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Computers: Developing an Interdisciplinary Writing Skills Tool

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Marian V. Sackson is an Associate Professor in the Westchester Information Systems Department where she has taught for twenty years. Her doctoral dissertation was on expert systems and these continue to be one of her areas of interest along with set theory, cluster analysis, and data communication systems.

The current paper, presented in 1992 to the New York Metropolitan Association for Developmental Education (NYMADE), grew out of a seminar Marian attended in Writing Across the Curriculum conducted by Dr. Phyllis Edelson (Pace Professor of English and Communications). Made aware of the importance of practice to the development of writing ability, and of how writing enhances conceptual understandings, Dr. Sackson integrated composition into her courses. Having done this, and being true researcher, she thought it might prove interesting to measure the amount of gain that resulted. Thus, this formal experiment conducted by her and Ms. Deutsch came to be.

Ilene Siegel Deutsch has been an information systems professional for almost two decades with work in both academic and business settings. On the academic side, from 1983 through 1992 she was a faculty member in our School of Computer Science and Information Systems and in CUNY's Medgar Evers College. On the business side, Ms. Deutsch is a practicing systems consultant with special strengths on the impact of systems upon organizational behavior and on human factors in computing.

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COMPUTERS: DEVELOPING AN INTERDISCIPLINARY WRITING SKILLS TOOL

Marian Sackson, Ilene Siegel Deutsch

INTRODUCTION

Most students at the college and university educational levels need to improve their combination of thinking and writing skills. One approach to confronting this dilemma is writing across the curriculum. A student's ability to articulate thoughts through writing are an important component of the total educational experience. However, many disciplines within the educational process often do not emphasize or reinforce the thinking and writing components.

We are a large private university in both a major urban and suburban Northeast setting. Our student body is predominantly first generation college attendees, close to 50% are minorities, and they come from public and parochial high schools. The fall 1992 freshmen class was 1043 in number, with 675 mainstream students, 60 honors students and 308 special needs students.

The average verbal Scholastic Aptitude Test (SAT) score at our university for Fall 1992 entering freshmen was 409, with a subgroup high of 670 and a low of 200. Performance on this objective test supports the need for a broader based focus on reading, writing, and comprehension skills. Imbedding writing across the curriculum reinforces the application of writing skills in all disciplines -- the accountant must write reports, the secretary must know grammar, the scientist must write logically, the teacher must write clearly, and the actor must comprehend his lines.

With the improvement of writing as our goal, we will examine the effect of introducing a computer lab writing component into a college level introductory CIS101 course. It is our objective to encourage and support the successful application of microcomputer technology as a tool to enhance our students' writing skills.

NEEDS ASSESSMENT

The results of the recent administration of the verbal component of the national SAT scores alert the educational community to a decrease in verbal test performance. This fact reinforces the need to develop ways to improve the thinking and writing component of a student's educational experience.

Valvoord (8) claims that one might never find the perfect paradigm for the complex relationship between thinking and writing, but many educators believe there is a connection. She also states that students develop writing skills slowly. Valvoord (8) writes that from an extensive body of linguistic evidence about how people learn to write, one discovers that teaching students **to write well involves teachers in various disciplines as well as those who teach writing classes.** A natural reaction by students to an emphasis on developing writing skills could be, 'Why is it necessary to worry so much about one's writing skills? With today's sophisticated technology, people do not need to do much writing anyway'.

Lawrence (5) responds to these comments stating that business decision making leads to communicating with someone to put the decision into effect. Likewise, the thinking-communications process often requires business people to convey their thoughts through written words. In addition, many middle and upper level managers who lecture and participate in the business schools of many colleges and universities express their concern that graduates, who will become the future employees, need to have the ability to write clearly, legibly, and in a style appropriate to the written document.

Weiss and Walters (9) state that students show a greater command of a subject about which they had written assignments rather than only reading or listening to a classroom lecture.

Emig (1) contends that writing is a uniquely effective tool for learning. She proceeds by saying writing and learning is many faceted, thus "Learning serves an

analytical and connective function, as does writing, which organizes individual facts, images, and symbols into sentences, paragraphs, and whole essays. Learning at its best is engaged, committed, and self-rhythmed, as is the best writing" (Emig, page 123).

At our university all entering freshmen are required to take a writing skills test. As a result, many students need to participate in a special writing course to compensate for their writing deficiencies. Two hundred and twenty four, or 57% of the mainstream entering freshman class are placed into Reading 100, a remedial course devoted to developing effective writing skills through review of basic grammar, sentence structure, and usage.

Thus, due to these numbers of students attending the special writing classes, the academic administrators of our university realize there are serious problems with students being able to articulate their thoughts through writing. In recognition of this problem, our university offers a "Writing Across the Curriculum" seminar to all interested faculty members.

All students, usually in their freshman year, must take Introduction to Computing (CIS101) for three teaching hours per week. It is here that we introduced a writing across the curriculum experience to strengthen students' awareness of the interdisciplinary nature of writing.

OBJECTIVES

In the initial phase benefits will be derived by two populations:

1. Students in the pilot CIS101 course
2. Students in general using the advanced computer equipment in the Academic Computer Lab

The number of students in the pilot CIS101 course fell between twenty-five and thirty. The number of students using the Personal Computer software in the computer lab was projected to be seventy per week.

The benefits to the students exposed to the writing across the curriculum pilot study are:

1. Student recognition of the need for writing skills in a non-writing course
2. Exposure to computer equipment and software that represent current technology
3. An opportunity to use vendor hardware that is different from that which is traditionally supported by our academic computer lab
4. Giving the students tools of empowerment

The Lab Personal Computers will provide the vehicle for assigning unique writing across the curriculum exercises. This equipment is state of the art, and will afford our students a new opportunity to use a laser printer, desktop publishing software, and mouse technology.

This program will serve as a pilot test to measure if students who have had a direct writing experience in an introductory computer course are more likely to do better than students who have not. This pilot study could serve as the foundation for a model of broader scope within our university, and then offer the possibility of implementation in the extended educational arena.

ACTIVITIES

The steps of the research (see Exhibit 1) are:

1. Identify two groups of CIS101 students one as a control group and the other as the experimental group
2. Administer a writing skill pre test to both groups before the beginning of the CIS101 course
3. The experimental group will engage in writing across the curriculum exercises in the introductory computing course
4. Both groups will be given a writing skill post test at the end of the CIS101 course. The pre and post tests are tests currently used to screen students for the special writing course, ENG 100
5. Analyze the differences found between the two groups in their writing skill level

The experimental group, as part of the CIS101 course, produced as an end-product a student team newsletter. The student teams, comprising three students each, were introduced to the advanced computer equipment and desktop publishing software. The format of the newsletter, published by the students, was their own design, except that each team member was required to write at least one article bearing his byline. Students submitted their newsletter stories to the instructor in first draft form using word-processing software for feedback and individual evaluation. Final preparation of the newsletter was an independent team assignment. The production of the newsletter was a significant component of each student's final grade. The final newsletter was circulated within the experimental class and in other computer courses (approximate distribution of 500 students).

The control CIS101 group had no intervention (i.e. exposure to specific upgraded computer equipment or the writing across the curriculum experience). At the end of the

academic semester a post test, measuring writing skills, was administered to both groups.

The pilot study began in the beginning of the Spring 1992 semester (late January/early February) and continued throughout the fourteen week semester. Newsletters were published and distributed in late-April 1992. Post tests were completed in early May 1992. The pilot study was evaluated and at that time consideration was given to conducting the experiment again during another semester.

PROCESS -- PRODUCT EVALUATION

Along with the writing skills post test discussed in the Activities section, we administered an attitude survey to the experimental group and the control group at the end of the Spring 1992 semester to evaluate the impact of the writing experience. The attitude survey served as a measurement of the attitude toward the use of computers to support work in non-computer related disciplines, especially writing and journalism.

The results of the pre and post writing skills tests, for both the experimental and the control groups, were evaluated using standard statistical measures.

It was our premise that the intervention will have a positive effect on students' writing skills, and we would then implement the model in other CIS101 classes. Since the advanced equipment is housed in the academic computer lab, hundreds of students each semester have access to the state of the art technology and software.

CONCLUSION

The measured differences between the writing skills of the randomly chosen experimental groups at the beginning of the semester and end did not show significant differences. These groups did express positive attitudes toward the experience. They both enjoyed working in a group and learning how to format a newsletter with a word processor. As the students wrote each successive newsletter, they improved the physical

appearance of the newsletter. They added Headlines, Cover pages, lists of contributors. Some groups even tried to add graphics.

The experiment was successful, however the success was not totally in the writing skills. The students' accomplishments appeared in the added word-processing skills, a factor that was not initially considered in this research. Some Communications instructors stated that the writing across the curriculum experience was of too short a duration, this is supported by Valvoord's findings (8). If the experiment lasted for two semesters, there might have been a significant change in students' writing skills.

REFERENCES

(1) Emig, Janet. "Writing as a Mode of Learning." College Composition and Communication. 28(1977) 122-28.

(2) Fiske, Edward. "But Is the Child Learning? Schools Trying New Tests". The New York Times. January 31, 1990.

(3) Flower, Linda. Problem-Solving Strategies for Writing. New York: Harcourt, 1981.

(4) Gagne,Robert and Ernest Smith. "A Study of the Effects of Verbalization on Problem Solving". Readings in the Psychology of Cognition. ed. Richard C Anderson, New York: Holt, 1965.

(5) Lawrence, Nelda. Writing Communications in Business and Industry. 2nd ed. New Jersey: Prentice-Hall, 1974.

(6) Schwartz, Mimi. Writing for Many Roles. Portsmouth: Boyton/Cook Publishers, 1985.

(7) Turner, Judith. "Use of Computers Can Improve Students' Writing Ability, Study Shows". Chronicle of Higher Education, December 7, 1990.

(8) Valvoord, Barbara. Helping Students Write Well A Guide for Teachers in All Disciplines. New York: Modern Language Association of America, 1982.

(9) Weiss, Robert and S. A. Walters. "Research on Writing and Learning: Some Effects of Learning-Centered Writing in Five Subject Areas". Session on Research in Composition, National Council of Teachers of English Convention. San Francisco, 1979.

(10) Woodford, Peter. "Sounder Thinking Through Clearer Writing". Science, 156(1969) 745.

(11) Zinsser, William. Writing to Learn. New York: Harper and Row. 1988.

Object Oriented Scholarship