

# The Canary in the Mine Shaft: A Writing-Across-the-Curriculum Experience in the Construction Science Department

Linda Ginter-Brown and Jo Diamantes

University of Cincinnati  
Cincinnati, OH

Writing skills are a necessary requirement for success on the job. However, many undergraduate construction management students feel that since they are in construction, building and engineering skills supersede any need for improving writing. The University of Cincinnati has developed a Writing-Across-the-Curriculum program, which focuses upon strategies for incorporating writing skills into all classes, not just English classes. This paper is a narrative of a pilot project just completed as a collaborative effort between the College of Applied Science's Construction Science Department and the Department of Humanities, Social Science, and Communication. Because there were pre-existing writing requirements, the course chosen for this project was *Personnel and Safety Management*. The paper describes the collaborative effort and planning, the assignments given, the student's responses, the reactions of the two teachers, and suggestions for future improvement.

**Key Words:** Writing-Across-the-Curriculum, Written Communication, Writing Skills, Construction Management

## Introduction

In the mid-1970's writing-across-the-curriculum programs began in response to the generally agreed upon notion that students' writing and thinking abilities definitely needed improvement. As a movement, WAC (Writing-Across-the-Curriculum) sought to strengthen undergraduate education by specifically addressing these issues in tangible ways. As Toby Fulwiler and Art Young, both experts in the WAC movement, note:

For students, writing-across-the-curriculum-programs promote general literacy, critical thinking, improved writing, and active learning. For faculty, the programs address issues such as disciplinary isolation, teacher training, curricular coherence, writing skills, midcareer burnout, and institutional morale (Fulwiler, Young 1).

Traditionally, these programs have had more impact with liberal arts faculty than with engineering faculty. As Flynn, et al note in their report on the WAC program at Michigan Technological University:

They have been trained to solve technical problems efficiently, and they see their job as helping their students attain similar skills. Often they value calculating and computing over writing, and they are resistant to the idea of "expressive" writing because they don't

see their role as encouraging students to explore attitudes or values. They want their students to become efficient problem solvers, not introspective evaluators (Flynn, et al 166).

Research shows that when engineering faculty find ways to incorporate writing assignments into their courses without the additional burden of extra grading or other time consuming activities, they often re-examine their teaching strategies and student learning taking place within the classroom. When they realize that they need not necessarily “give up” their traditional pedagogical approaches, their perspective on what place writing can have in the curriculum often is modified or changed.

Recently, at the University of Cincinnati’s College of Applied Science, two faculty members, one from the Humanities, Social Science, and Communication Department, and one from the Construction Science Department, teamed up to offer the traditional *Personnel and Safety Management* course within a WAC approach. Both instructors were in strong agreement that they wanted to strengthen the writing abilities of these construction management students. The challenge then became how to structure assignments within the course content which would realize the WAC goals of strong writing and critical thinking skills.

*Personnel and Safety Management* is one of the required courses within the Construction Management curriculum. The majority of the students taking it are at the sophomore level. The objectives of the ten-week course (quarter system) are to acquaint students with health and safety aspects of industry generally, with particular emphasis on the construction industry; to identify various safety problems and how to make management decisions to avoid them; to examine legal ramifications of safety on the job. Successful completion of the course results in students receiving OSHA course completion cards for the 10 hour Construction Outreach course. The course provides safety awareness for many issues in the industry and background for future study of safety issues in later courses in the curriculum.

Although the course has had a written component for many years (referred to here as the major project paper) a new approach for this project was definitely needed. From the beginning both instructors decided to require writing assignments that would emphasize technical writing skills as well as technical knowledge in the subject area. They devised the following written communication requirements:

#### *Summary Cards*

The purpose of this assignment was to provide frequent opportunities to practice summarizing and writing skills. Each student was given a 4x6 card during the last five minutes of each class and asked to summarize the class by answering the following two questions:

1. What are the main points you learned today?
2. What further questions do you have about today’s class?

### *Short Proposal*

This two-page proposal needed to persuade both instructors that the major project investigation for which they were responsible would work. Students had to show evidence they understood audience analysis and rhetorical purpose and had narrowed their topic to a manageable size.

### *Major Project Paper*

This 10-20 page document reported the results of their on-site investigation in written and visual form. In addition to the writing portion of the paper, the students were to use pictures they had taken and include other materials such as sketches, charts, tables, as appropriate to their topic. The students could work in small groups for this project.

### *Short Research Paper*

In this 4-5-page paper students were to address an ethical issue dealing with safety in the construction industry. Students were to use at least three outside references from scholarly journals.

## **Student Responses to The Writing Assignments**

This section of the paper briefly describes the various writing assignments and how they were both accomplished and modified during the ten-week course. At the end of the course an evaluation form was given to the students for feedback on the entire course. Several questions specifically targeted the writing assignments. The responses and comments from these evaluations are incorporated into the discussions of each of the writing assignments.

### *Summary Cards*

Using summary cards at the end of each class has been suggested in many writing-across-the-curriculum workshops. These cards can be used for various purposes, but they are a way of forcing some writing to take place each day without taking a lot of time from class. Our instructions to the students were to write several sentences on a 4x6 card, which summarized what they had learned in class that day. They were also to write one question they had about covered material. In this class, the cards served a dual purpose as we also used them to record attendance. We were able to give feedback about sentence construction and use of commonly misspelled words because of the cards. We were also able to identify early on any students with significant problems that needed early intervention. Incorporating suggestions, which focused on actual errors of the group, was more helpful and less time-consuming than having periodic grammar reviews. We felt, and research literature in business and technical writing supports this view, that it was more helpful to work with actual problems of grammar and sentence construction than to teach writing through a traditional “grammar lens.” The questions students wrote on the cards also provided helpful feedback regarding what technical aspects of the material were comprehended and what ones needed further clarification. Because of the number of students and the time it took to read each card, we feel we would concentrate more on the

summarizing skills and less on the questions each student had. There simply was no time to answer each question the next class period. However, the students did feel the cards helped.

In response to the question, “Did the cards help you retain more information by focusing your thoughts in class?” Twelve responded affirmatively, nine responded negatively, and four were undecided. Thirteen students recommended that we continue the cards. Nine felt they should be discontinued, and six felt their use should be continued with some adjustments. Their comments were:

1. Pass out cards with key questions on them, test questions
2. More defined on what you want
3. No more cards
4. Less (?) frequently. Perhaps random and unannounced.
5. Good way of getting students to think about topic
6. I feel the test should cause enough focus
7. I guess it is a good way to keep attendance
8. Ask for answer to a different specific question each day
9. Just take attendance
10. Attendance sheet -- maybe class outlines for each day so we are able to follow all topics covered

#### *Short Proposal*

Part of one class period was devoted to discussion of the written short proposal detailing the major project paper the student groups would write. Before students could begin their project, they had to have their proposal approved by both instructors. About half of the groups had to rewrite their proposal at least once. One group had to rewrite it three times. Most of the rewrites centered around two issues. First, the students had to convince us that they had thought about the project and narrowed it down to a manageable topic area. Second, they had to show us they had thought about how to manage the project and make the most of their time. Since most of the projects consisted of job site interviews, this meant they had to develop cogent questions beforehand, and they had to be ready for a focused discussion when they arrived on-site. In answer to the question, “Did the preliminary work you did on preparing the proposal help you write a better final product?” seventeen responded that yes it had. Only two responded negatively. Comments accompanying these questions were:

1. Made the experience seem more joblike
2. It got me thinking about the paper much earlier
3. It cleared up mistakes in my writing instead of many small ones over (repetitive)
4. Helped focus on what we needed to do; how we were going to attack the paper
5. Although this proposal was used and graded, I felt I had a good idea of the type of paper to write anyway
6. Gave me several different ideas
7. Proposals are a very important part of the construction industry. The exposure was good. Many people just sit down and write; they don't plan.

8. It was just something else that had to be turned in. We usually brainstorm and think of all the steps--it was a pain to write it down.

### *Major Project Paper*

The approach to the major project paper was different than the approach normally used by students in writing papers. They are used to writing papers by doing library research to familiarize themselves with a topic, quoting sources and coming to a fairly obvious conclusion. This paper, however, requires them to do as much research as necessary, find and visit a job-site, familiarize themselves with a specific construction process (e.g., erection of scaffolding), know the pertinent regulations and laws, interview workers and supervisors and draw their own conclusions. They are to explain what they learned, identify both positive and negative aspects of what they experienced on-site and in the interviews and draw conclusions about how things might be done differently. Their paper is to demonstrate what they learned and has to tie their pictures and text together.

Prior student reaction to this paper has always been that it is a lot of work. The students in this class reacted no differently. Although the requirements (both technical and writing) had not changed from previous quarters when this class was offered, the students voiced their comments about the pressure they felt to write well. Both teachers received many visits from students asking questions about both the technical and writing aspects of the paper. Surprisingly, the students asked questions of other faculty and the library staff as well. This had not happened in previous quarters, and we felt was a positive sign.

One of the evaluation questions asked what type of paper would be the most valuable learning experience. The options given were a paper such as the one just completed, a typical research paper or several short papers. Seventeen students voted for the paper format just completed, five voted for a typical research paper and only three felt they would get more out of several short papers. Student comments in the suggestions area included:

1. Good as is
2. Papers dealing with specific information
3. Writing is addressed in English I, II and III, not in safety class
4. The last paper should be divided into many little assignments

### *Short Research Paper*

The short research paper was originally designed to be a typical research paper in which the students were assigned an ethics case, did library research, wrote up the case and provided a complete bibliography. The Humanities instructor prepared the students for writing this paper by presenting a class on how to conduct research, differentiate between primary and secondary sources, identify scholarly journals and trade journals. The students completed a homework assignment requiring them to categorize three journals, based on a matrix of criteria, as either scholarly or trade. However, the pressure of the ten-week course completion requirement forced modification of the assignment. The final paper required them to find an ethics case in construction, identify the ethical issue, propose a solution to the problem or a way it could have

been avoided, provide arguments to bolster their choice of solution and state legal and moral ramifications of their solutions. The revised paper did require writing but the emphasis on research was dropped. Once the students started writing their papers they got involved in it and again both instructors received numerous visits about both technical and writing issues.

The ethics paper itself was not addressed in the course evaluation since we modified the requirements toward the quarter's end. However, students did indicate interest in the subject and the instructor from the Construction Science department was asked to proof read two of the papers before they were turned in and answered questions about how to cite references. We feel this is an indication they were acknowledging the importance of good writing. From several conversations with students both instructors felt that the introduction of ethics into this class was a further complication in the course requirements. We spent time discussing ethics itself and the abstract nature of possible responses in their papers. For purposes of increasing writing skills within the course we felt the ethics topic was a deviation using up too much time and in the future we would pick specific safety related issues.

### **Conclusion**

Although we did not set this up to record data in an empirical fashion, we both feel the experience was successful. Overall, student response was positive. When asked, "Will the emphasis on writing in this class help you in future classes, ten responded positively, and only four responded negatively. Thirteen were undecided on the issue. However, when asked, "Do you feel your writing has improved since the beginning of the quarter, two responded positively, nineteen responded negatively, and seven were undecided.

At first, these two responses seem at odds with one another. The reaction of the instructor who has taught this course for many quarters is that the writing did improve quite significantly. This reaction is based on the following observations. First, greater student interest in writing well was apparent. Both instructors were contacted outside of class to answer questions about the writing process, grammar, research resources, and other issues connected with writing. Second, the college librarian reported an unusual level of activity in the library. Librarians were receiving queries about how to put a paper together and just what constituted primary and secondary sources. Third, the quality of the papers was much better than in past quarters. Since these papers are sent to an outside panel for judging for scholarship purposes, students have always turned in the papers for revision. After the revisions are made and a final version is turned in, students receive their grade. In past quarters, the first paper usually needs much work in organization, format, sentence construction, and grammar. This time, these problems were at a minimum in most of the papers, and efforts could be focused on making fairly strong papers even stronger. The students voiced a sense of accomplishment, and even, in some cases, excitement, when their final papers were turned in to us. We heard comments, which indicated a certain level of ownership about the writing process--comments which focused upon strategies they might have used and what they might do differently if they had even further opportunity to revise.

We feel confident the students did improve their writing by being challenged in specific ways to produce writing, which focuses on revision, and, thereby, produces a much improved product.

Most of them arrive at the beginning of the quarter with the very pronounced attitude that “I’m just a construction worker; I don’t have to know how to write.” By seeing that both instructors valued and required the writing assignments and weighted them accordingly, students realized that they needed to do well with the assignments in order to achieve success in the class. By emphasizing and incorporating assignments where they could practice writing, they were able to improve their writing skills incrementally, if not dramatically.

### **Future Recommendations**

One strategy we used in this class, which we feel, worked really well was feedback from both instructors. Both instructors graded each written assignment, but only one grade was assigned. The comments were word processed to maintain this sense of unity. To integrate writing into student work, we felt it was important that writing be a part of, rather than separate from, the technical aspects of the course. In the future, we would prepare course materials and handouts to reflect this position as well. We would spend more time at the beginning of the course, making sure everyone was at the same level of understanding regarding basics such as title pages, abstracts, correct incorporation of material into the text and bibliographic resources. We would also keep all the writing assignments focused upon technical and safety aspects of personnel management. We diverged from this focus in the last assignment when we assigned the students to investigate an ethical issue in the safety area. The introduction of ethics was an abstract idea with which many students had no experience. As a result, many of them had difficulty with the assignment. In future courses we would require that this short research paper focus on some aspect of safety in construction.

In summary, we both feel that this collaborative initiative was successful and that our experience was positive. We feel we have achieved what we set out, granted on a small scale, to do: to promote a greater awareness of the importance of writing in a construction management class and to promote collegiality among faculty of different disciplines. Both of us feel we have learned valuable insights, which can be used to help other faculty promote further learning in their classes through writing. We plan to propose a future collaborative effort to both our department heads and plan to consult with other faculty members who may want to explore WAC strategies in their own courses.

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