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WAC Classroom Practices—For Further Reading

By far the largest number of publications in Writing Across the Curriculum have been devoted to providing ideas for classroom writing activities in disciplines, ways of incorporating writing into curricular plans, and ways of supporting that writing while not losing focus on the disciplinary goals of courses. Instructors who regularly use writing in their classrooms, regardless of the discipline, report that they engage their students in composition practices that have been adapted to fit their discipline specific needs and goals. All disciplines are engaged in critical thinking, and critical thinking is at the heart of many of these practices: journaling, freewriting, peer review, reflective writing, writing to problem solve, micro-themes (Bean, et al., 1982), pre-test writing, written conference questions. However, teachers in each discipline select among these general activities to fit their needs, use these activities in particular ways to fit the subject area learning, and modify and develop new activities as the need arises. Because this literature is so extensive and lesson specific, we cannot provide a comprehensive review here, and we refer teachers to the following resources. We will follow that with discussion of sample publications arranged according to discipline, to give a flavor of the different ways disciplines have incorporated writing in their courses.

The best place to begin an investigation of discipline specific classroom writing practices is the WAC Clearinghouse (<http://wac.colostate.edu/>). Designed especially for ease of access, the WAC Clearinghouse is a resource that provides up-to-date on-line books, teach-

er exchange, and four journals for any educator interested in using writing in their classroom. The WAC Clearinghouse is a gateway to learning more about how to implement discipline specific practices for Writing Across the Curriculum. In addition to the resources at the site, there are well-maintained links to bibliographies, teaching resources, research, programs, organizations, and many other valuable up-to-date needs. Among the bibliographic sites linked there are

- CompPile <<http://comppile.tamucc.edu/index.html>> (which has an extensive searchable data base of publications in the teaching of writing);
- the Edison Initiative Writing Across the Curriculum Bibliographies <<http://www.uwm.edu/letsci/edison/wn.html>> (which gathers subject specific WAC links in many disciplines);
- the Language and Learning across the Curriculum Bibliography <<http://www.sfasu.edu/lalac/bibliog.html>>;
- The CCCC Bibliography of Composition and Rhetoric <<http://www.ibiblio.org/cccc/>>;
- Electronic Communication Across the Curriculum <<http://wordsworth2.net/projects/ecac/ecacbk1.htm>>; and
- The National Network of Writing Across the Curriculum Programs (Elementary-University) <<http://wac.gmu.edu/national/network.html>>.

The WAC Clearinghouse also provides electronic access to journals that provide a continuing resource of new ideas: *Language and Learning Across the Disciplines* and *Academic.writing*—now combined into *Across the Disciplines*—and *The WAC Journal*. Further, it offers electronic reprints of landmark books in writing across the curriculum as well as publishes new research and resources on composition and Writing Across the Curriculum, such as this book.

Some of the early print publications in WAC still provide many useful ideas for classrooms in different disciplines. Barbara Walvoord in 1982 (2nd ed. 1986) first published *Helping Students Write Well: A Guide for Teachers in all Disciplines*, which is still one of the most useful guides for disciplinary faculty new to writing. In the mid-1980s

the National Education Association published a series of volumes on teaching writing in the content areas at the elementary, junior high school, high school, and college levels (Tchudi & Tchudi, 1983; Tchudi & Huerta, 1983; Tchudi & Yates, 1983; Tchudi, 1986). A 1982 collection edited by C.W. Griffin, *Teaching writing in all disciplines*, also provides a range of useful classroom ideas.

Andrew Moss and Carol Holder's (1988) *Improving Student Writing: A Guidebook for Faculty in All Disciplines* provides a compact introduction to many practical issues of introducing writing in all subject areas, along with sample activities and assignments. More recently, Farrell-Childers, Gere, & Young's (1994) *Programs and Practices: Writing Across the Secondary School Curriculum* and Margot Soven's (1996) *Write to Learn: A Guide to Writing Across the Curriculum* provide a similar introduction, while John Bean's (1996) *Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom* provides a more in depth treatment.

Anson, Schwiebert, and Williamson's *Writing Across the Curriculum: An Annotated Bibliography* (1993), covers over 1000 items and provides comprehensive coverage through the early 1990s; over 600 of the items are pedagogic, arranged by subject area. Finally, the teaching journals in various disciplines, such as *Teaching of Psychology*, *The Journal of Economic Education*, and *The Journal of Teaching Sociology*, often contain articles about writing in the respective disciplines.

Mathematics

The 1989 collection *Writing to Learn Mathematics and Science*, edited by Connolly and Vilardi, Gopen and Smith, reports on the dichotomy between mathematics and writing as a "tradition in the American education system" (p. 209). It is no wonder they were surprised that a two-hour session on the topic of the use of writing in mathematics classes organized for the 1988 Mathematical Association of America meeting actually required three full sessions to accommodate everyone who wanted to present a paper: eight hours and thirty-six presentations. But even in 1988, writing to learn math was not a new idea. The 1989 Curriculum and Evaluation Standards for School Mathematics published by the National Council of Teachers of Mathematics set the direction for reform in mathematics teaching and learning as it endorsed the benefit of writing assignments in the mathematics classroom to en-

hance student understanding. In the face of this mathematics education reform, the focus of attention in the National Council of Teachers of Mathematics 1990 yearbook necessarily shifted from 1980s curricular issues and the teaching of specific content to the changing roles of students and teachers. The yearbook explores many writing to learn activities including journals, writing problems, and even letter writing to a friend to explain mathematics concepts, as effective methods of teaching (p. #). The editors have devoted a persuasive as well as practical chapter to writing as a tool for teaching mathematics, calling it the silent revolution. Writing in math class also encouraged and supported another math reform movement, collaborative learning.

1. The collection edited by Connolly and Vilardi (1989) presents many ways to develop students' conceptual understanding through writing, following a writing to learn philosophy. This collection surveys WAC classroom practices in middle school through college. Connolly claims informal classroom writing can help students to "retain natural curiosity; promote confidence in reason's ability to construct order by trial and error, even in problematic circumstances; and overcome anxiety that occurs when education stresses answers, not options, and product, not process" (p. 6). He explains that students, who don't succeed in math and science, have few tools and opportunities to think about those subjects. They have no language to even ask an "intelligent" question. Writing allows students to communicate what they think about how to do math and science, thereby making knowledge of it. The book presents these ways of using writing to learn in *Freewriting* at the beginning of class, to become present and centered, eliminating the distractions we bring to class.
2. *Focused freewriting* to cast a net of inquiry, initiating exploration of a term, issue, question, or problem.
3. *Attitudinal writing* to discover attitudes that affect aptitudes for learning by asking students: What expectation or experience do you bring to this reading? What difficulties did you have with the last assignment? What is most difficult for you at this point in the course? What do we need to do differently?

4. *Reflective, probative writing* to initiate or to conclude a class discussion or, mid-class, to refocus a discussion that is confused or lacks energy.
5. “*Meta-cognitive*” *process writing* to observe how one reads, takes an exam, works on a problem, writes a paper, thinks about an issue—writing that records one’s own learning behavior, allowing one to become more autonomous and less reliant on the information and authority of teachers or texts.
6. *Explaining errors* on a test or homework—a particular type of “process writing” that helps students and teachers recognize where things went wrong and why.
7. *Questioning* while doing homework or at the end of class (another type of “process writing”), enabling students and teachers to recognize doubts, reservations, confusions, and uncertainties.
8. *Summarizing* what was said in a class or a reading.
9. *Defining*—substituting personal definitions, however imprecise, for memorization of textbook terms.
10. *Creating problems*—defining problems and issues of one’s own, as an alternative to answering others’ questions.
11. *Writing to read*—through double entry notebooks, reporting what an author says and, in a facing column, responding to it. Such dialectical notebooks integrate attitudinal writing, questioning, summarizing, and process writing.
12. *Learning logs, microthemes, paired problem solving*, and so forth.

The purposes of writing in the math classroom vary little across the grades even as classroom practices differ. In *Writing in Math Class: A Resource for Grades 2–8*, Marilyn Burns (1995) describes two purposes for writing in the elementary classroom: writing to support learning and writing to assess understanding. These fundamental WAC principles are demonstrated throughout this practical “how-to” guide as Burns provides examples of four categories of writing assignments and their assessment: “keeping journals or logs, solving math problems, explaining mathematical ideas, and writing about thinking processes”

(p. 49). Burns provides numerous examples of student work to demonstrate how they take up writing in the classroom and even provides ideas for “creative writing” assignments about math.

Reisch (2000) presents two writing assignments in developmental college math classes to build math confidence “through setting goals, considering and implementing strategies to attain these goals, and then reflecting on these experiences” (p. 1). In the first assignment (The Math Autobiography), students are asked to reflect upon and describe where they are coming from, where they are now, and where they are going. They are asked to set goals for themselves and identify strategies to help them achieve these goals. The second assignment (Course Reflection) continues the reflecting process. It asks students to look back on the semester and the writing they did in the Autobiography and to consider the following: What did I want to accomplish this semester? What did I do to insure my success? How can I build off of this experience in my next mathematics course? Autobiographies and reflective writing for goal setting are tools used widely in composition classrooms as well as in many of the other disciplines. Other useful ideas for writing in mathematics classes appear in Countryman, (1992) *Writing to learn mathematics: Strategies that work, K-12*; Drake & Amspauagh, (1994), “What writing reveals in mathematics,” Cooney & Hirsch (1989), *Writing to learn Mathematics and Science*, and Gopen & Smith (1990) “What’s an assignment like you do doing in a course like this?: Writing to learn mathematics.”

English, Literature and Language Arts

Since the mid-1980s, the National Council of Teachers of English (NCTE) has published numerous volumes on classroom practice. The NCTE website (www.ncte.org) is rich in resources for the K-12 language arts or English teacher. This comprehensive site is easy to access and has grade specific lesson plans, journals, teacher talk, and current curricular information and is perhaps the single best WAC resource for the teaching of language arts and literature. Educators offer examples of uses of reflective writing, journaling, cross age tutoring, co-operative learning, summarizing, writing to read, and various meta-cognitive processes. In short, a survey of the kinds of lesson plans offered makes it clear that language arts makes use of the same tools as other

disciplines. In fact, many of the kinds of lessons explained are easily adaptable to high school or college classrooms, using age appropriate content.

Recent publications such as *The Literature Workshop*, by Sheridan Blau (2003), exemplify the kinds of tools now at work in many high school and college literature classrooms. The book describes in detail how to conduct a literature workshop and provides the author's experiences in the classroom with his students as a benchmark for the kind of results that can be expected. The goals of the literature workshop are to "move students through a disciplined process of inquiry and reflection that will serve as a kind of initiatory and prototypical experience for them to refer to when confronted with future textual problems" (p. 32). The underlying assumptions of this text are shared by other disciplines that seek to incorporate writing to learn approaches because the teacher is no longer the repository of all information, writing to learn helps move students to a place of disciplinary competence in the absence of the teacher. Blau acknowledges that writing for the literature classroom is problematic for students because they aren't able to use writing about literature to construct knowledge. Blau recommends journals or logs as places students can experiment with analysis and criticism or to record questions or confusion about texts. These logs are then used as a catalyst for classroom discussion to build understanding of the text. Reading logs, reading process research reports, and an interpretation project are elements of the literature workshop that incorporate writing to learn tools.

Two articles appearing in Herrington and Moran's (1992) edited collection *Writing, Teaching, and Learning in the Disciplines* provide two strikingly different approaches to talking about the use of journals in literature classes. MacDonald and Cooper studied the effect of two different kinds of journal writing—dialogic and academic—on student learning in a literature classroom. Like a double entry notebook, the dialogic journal asks students to identify parts of a text to comment on and then to write reflectively about their initial observations. The academic journal focuses student writing on specific questions and problems and asks the student to make a claim supported by evidence. While they found that the academic journal improved student performance on latter critical essays, the dialogic journal had a negative impact, by leading students toward a diffuse personal style inappropriate for the assignment. In the same collection, Toby Fulwiler uses his own

teaching journal to explain his use of dialogue journals, freewriting, small groups, peer review, three genres of papers, and multiple drafting and revision, in an American Literature class for non-majors. This experiential account offers a step-by-step reflection on how to implement this WAC strategy in a literature course. His experience was that these forms of writing made the course “both serious and exciting at the same time” (Fulwiler, 1992, p. 157).

Psychology

In her April 1985 article “Writing as a tool for teaching social psychology” published in *Teaching of Psychology*, Sara Snodgrass suggested the use of course logs (a kind of journal), writing analyses of published articles, and writing a formal research report based on observational study to teach psychology.

In *Writing and Psychology*, Vipond (1993b) focuses on the audience, genre, and style of writing in psychology. In his final chapter, Vipond suggests ways instructors can make writing a more vital part of students’ academic lives. Vipond suggests less reliance on the textbook as the authority and more as a reference if students are to learn to write as authorities about the subject. He recommends journal writing to foster learning and communicating, allowing psychology students to examine their own ideas and experience, and not just those of others. He argues that the relationship between writer and reader be revitalized and that the audience metaphor (which implies performance) be replaced with the metaphor of conversation or dialogue. Furthermore, Vipond encourages instructors to be real readers and responders to student writing, rather than examiners and graders.

1. He offers some practical suggestions to incorporate writing into large classrooms: pairing a large lecture with a small writing intensive course as is done in the University of Washington Links program.
2. Using peer tutors and/or TAs in the classroom to assist with writing instruction and response.
3. Regularly assigning a 1-minute paper. At the end of class students write about the major point they learned that day and the one unanswered question they have. Papers are gathered and

used as the basis for the next lecture. Students learn that writing about psychology is a mode of learning about it.

4. Inkshedding. Students write about a topic and share with each other, thereby creating an atmosphere where writing is used, expected, and valued (Vipond, 1993b, p. 81).

Vipond's (1993a) "Social Motives for Writing Psychology: Writing for and with Younger Readers" examines the differences in how ninth graders and college level students understand various psychological concepts based on the findings from a cooperative writing project. By having his college class explain psychological concepts in writing to a ninth grade class, Vipond demonstrates how students can learn to adopt more authority in their writing about psychology.

In her 1994 *Teaching of Psychology* article "Lessons Learned from an Interdisciplinary Writing Course: Implications for Student Writing in Psychology," Dana Dunn recommends freewriting, small-group writing assignments, and peer tutoring as effective writing to learn methods in an interdisciplinary writing course, while she supports optional revision, peer feedback, and student assessment by more than one faculty evaluator. Sally Radmacher and Elizabeth Latosi-Sawin (1995) reported that in a case study students who participated in summary writing exercises scored better on final exams than non-participating students.

Economics

In 1991, the American Economic Association's report "The Status and Prospects of the Economics Major" suggested that the integration of writing into the teaching of economics would assist students in learning to think like economists. The most often employed tools for doing this, according to a survey, are the microtheme (students write a one-minute paper at the end of class to summarize their learning for the day) and recursive research paper assignments that include instructor and peer feedback as well as revision. Because writing is an important component of the professional life of an economist, learning argumentation strategies was identified as a goal of writing to learn assignments (Siegfried, et al., 1991).

Cohen and Spencer (1993), explain how an economics professor and a writing instructor restructured an upper-division economics

course to focus on the writing process rather than the end product, with the goal of “getting students to think analytically and making arguments” (p. 223). They made no changes to course content, but substituted six different writing exercises for the in-class midterm, final exam, and 15–20 page term paper. This paper is an excellent and often cited example of how writing in the economics classroom promotes discipline specific critical thinking and learning and provides examples of writing assignments and student evaluation forms. Other ideas for writing in economics are contained in Tobey (1979), Crowe & Youga (1986), Henry (1986), Hansen (1993), Palmini (1996), McElroy (1997), Davidson & Gumnior (1993), Simpson & Carroll (1999), and Goma (2001).

History

Writing is of central importance to the study and practice of history, and there are hundreds of resources available on the relationship between history and writing in the classroom from the early 1980s to the present. The assumption that guides most historians who promote writing to learn about history is that writing about history encourages students to become more engaged with the topic and to learn to think like an historian. Classroom writing practices used most often in the teaching of history include journaling, warm-up freewriting exercises at the beginning of class, response writing to specific historical questions or problems, writing for different audiences and from different perspectives, and the use of microthemes to advance content understanding and encourage multiple drafts and revision rather than assigning the term paper. Because the discipline has emphasized writing to learn strategies, there are ample examples available of effective classroom practices. These include Beyer (1980), Brostoff & Beyer (1980), Holsinger (1983), Holsinger (1991), Steffens (1989), and Wyatt (2001).