Writing to Learn: Writing Across the Disciplines

In "Writing as a Mode of Learning," Janet Emig develops the single most powerful rationale for using writing in all courses, no matter what the discipline. She asserts that "writing represents a unique mode of learning—not merely valuable, not merely special, but unique." By identifying the correspondences between the act of learning and the act of writing, she develops a persuasive theoretical argument for writing as a "central academic process." While Emig's argument provides an important foundation for the use of writing across the curriculum, it does not address the related problem of teaching students who are not yet prepared for the intellectual demands of the courses they enter. In this context, Lee Odell asks that teachers from all disciplines use writing to help "students gain some control of the process of discovery in writing" and, even more important, to relate "the process of writing to the process of learning a given subject matter." He goes on to suggest some specific ways teachers can use writing to teach students strategies for thinking.

Taken together, the arguments developed by Emig and Odell offer a far more positive reason for using writing in all disciplines than the negative rationale of mounting a school-wide campaign to eradicate the problems of poor writers. This latter rationale, which is all too pervasive, implies that English teachers are only asking their colleagues to assume a burden which rightfully belongs with the English faculty: improving the surface features of the written product. Don Graves decries this same faulty emphasis when he notes that for too many people, "the eradication of error is clearly more important than the encouragement of expression. Clearly underlying this attitude toward the teaching of writing is the belief that most people, and particularly students, have nothing of their own to say." In contrast, the "writing as learning" approach implies that students do have something to say and that the process of writing provides at once the way for them to discover and communicate it.

1College Composition and Communication, 28 (1977), 122, 127.

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This approach underscores a responsibility that all teachers rightfully share: creating situations that stimulate student learning. Consequently, we English teachers can approach our colleagues more positively. We can encourage them to use writing more often in their courses to serve their own pedagogical ends, not their preconceived notions of writing teachers' ends. We can also go beyond mere exhortations and suggest some specific ways to use writing to meet these ends: by designing assignments linked to course objectives and by responding to student writing in ways that stress its value as a process of discovery. My purpose in this article is to explain some of the specific strategies which my colleagues from other disciplines have found effective. To provide a context, I will first describe briefly the interdisciplinary project from which these strategies evolved.

For the past two years, I have directed a project supported by a grant from the Fund for the Improvement of Post-Secondary Education to train faculty from a variety of disciplines (e.g., art, economics, chemistry, history, and sociology) to use writing as an integral component of their courses. Each year a group of twelve faculty participants received release time from one course to participate in a one-week summer seminar and monthly meetings each semester and to redesign one course each semester experimenting with the ways writing could be used in that course. The intent was not to develop writing courses in these disciplines, but to experiment with ways writing can be incorporated into courses to help students meet course objectives.

The goal of the summer workshop was for each faculty member to determine the sequence of writing assignments to use in his or her model course and the strategies to be used in responding to student writing. To reach this goal, the faculty worked from their statements of course objectives to define writing assignments which would help students reach these objectives. The workshop leaders introduced the participants to different types of assignments, ways to define an assignment in a full rhetorical context (topic, purpose, and audience), and techniques for responding to student writing. A considerable amount of time was spent actually drafting and critiquing assignments and critiquing student papers.

The regular semester meetings were essential to reinforce the faculty's efforts and to share different assignments and evaluation techniques. For some sessions, each participant would bring a draft of a future assignment (specifying topic, purpose, audience, intellectual demands, evaluation criteria) which would then be critiqued by the group. For other sessions, we would focus on one specific assignment and three or four student responses to this assignment. For these sessions the purpose would be to try to apply the specified evaluation criteria and to discuss how successful the assignment was and how each response should be evaluated. In sum: the two purposes of all of the sessions were to encourage the participants to be more analytic about their assignments and to provide them with specific strategies for evaluating writing.

The model courses were designated by the participants from their regular teaching load. They included such courses as "Introduction to Economics," a laboratory in physics, a literature survey, "Literature for Youth," "Theories of Society," "How to Survey," a course in United States history, "Introduction to Psychology," and a course in state and local government. For each course, the instructor designed not only the course objectives but also the sequence of writing assignments in advance.
The student evaluations of these courses indicate that the writing was a powerful way of learning for them. In fact, ninety percent of the students reported that the writing added at least in some degree to their understanding of course material. The faculty participants agreed that the writing definitely enhanced their courses. As one noted, the students “had to learn more about what they were doing before they could write.” In the remainder of this article, I will report on the strategies used in some of the most successful of the courses, that is, ones in which both students and faculty felt the writing added much more to the students’ understanding of the course material. All of these strategies underscore the emphasis which the faculty placed on writing as a way of learning and communicating what had been learned.

When the purpose of using writing is to help students learn, it is only logical that assignments be linked to course objectives, preferably ones that emphasize more than just recall of facts. The writing assignments should be used as opportunities to learn to use the particular patterns of inquiry of a discipline, whether they be processes of observation and generalization or a problem-solving process of applying a general principle to specific situations. For example, if one objective of “Introduction to United States History” is “to see connections and contrasts between events,” then a useful assignment might be to compare and contrast the goals and achievements of the Plymouth and Jamestown colonies so that the reader of a college-level text would know which was more successful in reaching its goals. An assignment which asked the writer only to summarize the goals and achievements of each colony would not be as useful because it would not ask the writer to discern significant relationships between the events.

One of the model courses offers a more comprehensive example. The primary course objectives of “Theories of Society” were “1) to familiarize [the students] with some of the most important contributors to sociological thought, and 2) to develop what C. Wright Mills called the ‘sociological imagination’ which ‘enables us to grasp history and biography and the relations between the two within society.’”

In preparation for the discussion of each theorist, the students were to write a 200-300 word paper summarizing the theorist’s important biographical background, significant socio-cultural influences, and major theoretical contributions. The summaries were to be written for an informed but curious audience. This assignment went beyond mere recall since it required selecting from a mass of information the significant factors that influenced the theorist, making inferences about the relationships among the factors, and distilling the information into a limited number of words. Throughout, it emphasized making informed judgments about the relationships among the biographical data, the socio-cultural setting, and the theory. This same assignment was used for the entire semester. The students responded to it very positively because the assignment helped them understand the new material continually introduced into the course and because the process of writing the paper enabled them to participate more actively and knowledgeably in class discussions.

The course evaluations of “Theories of Society” provide instances of two of the correspondences Emig notes between learning strategies and writing (p. 128). One correspondence is that writing, like learning, “provides connections.” The student comments clearly state the value of having to synthesize the material and work out relationships: “It encouraged me to think, to relate the material, and not merely
memorize it.” “Examining the biography, socio-cultural background, and the work of each theorist made me understand how each factor influenced the other.”

A second correspondence which Emig notes is that writing “is active, engaged, personal—notably self-rhythmed.” In all of the student comments there was a sense of “I” actively doing something—something difficult which they might not otherwise have done, but something rewarding: “I was forced to think about the material thoroughly in order to write a comprehensive paper. By doing this, I obtained a much greater understanding of the material.” “It forced me to really understand the specific theorist before I could write about him.” These comments underscore the powerful role the writing played in learning for these students and by implication suggest what they would have missed without it. The act of writing led beyond mere memorization to understanding—selecting and reconnecting material, digesting it, and translating it into one’s own meaning and words.

If a course uses a variety of assignments instead of just one kind, the assignments should be so sequenced that each one prepares students for the next; that is, they should move from less to more complex conceptual tasks. This point is especially crucial in an introductory course where a student is being exposed to the particular methodologies and jargon of a discipline for the first time. To illustrate these observations in more detail, I will describe the writing assignments used in another of the interdisciplinary project courses, “Introduction to Economics,” taught by Don Tobey.4

The specified goals of “Introduction to Economics” were: 1) to acquaint the student with the fundamentals of economic theory and the terminology; 2) to develop in the student the ability to analyze and to apply basic theory to solving economic problems; and 3) to provide the student with the background for evaluating rudimentary recommendations in the field of governmental economic policy. As one can see, each of these objectives is more complex and assumes mastery of the previous one: the first only requires knowledge of terms and basic principles, while the second requires application of this knowledge to new situations, and the third requires both selection and application of appropriate measures to solve broad economic problems.

The writing assignments paralleled this sequence. The first ones asked primarily for a restatement of terms explained in the text and lectures. For example:

What is meant by the assumption of “rationality” in economics? Do you feel that the consumer's behavior is rational? Why or why not?

The assignments given midway through the semester assumed an understanding of basic principles and asked the students to apply a given principle to a specified situation. For example:

You are talking with your parents, who wish to know what you're learning at college. Explain the term “leakage” as it relates to the circular flow concept. Then describe a type of leakage taking place in your own (or your parents') household. Be specific and explain how that example of leakage effects Aggregate Demand.

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4For further explanation see Professor Tobey's “Writing Instruction in Economics Courses: Experimentation Across Disciplines,” forthcoming in Journal of the Northeastern Agricultural Council.
The final two assignments were much more demanding in that they presented a more complex problem and did not specify the economic measure to be applied. Thus, the students were expected to decide on the appropriate economic measures and develop a convincing rationale for their choice. For example:

You have been hired as an economic speech-writer for President Carter. His political advisers (and image makers) have concluded that preventing recession—and its related unemployment of eight percent or more—is the top priority and the key to getting Carter re-elected in 1980. Thus, the majority of voters will tolerate inflation of nine or ten percent if they have jobs.

Identify which measures fall under which category, recommend two measures of monetary policy (other than discount rate) and two measures of fiscal policy to be used in combination to prevent recession and to help re-elect Carter. Include a description of how each measure would function, which would be the fastest and slowest to take effect (and why), and whether your policy mix would yield a budgetary balance, deficit, or surplus. Why?

Your answer will be evaluated by these criteria:
—Effective application of concepts.
—A clear, integrated (not piecemeal) answer encompassing all components of the question.
—Development of an organized and persuasive case.

The instructor prepared students for these assignments in a number of ways. First, class readings and lectures were planned for each assignment. The readings were used primarily to introduce terminology and concepts. During lectures, by using frequent references to current events, the instructor illustrated the meaning of important terms and concepts and showed how they apply to specific contemporary problems. The students were then asked in the assignments to apply these same terms to different situations. Second, each assignment itself prepared students for its successors since they proceeded from simpler, more defined, recall-oriented tasks to more complex, less defined, analytic tasks. In-class discussion of each assignment on the day it was due and written responses from the teacher gave the students frequent evaluation of how well they had understood and applied the material. During the discussions the instructor tried to elicit a number of possible responses and lead the class to critique them and decide on the most accurate or convincing ones.

Regardless of whether one, three, or twelve different assignments are used in a course, each assignment should be carefully planned in advance. The actual designing of the assignment should be viewed as a two-part task to include, as Odell advocates in the essay I have previously cited, defining the assignment in a full rhetorical context and identifying its intellectual demands. First, the assignment should be constructed to specify not only the topic, but also the purpose and audience. This specificity will help the writers understand what is required of them and usually will challenge them to something more than restating information for no purpose.

For example, the following assignment was designed by R. Gordon MacGregor as the first in his “Introduction to Psychology” course:

**Short Paper 1: The Biological, Intra-Psychic, and Social/Behavioral Viewpoints.**

**Question:** Choose one aspect of your behavior or an aspect of general human behavior which lends itself to being explained from each viewpoint which McConnell [the text]
elicidates in Chapter 1. Write a short paper in which you explain the causes of each behavior from the perspective of each viewpoint. In your concluding paragraph, state which viewpoint offers the most plausible explanation of the behavior and why you believe that explanation is best. If you select one viewpoint as best, you must discredit the other two viewpoints. If you decide that an eclectic viewpoint is best, you must incorporate two or three viewpoints into a plausible, coherent, single explanation of the behavior.

*Audience and Purpose:* Write this paper for a friend to help him/her acquire understanding of your or others' behavior, trying to convince him/her that one explanation is superior.

*Evaluative Criteria:* Your instructor will evaluate your paper with these criteria in mind:

1) Did you clearly understand each viewpoint?
2) Did you present a plausible explanation of the behavior from each viewpoint?
3) Did you thoroughly explain the cause of the behavior from each viewpoint?
4) Did you support your conclusion with convincing evidence? That is, did you satisfactorily discredit the other two viewpoints or did you present a plausible, coherent, eclectic viewpoint?

It is clear that the task is to do more than restate lecture material. It requires the students to use this material to gain an insight into various explanations of behavior. By specifying the audience and purpose, the assignment also defines the writer's role: that of a friend providing a convincing explanation in nontechnical terms.

Second, the teacher should identify the intellectual demands of the assignment and develop ways to teach students to meet these demands. Clarifying these demands in advance will help the teacher decide if the assignment relates to the course objectives and, if it does, what instruction students will need in order to meet these demands.

For example, the above psychology assignment requires the writers to: 1) understand the central trait of each viewpoint and how it differs from the other two viewpoints; 2) apply theoretical knowledge to a specific behavior; 3) shift perspectives; and 4) make a comparative judgment. Since this assignment was given early in the semester, the instructor was most concerned that the students master the first three of these demands. Thus, most of the preparatory work focused on them. MacGregor spent a good deal of class time clarifying the meaning of each viewpoint (biological, intra-psychic, social/behavioral) and showing how it could be applied to specific behaviors. He provided a series of examples in the following sequence: first, he explained the cause of a behavior from the perspective of each viewpoint, explicitly naming the viewpoint as he proceeded. Then he explained the cause of a behavior from one viewpoint and asked the class to identify which behavior it was. After working through a number of these examples, he divided the class into small groups to work through a similar process. First, each group was to reach agreement on the appropriate explanations of the cause of a behavior from the three viewpoints. Once they reached agreement, they presented their explanations to the rest of the class for critique or for them to identify the viewpoints. These rehearsals were successful in preparing students because they consistently focused on the demands of the assignment (know the term, apply it, shift perspectives) and because they actively involved the class in explaining their judgments to their peers.

In an interview James Britton commented that "The way the teacher receives
what the child writes is highly influential in the attitude the child has in the next
document. The Johnson State College interdisciplinary project certainly val-
if the teacher treats the resulting writings as unimportant, or
merely samples of writing, then the students begin to resent having to write. In one
of our project courses, the teacher had well-conceived assignments, but his manner
of responding to the writings suggested he saw them only as burdens. Once the
writings were collected, he would keep them for awhile unread, then go through
them hastily making limited comments, and return them with no further discussion.
As a result, the students commented in the course evaluations that the writings were
of little value and they resented having to do them. In contrast, if the teacher treats
the student writings as important to the course and as worthy of substantive re-
sponse, then the students can be expected to feel more positively about future as-
signments and to invest more in them.

The specific ways teachers respond to writing also affect the degree to which
students perceive writing as a means of learning. The Johnson State College inter-
disciplinary group found three response strategies to be particularly effective. All
are common to most writing classes.

First, a teacher should evaluate a writing in terms of a limited number of criteria
which evolve from the task, purpose, and audience of the assignment. These criteria
should be established when the assignment is designed and given to the students as
part of the assignment. This will help students and the teacher focus on the specific
conceptual demands of the assignment. To illustrate, here are an assignment and the
evaluation criteria used in the “Introduction to Economics” class:

As a candidate for the U.S. Congress, you are speaking to a local Rotary Club, most of
whose members have a practical, working knowledge of economics. You are attempting
to persuade the members that you know economic principles and have practical ideas for
the application of those principles. Describe the two measures of fiscal policy that you
recommend in combination to reduce the rate of U.S. inflation to 4% per year. Explain
how each measure will function in reducing inflation. Also explain any risks (economic,
not political) or drawbacks which potentially accompany either of your recommended
measures.

Your response will be evaluated by these criteria:

—accurate use of economic terminology;
—effective application of economic principles to the inflation problem;
—consideration of both gains and risks from your two policy recommendations;
—development of a persuasive case for your two recommendations as practical solu-
tions to the problem, notwithstanding the risks.

In this assignment, the four criteria clearly define for the students the demands of
the task. Paralleling the increased level of difficulty of the assignment over the pre-
vious ones, the criteria show that the assignment goes beyond explanation and applica-
tion of a principle to much more complex intellectual tasks: making a judgment as
to the best among many options, weighing gains against risks, and persuading others
to one’s viewpoint.

The third short paper assigned for “Introduction to Psychology” provides another
example:

(November 1979), 55.

The Senses of Trust, Mistrust; Autonomy, Shame/Doubt; Initiative, Guilt; Industry, Inferiority; Identity, and Role Confusion.

Question: Using the definitions and the causes of each “sense” for the first five stages of psychosocial development, indicate which “sense,” e.g., trust or mistrust, is more characteristic of you and why you believe that sense is more characteristic of you than its opposite. Write your essay as if you were writing an Eriksonian autobiography to facilitate someone’s understanding of your psychosocial development.

Requirements: In order to write this assignment, you must:
1) know Erikson’s definition of each sense;
2) know the cause of each sense as seen by Erikson;
3) be able to recognize each sense in yourself; and
4) be able to provide concrete examples of each sense in yourself.

Evaluative Criteria: Your instructor will evaluate your essay with these criteria in mind:
1) Did you clearly understand Erikson’s conceptualization of each sense, i.e., Erikson’s definition of the sense and his assertions about its cause?
2) Did you provide lucid examples of how each sense is evident in your psychosocial development?

Note: Your instructor will evaluate each short paper for content only. You will be allowed to write one revision of the content of your paper in order to try to earn a higher grade. Your instructor will note your grammatical, spelling, and typographical errors which you must correct in pencil on your paper. Correcting your errors is mandatory. However, correcting your errors will not raise your grade. If you fail to correct your errors, a grade of F will be assigned to your short paper.

In this example, the statement of requirements very clearly outlines, step by step, what the students will have to do to prepare the paper. The evaluation criteria underscore that the success of the paper will be determined by the degree to which these “content” requirements are met. The note, which actually appeared on the course syllabus, makes it very clear that while the writing must be grammatically correct and free of editing errors, these features will not be the basis for evaluation.

Such criteria underscore the primary purpose of any writing assignment, which is to learn, because they clearly state that success will be measured by how well the writers apply what they are learning, not by how well they spell or punctuate. They also lead the teacher to clarify in advance what he or she expects for acceptable responses and thus provide a standard for consistent evaluation of all papers. More specifically, they focus the teacher’s attention quite sharply not just on a general sense of accuracy and thoroughness, but on application of knowledge to a specific task and purpose. Thus, when the teacher evaluates a paper, it should be primarily on these criteria and secondarily on such superficial factors as grammar and spelling.

In addition to establishing clear and relevant criteria for assignments, a teacher should stress that writing is, above all, a process of discovery. As a means of communication, it is more than a one-step act of writing a finished copy; and as an intellectual process, it is more than merely putting down on paper what is already known. The process begins by defining what the task requires, moves through formulating one’s ideas and shaping these ideas by writing successive drafts, and ends with stating them coherently in the final written product. The teacher can help the student writer learn to use this process by structuring opportunities to intervene in the process before the written product, or even a final draft, is received.

For example, for major projects, a number of the project faculty find it particularly helpful to talk with students at the initial point of deciding on the scope of the
task (issues to be addressed, type of information needed). It is also useful to discuss the project when the students are ready to analyze and synthesize information they are using. At this point the teacher can suggest critical questions to guide their inquiry and to assess their work to date. While it is useful to review a draft of the final product for form and coherence, at that point most of the process of inquiry and analysis has passed and there is little time left for further research or formulation of central ideas.

And lastly, a teacher should create opportunities to share writings in class. A number of the project faculty would occasionally duplicate student writings which were particularly insightful or controversial and use them for class discussions or supplemental reading. To stress the process of writing, one psychology teacher held in-class small group critiques of the rough drafts of writings. Such in-class publication not only gives public recognition to the writers, but also stimulates the interchange of ideas among the class. It stresses in the most graphic way that writing is a way of learning for the individual writer and for the readers.

In this article I have given most attention to the design and presentation of writing assignments since the time given to working out the purpose of an assignment and preparing students for it is much more important than the time given to evaluating the finished product. No matter what our discipline, we should be using writing in our courses, as one student commented, “not for writing improvement, but for focus on course material.” Writing has an integral role to play in any course as a medium for learning and for teaching how to learn. For these goals to be realized, we as teachers must first believe in the value of writing as a discovery process and be willing to commit our efforts to teach this process to our students.