding what I mean by a dialogic or questioning epistemology.

To dramatize the difference between information and argument, teachers can situate readings and lectures within a dialogic structure. A master of this approach at my own institution was a much loved and now deceased historian who, in advance of a unit of lectures, gave his students a series of controversial theses that brought the course's subject matter into problematic focus. The students knew in advance that they would need to use

what they learned from lectures and readings to attack or defend each thesis in a short writing assignment. Typical theses used by my colleague included the following:

- The *essential* theme of the French Revolution was human freedom; Napoleon Bonaparte killed the French Revolution by reversing its thrust toward freedom.
- The Industrial Revolution created unprecedented wealth at the expense of brutalizing European labor and colonial producers.
- The ultimate victors in the English Revolution of 1688, the American Revolution, and the French Revolution were the economically conservative property-owning classes.

In all cases, the writing assignment is the same: “Present an argument that supports, rejects, or modifies the given thesis, and support your response with factual evidence.” My colleague’s goal was to help students see the difference between history as one damn thing after another and history as a constructed argument based on data and interpretation.

Teach the Academic “Moves” and Genres That Are Important in Your Discipline

Chapter Three on rhetorical problems and Chapter Thirteen on teaching undergraduate research will develop this strategy in more detail, but the general principles are relevant here. Certain “moves” of academic writing may be generic across all disciplines. For example, Graff and Birkenstein (2009) have identified the moves that help students position their own claims within a conversation of alternative views. Here are some examples of particularly important moves:

- “They say/I say”—which teaches students to summarize the views to which they are responding. In some cases, the “they say” is an opposing view (for example, a “mistaken critic”). In this case the “they” sets up a problem and becomes the exigency that prompts the writer’s argument. In other cases, the “they say” sums up the current state of knowledge on a question (the literature review) prompting the “I say,” which is the writer’s contribution aimed at advancing knowledge.
- “Yes, no, OK but”—which teaches students three main ways to respond to another writer’s view: to accept it and extend it (yes), to disagree with it (no), or to complicate it (OK but).

- “Plant a naysayer in your text”—which teaches students to role-play alternative moves by imagining and responding to the perspective of skeptics.
- “So what?”—which teaches students to articulate why the writer’s argument matters by showing what is at stake.

Closely related to Graff and Birkenstein’s academic moves are prototype templates for the deep structure of an academic argument (see Bartholomae, 1985):

- Many scholars have argued X, but I am going to argue Y.
- Scholars have frequently asked questions X, Y, and Z. But curiously they have neglected to ask A. This essay poses question A and proposes a solution.
- Researchers are currently confident in their understanding of X and Y. But we don’t yet understand Z because a component of Z is unknown. This paper tests a hypothesis relevant to that component.

Simply helping students understand these prototype structures goes a long way toward helping them envision a purpose for their writing.

In many cases, instructors also need to teach the genres of a given discipline, such as the experimental report, the ethnography, the research proposal, the business plan, or the interpretive argument in literature. Strategies for introducing students to the genres of their major fields are examined in Chapter Thirteen.

Create Opportunities for Active Problem Solving That Involve Dialogue and Writing

Homework and other activities for a course should engage students in complex thinking about significant problems. To accomplish this end, teachers need to structure activities to help students become personally engaged with questions addressed by the course. As we have seen, teachers can do so by designing good problems for students to think about—problems that cause students to reflect on course readings and to use course concepts and data actively in writing assignments and in class discussions and debate. (Recall that by “writing assignments,” I mean anything from formal term papers to one-minute freewrites.) The rest of the chapters in this book discuss numerous strategies for integrating teacher-designed problems into a course.

Teaching Thinking Through Teaching Revision

Composition research confirms that most students do not revise their essays, as the term *revise* is understood by expert writers. Of course, students *think* they are revising, but usually they are merely editing—checking spelling, making word substitutions, tinkering with sentences, deciding on punctuation. (Classic early studies of the revising behavior of novices versus experts include Faigley and Witte, 1981; Sommers, 1980; Flower, 1979; and Beach, 1976. Recent works on teaching revision include Booth, Colomb, and Williams, 2008; Harris, 2006; and Gopen, 2004.)

What our students need to understand is that for expert writers the actual act of writing causes further discovery, development, and modification of ideas. If one examines the evolving drafts of an expert writer, one sees the messy, recursive process of thinking itself as new ideas emerge during the drafting process. Expert writers do extensive rewriting, the final products often being substantially different from the first drafts. (To encourage this kind of global revision, I often tell students that a “C” paper is an “A” paper turned in too soon.)

The foregoing description differs from an older positivist model of the writing process that many of us of a certain age were taught in school. The old model looked like this:

A Positivist Model of the Writing Process

1. Choose a topic.
2. Narrow it.
3. Write a thesis.
4. Make an outline.
5. Write a draft.
6. Revise.
7. Edit.

This description presupposes what Elbow (1973) calls the “think, then write” model of composing in which writers discover, clarify, and organize their ideas before they start to write. But it seriously misrepresents the way most academic writers actually compose. For example, few scholars report starting an article by choosing a topic and then narrowing it. Rather, academic writers report being gradually drawn into a conversation about a question that does not yet seem resolved. The writer-to-be finds this conversation somehow unsatisfactory; something is missing, wrongheaded,

unexplained, or otherwise puzzling. Similarly, having focused on a problem, only rarely does a skilled academic writer write a thesis statement and outline before embarking on extensive exploration, conversation, correspondence with colleagues, and even, on some occasions, writing one or more drafts. A thesis statement often marks a moment of discovery and clarification—an “aha!” experience (“So *this* is my point! Here is my argument in a nutshell!”) rather than a formulaic planning device at the very start of the process.

Presenting students with this problem-driven model of the writing process has a distinct advantage for teachers. It allows them to link the teaching of writing to their own interests in teaching the modes of inquiry and discovery in their disciplines. Their goal is to get students personally engaged with the kinds of questions that propel writers through the writing process. Thus the writing process itself becomes a powerful means of active learning in the discipline.

Why Don't Students Revise?

If one of our major goals is to teach thinking through revision, we need to understand more clearly why students do not revise. Our first tendency may be to blame students' lack of motivation or their ineffective time management. They do not revise because they are not interested in their work or do not care about it or simply put off getting started until the night before a paper is due. But other explanations should also be considered.

For example, one hypothesis, influenced by Piagetian theory, argues that revision requires the ability to “decenter” (Kroll, 1978; Bradford, 1983)—that is, to think like a reader instead of a writer. One of Piaget's observations is that persons identified as concrete operational reasoners have difficulty switching perspectives. If sitting in the back of a classroom, for example, a person may have trouble sketching the room from the perspective of a lecturer standing in front. By analogy, novice writers may have difficulty imagining their drafts *from a reader's perspective*. If a passage seems clear to the writer, he or she believes that it ought to be immediately clear to the reader also. Novice writers may simply not recognize their reader's confusion and consequently not recognize the need to fill in gaps, to link new information to old information, or to arrange material in the order needed by readers.

Related theories emphasize students' lack of familiarity with academic genres or with the complexity of addressing rhetorical problems (purpose, audience, genre) as well as subject matter problems. What drives revision for mature writers is their awareness of the complex conversation that a piece of writing must join—how its argument must accommodate oppos-

ing views, for example, while also contributing something new to the conversation. Thus, mature writers need multiple drafts because, in the face of many different goals and rhetorical constraints, they can concentrate on only one or two problems at a time.

Another contributing factor may be the increasingly common strategy of composing and revising on a computer screen without paper drafts. When word processing first came into vogue, several researchers (Daiute, 1986; Hawisher, 1987) showed that although word processing facilitates sentence-level revision as well as some larger-scale revisions such as additions, deletions, and block moves of text, it may actually discourage major reconceptualizing of a text—the kind of global revision that leads to substantial dismantling and rewriting. By revising from the screen rather than from a hard copy, writers see only narrow windows of their text rather than the whole. Global revision often requires the writer to revisit earlier passages, to compare, for example, a topic sentence on page 5 with what was forecast on page 2. Such a bird's-eye overview of a text is easier with hard copy than on screen, where scrolling backward is time-consuming.

Whatever the cause of students' failure to revise, teachers need to create an academic environment that encourages revision. The importance of revision has been highlighted by the NSSE/WPA research on writing assignments that contribute to deep learning (Anderson, Anson, Gonyea, and Paine, 2009). This research identifies the presence of "interactive elements" in an assignment as the first of three criteria for best practices. These interactive elements include building into the assignment opportunities for in-class brainstorming, peer review, teacher feedback on drafts, or visits to a writing center. (See Chapter Six for further discussion of the NSSE/WPA research.)

Fifteen Suggestions for Encouraging Revision

In the spirit of this research, I offer fifteen suggestions for promoting revision by building interactive elements into an assignment or a course.

1. *Profess a problem-driven model of the writing process.* Instead of asking students to choose "topics" and narrow them, encourage students to pose questions or problems and explore them. Show how inquiry and writing are related.

2. *Give problem-focused writing assignments.* Students are most apt to revise when their essays must be responses to genuine problems. See Chapter Six for advice on creating writing assignments that guide students toward a problem-thesis structure.

3. *Create active learning tasks that help students become posers and explorers of questions.* Students need to be seized by questions and to appreciate how the urge to write grows out of the writer's desire to say something new about a question or problem. Through classroom activities that let students explore their own responses to questions, students rehearse the thinking strategies that underlie revision. Chapters Eight through Thirteen focus on strategies for active learning.

4. *Incorporate low-stakes exploratory writing into your course.* Chapter Seven suggests numerous ways to incorporate exploratory writing into a course. Exploratory writing gives students the space, incentive, and tools for more elaborated and complex thinking.

5. *Build talk time and writing center conferences into the writing process.* Student writers need to talk about their ideas with others by conversing with classmates, friends, or writing center consultants/tutors. Writers need to bounce ideas off interested listeners, to test arguments, to see how audiences react, and to get feedback on drafts. In this regard, consider having students talk through their ideas in small groups before they write their first drafts. On many campuses, the writing center director can arrange for writing center consultants/tutors to conduct tutor-led brainstorming or draft workshops in class. Also encourage one-on-one writing center consultations. One of the most important services offered by writing centers is the opportunity for students to talk through their ideas in the early stages of drafting.

6. *Intervene in the writing process by having students submit something to you.* Take advantage of the summarizable nature of thesis-based writing by having students submit to you their problem proposals, thesis statements, nutshelling statements, or self-written abstracts. Use these brief pieces of writing to identify persons who need extra help. Much of this work can be done online through electronic bulletin boards or other courseware. See Chapter Fifteen for further details.

7. *Build process requirements into the assignment, including due dates for drafts.* If students are going to stay up all night before a paper is due, make that an all-night session for a mandatory rough draft rather than for a finished product.

8. *Develop strategies for peer review of drafts, either in class or out of class.* After students have completed a rough draft, well in advance of the final due date, have students exchange drafts and serve as "readers" for each other. See Chapter Fifteen for advice on conducting peer reviews.

9. *Hold writing conferences, especially for students who are having difficulty with the assignment.* Traditionally, teachers in American universities

spend more time writing comments on finished products than on holding conferences earlier in the writing process. As a general rule, time spent "correcting" finished products is not as valuable as time spent in conference with students at the rough draft stages. See Chapter Fifteen for suggestions.

10. *Require students to submit all drafts, notes, and doodles along with final copies.* Have students staple their final copies on top of draft material arranged chronologically like geological strata. Not only will you have evidence of your students' writing process, but you will also set up a powerful defense against plagiarism.

11. *Allow rewrites, or make revision-oriented comments on typed next-to-final drafts.* Many students are motivated toward revision by the hope of an improved grade. If students have an opportunity to revise an essay after you have made your comments, you will strike a major blow for writing as a process. See Chapters Five, Fifteen, and Sixteen for advice on writing marginal and end comments that encourage revision rather than cosmetic editing.

12. *Bring in examples of your own work in progress so that students can see how you go through the writing process yourself.* Students like to know that their teachers also struggle with writing. The more you can show students your own difficulties as a writer, the more you can improve their own self-images.

13. *Give advice on the mechanics of revising.* If students compose entirely online, explain the advantages of revising on a double-spaced hard copy rather than on the screen. This strategy leaves plenty of room on the page for crossing out and revising while making it easier to look back at earlier pages for inserting large-scale mapping statements, signposts, and other structural cues.

14. *Don't overemphasize essay exams.* Symbolically, essay exams convey the message that writing is a transcription of already clear ideas rather than a means of discovering and making meaning. They suggest that revision is not important and that good writers produce acceptable finished copy in one draft. Although essay exams obviously have an important place in liberal education, they should not substitute for writing that goes through multiple drafts. See Chapter Twelve for further discussion of essay exams.

15. *Hold to high standards for finished products.* Teachers are so used to seeing early drafts as final copy that they often forget how good a globally revised essay can be when teachers demand excellence. Students do not see much point in revision if they can earn A's or B's for their quickly edited first drafts.

Conclusion: The Implications of Writing as a Means of Thinking in the Undergraduate Curriculum

As this chapter has tried to show, teaching thesis-based analytical and argumentative writing means teaching the thinking processes that underlie academic inquiry. To use writing as a means of thinking, teachers need to make the design of writing assignments a significant part of course preparation and to adopt teaching strategies that give students repeated, active practice at exploring disciplinary questions and problems. Additionally, it is important to emphasize inquiry, question asking, and cognitive dissonance in courses and, whenever possible, to show that scholars in a discipline often disagree about answers to key questions. By teaching a problem-driven model of the writing process, teachers send a message to the Skylers of the world that good writing is not a pretty package for disguising ignorance. Rather it is a way of discovering, making, and communicating meanings that are significant, interesting, and challenging.