

Writing to Learn and Writing in the Disciplines: Enhancing Computer and Technical Classes

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Abstract

This paper describes the implementation, process and results of adding a writing intensive component developed through a WID (Writing in the Disciplines) program to a 200 level course in Web design and development in the Computer Systems Department of the School of Business at Farmingdale State College. Department culture and philosophy about the changes mandated by the WID program are also discussed. The course's goals and objectives were technical and could not be changed. Students were to learn Dreamweaver, Fireworks and Flash and use these software programs to create Websites that met research-grounded usability, functionality and design criteria. All writing assignments had to be linked to the course goals and objectives and related to what the students were to do in class and at home. The writing assignments were constructed to promote learning of the course material and to show how to present this material online as opposed to on paper. The key to success was found to be process writing, integration of the writing assignments with the course project and objectives, and extensive peer review. The key to success in the department was found to be an evolving awareness that writing can be used to enhance and support learning in technical classes.

Keywords: WAC, writing across the curriculum, WID, writing in the disciplines, process writing, peer review, writing to learn

1. INTRODUCTION

The National Commission on Writing has described writing as the neglected "R" in the American educational system (National Commission on Writing, 2003). This report was not the first or the last to describe the decline in writing skills of American students. The Writing Across the Curriculum (WAC) movement first emerged in the 1970s to find ways to improve writing literacy among college students. WAC courses support two major approaches: "writing to learn" and "writing in the disciplines" (WID).

The writing to learn approach postulates that the act of learning and the act of writing are interwoven and linked (Emig, 1997). WAC encourages the use of journals, logs and informal writing assignments. Students take

the course reading material and write about it in their own words using their own ideas and opinions. This helps them to understand and better retain the knowledge derived from the course. It relates the process of writing to the process of learning a given subject matter (Odell, 1980). In addition, it helps students to improve their writing skills and maintain those writing skills after exiting from the initial freshmen English classes.

The writing in the disciplines (WID) approach emphasizes that writing in a specific discipline will not only improve writing, but also overall education. Since writing plays a central role in the learning process, there is a college-wide responsibility for writing. Faculty in all disciplines should, therefore, be involved in this learning/writing process

(Stanley and Ambron, 1991). Students must be taught to use the specific style conventions and language of a discipline to successfully compete in that discipline. Thus, in a WID course, writing might include reports, articles, reviews and research papers.

It is clear that good writing skills are necessary at all stages of life. The College Board Report of 2004 found that "writing is both a 'marker' of high-skill, high-wage, professional work and a 'gatekeeper' with clear equity implications". The Report also indicated that that today's electronic communications and advanced technology actually add to the need for people able to write clearly and quickly. Fundamental writing skills are now more than ever valued in the workplace.

The dilemma is now how to turn students into effective and proficient writers. Research generally supports process writing as the most effective means of teaching writing. Process writing encourages students to see writing as an ongoing recursive process. The writing starts with the conception of an idea and passes through several steps. Some of these steps may include pre-writing, a draft, revision, editing, and publishing. Combining process writing, writing to learn, and writing in the disciplines on a college-wide level should provide a solid foundation for improving writing and communication skills.

2. DISCUSSION

Farmingdale State College has had a budding WID program for the past six years. The program has been successful in adding about forty writing intensive courses to the college's course offerings. Some departments at the college have embraced and accepted the WID program more readily than others. This paper describes the process and results of implementation of a 200 level writing intensive course in Web design and development within the Computer Systems Department in the School of Business.

Until a couple of years ago, the Computer Systems Department at Farmingdale State would have happily conceded the ownership of "writing" to the English Department. Our professors felt that they were teachers of subject matter, not communication skills.

Although our advisory board painstakingly pointed out each year the need for IT graduates with writing and communication skills, the department felt that this was not their job or area of expertise. This mindset was the result of a number of factors including department culture, lack of understanding of the Writing in the Disciplines/Writing Across the Curriculum programs, the technical nature of our classes, and an inflexible curriculum.

The computer systems curriculum is inflexible and regimented. Virtually all courses have prerequisites that are needed to ensure the entry level skills required for the next level class. The courses are jam-packed with material and there is frequently not enough time to complete even the core requirements.

Unlike other departments on campus, Computer Systems instructors do not select books or course content individually. Course outlines are created by a course marshal, approved by a track committee, and must be used by all instructors. This is done to create uniform standards for completion of each course and ensure that the entry level skills for successive courses are in place.

Many classes are technical and devoted to teaching students a specific skill. The major concern about the WID program was that it would require a change in the curriculum and would change the focus of the course. It was frequently stated that "writing about something" is not the same thing as "learning how to do it". Students need to learn "how to program", not how to "write about programming".

There were some factors encouraging support of the program. It was acknowledged that people and communication skills were necessary in the workforce. There was dissatisfaction with the results of the written report required in the capstone senior project class. Since writing was already required in that class, it was relatively easy to get department approval to make that one class writing intensive. It was, however, difficult to improve writing in one class offered the last semester before graduation.

As a pilot study, a 200 level course in Web design and development was modified to be a writing intensive course under the college's

WID program directives. The department insisted that the course goals and objectives were technical and could not be changed. Students were to learn Dreamweaver, Fireworks, and Flash and use these software programs to create Websites that met research-grounded usability, functionality, and design criteria. All writing assignments had to be linked to the course goals and objectives and related to what the students were to do in class and at home. The writing assignments were constructed to promote learning of the course material and how to present this material online as well as on paper.

All writing assignments in the class were related to the capstone project, individual Websites planned and developed by the students using research based design and usability guidelines. The writing assignments served to support the technology and technical nature of the course, were linked to the Websites, and became an integral part of the capstone projects.

A "writing process" method was utilized for all writing assignments. Instead of a major research paper, subjects were given smaller writing assignments in a step-by-step, consecutive fashion. They were encouraged to plan and preorganize their thoughts with an outline, and to submit the outline or a draft to the instructor. They were encouraged to make changes and revise the papers as the semester progressed. They were permitted revisions even after the paper had been published to the Website.

The first writing assignment consisted of a project proposal. In the proposal, students introduced themselves, described their educational background, classes taken, work experience, etc. Students then described the type of Website they were interested in creating. They explained the content and goals of the site, such as billboard, customer support, catalog/e-commerce, informational, or resource. They discussed the main features of the site and estimated the number of individual Web pages required. They also described characteristics of the typical audience for the site.

After the writing assignments were reviewed by the instructor, students uploaded them to their Websites and showed them to the other students in the class. Students thus

watched as the other students created their sites utilizing the material contained in the writing assignments.

The second writing assignment involved research. Students were instructed to browse the Web and select at least two Websites similar to the site they wanted to create. They then wrote a design critique of the two Websites, giving examples of design attributes they liked and didn't like. They decided which Website was more effective, described why, and how these features could be utilized in their own Websites. The writing assignment was once again uploaded to the student's Website and shown to the other students.

The third writing assignment involved the creation of a design document for their Website. The design document included goals and purposes, audience, design requirements, delivery requirements, a flowchart, and Website design summary followed by specific content and layouts for all pages. Students were required to justify their reasons for the structure they selected and described how it suited the Website content and benefited the user.

The fourth assignment involved writing a narrative describing the FAQs (frequently asked questions) to be included on the Website. Students explained why the questions were important and how they helped the user. In addition to the questions, they composed responses to the questions.

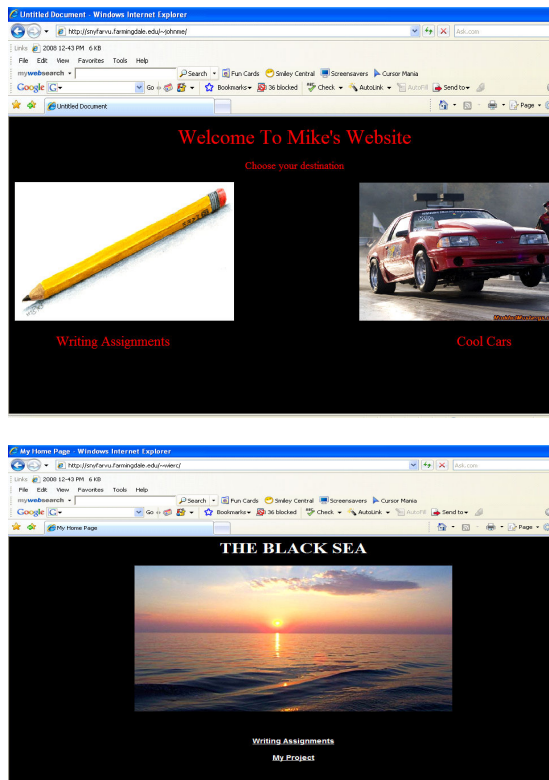
The fifth and sixth writing assignments involved testing and evaluation of the Website. Students described the items they felt needed to be tested and evaluated and then created a user feedback form. Students in the class evaluated each others' Websites and filled out the user feedback forms. They then compiled the data and wrote a narrative detailing the results of the testing and the effectiveness of the Website design. Areas that needed to be improved and ways to make those improvements were discussed.

3. RESULTS

The outcomes of the course consisted of student Websites with two branches, one branch containing the six writing assignments, and the other branch,

containing the project created step-by-step as described in the writing assignments. See examples in figure 1.

Figure 1: Examples of student projects



The writing assignments and peer review served to reinforce the technical objectives of the course.

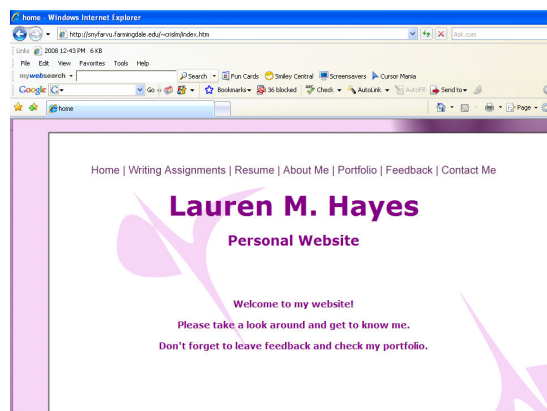
Students followed the creation of each other's Websites from start to finish and were actively involved in offering peer review and suggestions. The differences between writing for print and writing for the Web become evident as the writing assignments were taken from print and moved online.

The course has now run for three semesters. Course evaluations by the students indicated they enjoyed the writing assignments and felt that it helped them to learn the course material and complete the project. The writing helps students learn.

Some other peripheral benefits were also noted. There was no plagiarism. Since everything is transparent and the project starts from day one and builds on day one,

copying someone else's work just is not possible. In addition, students started to utilize the Website for other purposes outside the purview of the course. Several students started using the Website as a digital repository adding course materials for other courses. Some students created small businesses for themselves on their Websites. One student succeeded in having her Website on the "History of Copiague" added to the Copiague Chamber of Commerce Website. Many added resumes and portfolios using the Website as a showcase for prospective employers. See figure 2.

Figure 2: Website enhanced for prospective employers



4. CONCLUSION

The key to success in this writing intensive course was found to be the utilization of process writing, integration of the writing assignments with the capstone project and course goals, and extensive peer review. The key to success in the department was found to be an evolving awareness that writing can be used to enhance and support learning in technical classes. An added bonus was that the students enjoyed the class and felt that the writing assignments worked well and helped them learn the course material.

Students today are facing new challenges that will require transferable skills and abilities. Writing and communication skills provide the foundation for lifelong learning and prepare students for the multiple career, economic, societal, and political changes that may loom ahead.

5. REFERENCES

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