



## COLLEGE OF IDAHO

# Writing to Learn

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### What is Writing to Learn?

Although how writing fosters critical thinking is not clear (Applebee), theoreticians and practitioners alike agree that writing promotes both critical thinking and learning (See Adams, Britton, Bruner, Emig, Herrington, Knoblauch and Brannon, Odell, Parker on the linked bibliography.) As Toby Fulwiler and Art Young explain in their "Introduction" to *Language Connections: Writing and Reading Across the Curriculum*:

Writing to communicate--or what James Britton calls "transactional writing"--means writing to accomplish something, to inform, instruct, or persuade. . . . Writing to learn is different. We write to ourselves as well as talk with others to objectify our perceptions of reality; the primary function of this "expressive" language is not to communicate, but to order and represent experience to our own understanding. In this sense language provides us with a unique way of knowing and becomes a tool for discovering, for shaping meaning, and for reaching understanding. (p. x)

In "Writing to Learn Means Learning to Think," Syrene Forsman makes the same point, but she directs her attention not to a theoretical justification but a practical rationale for writing to learn:

As teachers we can choose between (a) sentencing students to thoughtless mechanical operations and (b) facilitating their ability to think. If students' readiness for more involved thought processes is bypassed in favor of jamming more facts and figures into their heads, they will stagnate at the lower levels of thinking. But if students are encouraged to try a variety of thought processes in classes, they can, regardless of their ages, develop considerable mental power. Writing is one of the most effective ways to develop thinking. (p. 162)

*The Consequences of Writing* by Robert P. Parker and Vera Goodkin is an especially good resource on writing to learn. Following a detailed discussion of the theoretical links between language (especially writing) and learning, these authors outline projects that focus on writing in entomology, clinical nursing, psychology, and mathematics, all with similar results: students learned key concepts and understood material more fully while also practicing some features of discourse for the specified discourse community. Thus, writing to learn can have additional positive effects in helping students mature as effective communicators even though the initial goal is to help students become better learners.

### Why Include Writing in My Courses?

In our professional careers, faculty members use writing every day for a variety of purposes:

- to communicate information (memos, textbook evaluations, letters of recommendation, email)
- to clarify thinking (when we work through an idea or problem in writing)
- to learn new concepts and information (taking notes on reading and research topics)

Students need practice to be able to use writing effectively to meet these same goals. One or two writing classes just can't provide enough daily practice.



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### Basic Principles of Writing Across the Curriculum

As one response to students' lack of writing practice throughout the university curriculum, Writing Across the Curriculum (WAC) programs emerged in the 1980s. The philosophies underlying these programs generally agree on certain basic principles:

- that writing is the responsibility of the entire academic community
- that writing must be integrated across departmental boundaries
- that writing instruction must be continuous during all four years of undergraduate education
- that writing promotes learning
- that only by practicing the conventions of an academic discipline will students begin to communicate effectively within that discipline

### What's in it for Teachers?

Including writing in courses has both short- and long-term benefits for teachers. In the short run, teachers are better able to gauge how well students grasp information and where they need elaboration of key concepts. In the long run, as more teachers incorporate writing into more courses, students become more and more practiced at using writing as a communication and learning tool. Especially for more advanced or specialized work in the discipline, teachers reap the benefits of having students who are better grounded in the fundamentals and ready to engage in more sophisticated analysis of ideas.

### What's in it for Students?

Like all language skills, writing skills atrophy when they aren't used. Yet our students often report that they do *no writing at all* during a semester because they don't even take notes during some classes. For students who take only multiple-choice exams, writing can be avoided almost completely for months at a time. Assigned writing in all courses helps students keep their writing skills sharp.

Moreover, faculty in all disciplines have discovered that assigning writing in their classes helps students learn material and improve their thinking about ideas in the courses. Writing assigned across the curriculum also helps students prepare for the day-in and day-out communicative tasks they'll face on the job, no matter what the job is. Equally important, student need to learn about how writing is used within a discipline, and many kinds of assignments give students practice with disciplinary forms and conventions.

So why assign writing in your classes? Students will learn more and will leave the university better prepared to face communication challenges if they write consistently over the course of a four-year college program. Specifically, students will learn more about the material in your courses if you assign writing for your courses.

### What Kinds of Writing can I Include?

Generally, writing-to-learn activities are short, impromptu or otherwise informal writing tasks that help students think through key concepts or ideas presented in a course. Often, these writing tasks are limited to less than five minutes of class time or are assigned as brief, out-of-class assignments.

Because writing-to-learn activities are crucial to many WAC programs (because they best meet teaching goals through writing), this guide presents a great deal of information on writing to learn (WTL), including a detailed rationale, examples, and logistical tips.



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### The Reading Journal

Some teachers combine the learning log and the reading journal, but others prefer to keep them separate, particularly when the daily outside reading is crucial to a class. The reading journal provides students with at least two kinds of critical thinking activities that promote learning. Reading journals also accomplish the following:

- Writing about reading makes students more conscious of making meaning as readers (and gives them insight into reading and writing processes).
- Writing about reading gives them their own texts to re-read and reflect on, which sparks fuller learning.
- Writing about reading, writing, and discussing forces students to take charge of their learning and to make active connections between different learning activities.
- Seeing teachers write in their own reading journals and share their writing reinforces for students the vital importance of writing for life-long learning and emphasizes the public nature of these journals.
- Students often discover their own paper topics in the connections that keep appearing in the right-hand section of these notebooks.
- As students get more used to writing about their understanding of the literal level of meaning, they also become better at generating higher-level questions and connections--especially connections between and inferences from text materials or discussions.
- Even less prepared students who don't get to higher order questioning will at least know what they don't know so that you can work with them on their basic understanding of text. (In other words, when you ask for questions at the beginning of your work on a piece of reading, students know what to ask.)

How do reading journals promote learning?

First, students use the left half of the page or the left sheet of an opened notebook for recording what the reading is about. Teachers can ask for quite a lot of detail in this half of the reading journal so that students get practice in summarizing entire articles or summarizing particular arguments, identifying main ideas, noting key details, and choosing pertinent quotations, among other crucial reading skills.

On the right half of the page (or right page of the notebook), students jot down any questions they have or any connections they can make between readings or between readings and class discussions. At the beginning of the semester, the right half of the journal is dotted with questions, most of which can be answered quickly at the beginning of a discussion session in class. By the end of the semester, students will sometimes fill two right-hand columns for every reading. At this point, the questions are far richer (rarely about content) and the connections point out that students are integrating the readings and class work on their own.



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The structure of the daily writing depends on the students'

- Lower-level students will need more structure and will move more slowly into analytic and reflective writing on the right-hand side.
- Higher-level students can sometimes whisk right into reflection with much less attention and structure imposed for literal information.

The structure also depends on the particular reading/writing tasks, especially if you are building a sequence of tasks leading to a substantial writing assignment at the end of a unit, for example.

Obviously, teachers can assign specific questions to be addressed in the left-hand section, or assign more general prompts:

- What do you remember?
- What did you hear?
- What was the "talk" about?
- Who is the focus of the reading?
- What was the most important idea in the reading? What are the next important ideas?
- What particularly striking example do you recall?
- Who is the target audience for the selection?
- What is the author's intention in this passage?
- Why are certain details more memorable?
- What connections can you make between X and Y?
- How did you arrive at this conclusion?
- Why is this conclusion significant?
- How does this assignment touch you personally?
- How does this assignment change your thinking on the idea?
- How could you write about your new insight?
- What other information might you need to pursue this topic?



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- How does this reading/writing/discussion/group work build on our earlier discussion of the larger concept of X?

### Generic and Focused Summaries

Depending on the level of detail that might be useful for each assignment, have students write out a paragraph or a page of summary for each assigned reading. When collected in a reading journal or learning log, these summaries help students understand readings more fully when they are first assigned and remember them clearly for later tests or synthesis assignments.

You might also consider asking students to do more focused summaries. By providing key questions about the reading, you can help students narrow in on the main ideas you want them to emphasize and remember from a reading.

Or if abstracts are significant in your discipline, you might ask students to analyze the abstracts in a major professional journal and write similar abstracts of the readings they are assigned in the course.

### Annotations

Unlike the summary that attempts an objective rendering of the key points in a reading, an annotation typically asks students to note key ideas and briefly evaluate strengths and weaknesses in an article. In particular, annotations often ask students to note the purpose and scope of a reading and to relate the reading to a particular course project.

You can have students annotate (and eventually compare) readings assigned for the class, or you can ask students to compile annotations to supplement the course readings. Each student's annotations can be distributed to the class in one handout or through electronic media (Web forum, e mail).

### Response Assignments

Still another type of writing to learn that builds on assigned readings is the response paper. Unlike the summary, the response paper specifically asks students to react to assigned readings. Students might write responses that analyze specified features of a reading (the quality of data, the focus of research reported, the validity of research design, the effectiveness of logical argument). Or they might write counter-arguments.

To extend these response papers (which can be any length the instructor sets), consider combining them into another assignment--a position paper or a research-based writing assignment.



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### Synthesis Assignment

A more complex response to assigned readings is the synthesis paper. Rather than summarizing or responding to a single reading assignment, the synthesis paper asks students to work with several readings and to draw commonalities out of those readings. Particularly when individual readings oversimplify a topic or perspectives on a question in your course, the synthesis paper guarantees that students grapple with the complexity of issues and ideas.

Like other writing-to-learn tasks, the synthesis paper can be shorter and less formal, or you can assign it at or near the end of a sequence leading to a more formal assignment.

### Discussion Starter

Sometimes students feel baffled by a reading assignment and express that frustration in class, but they often understand more about the reading than they believe they do. When this situation arises, having students write about the reading can be especially valuable, both for clarifying what students do and don't understand and for focusing students' attention on key points in the reading.

If you know a particular reading assignment is likely to give students trouble, you might plan questions in advance. But even if students' frustration catches you by surprise, you can easily ask questions about the key issues or points in the article. Moreover, asking students to answer the same questions again at the end of the class, after you've had a chance to discuss the reading, will help you see what students still don't understand.

### Focusing a Discussion

When a discussion seems to be taking off in several directions, dominated by just a few students, or emotionally charged, stop the discussion and ask students to write either what they saw as the main threads of the discussion or where the discussion might most profitably go. After writing for a few minutes, students will often be better able to identify and stay on productive tracks of discussion. Or, after asking a few students to read their writing aloud, the teacher can decide how best to redirect the discussion.

### Learning Log

The learning log serves many of the functions of an ongoing laboratory notebook. During most class sessions, students write for about five minutes, often summarizing the class lecture material, noting the key points of a lab session, raising unanswered questions from a preceding class. Sometimes, students write for just one or two minutes both at the beginning and end of a class session. At the beginning, they might summarize the key points from the preceding class (so that the teacher doesn't have to remind them about the previous day's class). At the end of class students might write briefly about a question such as:

- What one idea that we talked about today most interested you and why?
- What was the clearest point we made today? What was the foggiest point?
- What do you still not understand about the concept we've been discussing?
- If you had to restate the concept in your own terms, how would you do that?



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- How does today's discussion build on yesterday's?

Such questions can provide continuity from class to class, but they can also give teachers a quick glimpse into how well the class materials are getting across. Some teachers pick up the complete learning logs every other week to skim through them, and others pick up a single response, particularly after introducing a key concept. These occasional snapshots of students' comprehension help teachers quickly gauge just how well students understand the material. Teachers can then tailor the following class to clarify and elaborate most helpfully for students.

Many teachers assign several of the WTL activities described in this section to be completed for the learning log.

### Analyzing the Process

Sometimes students are baffled by the explanations teachers give of how things happen because teachers move too quickly or easily through the process analysis. A quick run-through of an equation is often just not enough for students struggling to learn new material.

A more useful approach to process analysis--from the learners' point of view--is to trace *in writing* the steps required to complete the process or to capture the thinking that leads from one step to the next. Students can either write *while* or *after* they complete each problem. Particularly when students get stuck in the middle of a problem, writing down why they completed the steps they did will usually help someone else (a classmate, tutor, or teacher) see why the student experienced a glitch in problem-solving. Similarly, teachers can look over the process analyses to see if students have misapplied fundamental principles or if they are making simple mistakes. In effect, students can concentrate on problem-solving rather than on minor details, and they can move from simple procedures followed by rote into a deeper understanding of why they are solving problems appropriately.

### Problem Statement

Teachers usually set up the problems and ask students to provide solutions. Two alternatives to this standard procedure will give students practice with both framing *and* solving problems:

- After you introduce a new concept in your course, ask students to write out a theoretical or practical problem that the concept might help to solve. Students can exchange these problems and write out solutions, thus ensuring that they understand the concept clearly and fully.
- Ask students to write out problem statements before they come to your office hours for conference. (Or you might suggest that they use e mail to send you these problem statements in lieu of a face-to-face conference.) Students are likely to frame such a problem more concretely than they might otherwise do in preparing for a conference, and the resulting conference (or e-mail exchange) is likely to be more productive for both student and teacher.

Another version of this exercise is to have students write a problem statement that is passed on to another student whose job it is to answer it. Such peer answers are especially useful in large classes.

### Solving Real Problems



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Ask individuals or groups to analyze a real problem--gleaned from industry reports, scientific journals, personal experience, management practices, law, etc. Students must write about the problem and a solution they could implement.

### Pre-test Warm-ups

Another extension of the problem statement WTL activity is to ask students to generate problems for an upcoming test. Students might work collaboratively either to generate problems or to draft solutions. By asking each student or group of students to generate problems, students will cover the course material more fully than they might otherwise do in studying. Moreover, if you assure students that at least some of the test material will draw on the problems students generate, they are more likely to take both the problems and solutions more seriously. Furthermore, if students don't understand the material, they will surely find out as they write questions for the exams!

Another alternative for pre-test warm up writing is to give out sample test questions in advance of the exam. Students can work individually or in groups to write out responses. Again, because they know some of the test material will come from the WTL activity, students are likely to prepare more carefully.

### Using Cases

Because cases provide students with a complete writing context, they can be exceptionally useful for student writers.

A simple use of the case is to set up a single scenario which notes the audience, purpose, and focus of a brief writing task. For example, a business student might encounter this scenario:

Assume that you've just been hired in a local office of a large asset management firm. Your first client has traded stocks conservatively for several years and now wants to try options trading. What basic principles of options trading do you need to be sure your client understands?

A teacher could assign this scenario and ask for a variety of writing tasks in response to it:

- Outline the principles in three minutes at the start of class to review the reading from last night.
- Write an e-mail message to your manager to brief her on your plans for educating your client.
- As a final exam response, explain both the principles of options trading and your ethical obligations to your client.
- Generate a working list of principles in a group of four students and then find a dozen sources from the library to annotate for their usefulness to the new employee. Compile the most useful annotations from your group to distribute to the entire class.

A more elaborate *case* can include both more details for the student writer, as well as a wider range of roles to write from. A full case can call for multiple kinds of writing, drawing on the full range of informal and formal writing outlined in this guide. It can also emphasize the kinds of questions (and writing) most common in the discipline, and full-scale cases work well with both individual and collaborative writing assignments.





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Finally, *case histories* are useful in many disciplines and writing contexts. This use of a case generally focuses on a post hoc analysis, either of what happened in the case or what could have happened with different interventions. Again, case histories can lead to a range of writing assignments, though they tend to restrict the roles students might play as writers within the case context.

### Letters

Students can write to explain professional concepts, positions, or policies in letters of application or letters to politicians.

Students can also write business letters of introduction and research gathering, introducing their projects and plans for approval. Another version of an introductory letter could have students try to persuade an interested party (e.g. a foundation, the NSA, etc.) to provide funding or approval for their research. Or have them write a letter after completing a project which tries to persuade someone interested in the project to accept their recommendations.

### What Counts as a Fact?

Select two or more treatments of the same issue, problem, or research. For example, you might bring in an article on a new diet drug from *USA Today*, *The Wall Street Journal*, and the *Journal of Dietetics*. Ask students to write about what constitutes proof or facts in each article and explain why the articles draw on different kinds of evidence, as well as the amount of evidence that supports stated conclusions.

Alternatively, ask students to look at a range of publications within a discipline--trade journals, press releases, scientific reports, first-person narratives, and so on. Have them ask the same kinds of questions about evidence and the range of choices writers make as they develop and support arguments in your field.

### The Believing and Doubting Game

First espoused by Peter Elbow, this writing activity simply calls for students to write briefly

- first, in support of an idea, concept, methodology, thesis;
- second, in opposition to it.

As students complete this writing activity based on a course reading or controversy in the field, they become more adept at understanding the complexity of issues and arguments.



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### Analysis of Events

Although this heading may suggest that only historians can assign this WTL task, in fact an analysis of events can be useful in most fields. This task can take two shapes:

*Post hoc analysis:* After an event is reported in the general news media or in your disciplinary media, ask students to reflect on

- what happened
- why it happened
- what it means to your field

Various engineering disciplines, for instance, could analyze the Pathfinder mission to Mars by focusing on appropriate elements of the actual event.

*What-if analysis:* Take an actual event and ask students to write about how the outcome might differ if one crucial condition were changed. For example, what if Dolly, the famous cloned sheep, had been successfully produced on the *first* try? Students in science disciplines can speculate about scientific elements of this event; students in agriculture courses can focus on the immediate impacts in food production; students in ethics courses could examine the balance of world-wide patterns of food production v. individual identity; students in political science could focus on government funding issues; and so on.

### Project Notebooks

Project notebooks have proven to be invaluable in many courses because they capture write-to-learn activities, false starts, and drafts of chunks of a final report on work-in-progress, among other things. Unlike the learning log, which is less likely to include many Writing in the Disciplines (WID) activities, the project notebook can easily combine WTL and WID writing tasks.

In a senior-level engineering design course, students make the following kinds of general write-to-learn entries:

- Process Analysis - As students collect information, build models, and test hypotheses, they record the process they go through in as much detail as possible.
- Problem-solving - When students encounter problems, they write about the problem, possible solutions, and attempted solutions.
- Descriptions - Students record key points from class sessions or conversations with advisors, peers, teachers. Any questions that come up can be recorded in these entries.
- Literature review - When students read printed material on their project topic, they summarize the material fully.
- Pre-conference - Before students meet with advisors or teachers, they organize the questions and issues they plan to discuss in the conference.



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- Writing problems or questions

### Writing Journal

This variation of the journal or daybook is unlike the learning log or reading journal because it is much more self-directed (although teachers can assign specific journal tasks).

#### Why Keep a Writing Journal?

- Writing more frequently helps students capture ideas--images, sensory details, connections between ideas, comparisons/analogies, etc.
- Writing, reading, and critical thinking are intimately related: we tend to know best the material we write about.
- Writing more frequently helps students think like writers. (Think about the last time you tried to learn a new physical skill--skating, skiing, swimming--and how much more comfortable you got as you simply put yourself repeatedly into the physical environment for that activity.)

Anything can go into a writing journal because it is, quite simply, a collection of everything someone wants to write down. Especially pertinent for students, though, are responses to and questions about readings. Also, encourage students to think of a broad range of questions about what they read--questions about content, style, structure, audience, and so on.

Also students can use journals for other kinds of writing:

- jump starters - snatches of conversation, radio/TV bits, billboards, songs, pictures-- jot down anything that strikes you as an interesting image or idea
- experiments--try writing about the same idea to several different audiences (*Ranger Rick*, *National Wildlife*) or in different genres; try out different analogies to explain a concept
- record of observations--physical or mental
- problem statement and problem solving
- dialogues
- process analysis
- letters
- interviews (including conferences with teachers and discussions with peers)
- scenarios or cases (especially good for audience analysis)
- reflections on writing process-- questions/problems/successes



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