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ABSTRACT

A study was conducted at Florida's Brevard Community College (BCC) to determine the effectiveness of using artificial intelligence software to teach Freshman Composition. At BCC, Freshman Composition is taught in the computer lab, with student using WordPerfect to type their essays and Writer's Helper to flag various writing deficiencies. The students then revise on hard copies. Finally, using the word processor, they edit their essays based on the text analysis provided by Writer's Helper. The study sample included 67 students enrolled in four Freshman Composition sections. The students compared their first and last essays to discern whether they had reduced the use of "to be" verbs and vague words and pronouns, and found that they had used an average of 21.5 "to be" verbs in the final essays, compared to 24 "to be" verbs in the first essays; and that they had reduced their use of vague references. In addition, the students were surveyed regarding their attitudes towards using computers in the writing classroom. Responses from 72 students indicated that: (1) 98% of the students felt that using computers to assist in essay writing was helpful, with 76% finding them very helpful; (2) 97% indicated that using the computer greatly reduced the amount of time required for revision; (3) 97% felt that the textual analysis software was helpful with editing rough drafts; and (4) 100% of the students rated the use of computers in the writing laboratory as helpful and felt that future classes would also find this program useful. (MAB)

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Writing With A Byte.

**Computers:
An Effective Teaching Methodology To Improve
Freshman Writing Skills**

by Barbara L. Williamson
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WRITING WITH A BYTE: COMPUTERS:
AN EFFECTIVE TEACHING METHODOLOGY TO IMPROVE
FRESHMAN WRITING SKILLS

"The computer will be the pencil of the future especially in the field of writing," Saunders predicted in 1986 (31). Eleven years ago, the first type of writing software appeared. This was the tutorial and drill type software. Next, writing instructors utilized word processing software, and finally, writing instructors used artificial intelligence software. programs related to revision (textual analysis). Since then, the validity of using the computer in the classroom as an effective teaching methodology has been debated in English and contemporary higher education journals.

Many studies reveal interest in this teaching methodology. Historically, In 1983, Collier reported five positive outcomes in his study of his students using word processors to write instead of the handwritten method (155). In 1984, Schwartz praised the use of word processors for her freshman writing classes at Oakland University (239). Since 1986, the use of textual analysis software programs has appeared in the writing classrooms. Saunders discussed the application of such programs when she stated "Perhaps, the newest and most modified approach to using CAI programs to improve writing skills is the software which analyzes students' texts and provides immediate, qualitative feedback,"(21).

Since the appearance of CAI on the writing scene eleven years ago, computer in the writing classroom use has increased. With this increased usage, studies extolling or negating the use of the computer as an effective teaching methodology in the writing classroom have been conducted.

Purpose of Study

Because of the use of the computer in the writing classroom controversy, this study was conducted to determine if empirical data would reveal that computer writing is an effective teaching methodology. By focusing attention on two of the serious weaknesses in freshman composition, it was hoped that the statistical data would show that computers are valid teaching tools in the writing discipline. Secondly, it was hoped that a computer-user's response questionnaire would show positive student-users's views of writing by computer in the classroom. This study's results were designed to help document that using computers in the writing discipline is an effective teaching methodology. Thus giving writing instructors another tool to help students learn important writing skills.

Procedures

For eight of the eleven years the IBM pc has existed, BCC freshman in the Teaching Writing with a Byte Program have used an artificial intelligence software program to analyze their writings. Averaging about 14 freshman composition sections a year, this program has been used in over 100 sections of freshman English. The course is taught in the IBM lab (housing 22 IBM pcs) with the freshman writing students using the word processing software packet of Word Perfect and using the revision software Writer's Helper (textual analysis software. Since all freshmen writing classes at BCC are required to write the essay, the students first type their essays on the word processor. Then, they take their essays through the analysis which flags various writing deficiencies. The students then revise on hard copies of their essays. Finally, using the word processor, the students edit their essays based on the analyses.

For this study to arrive at statistical data proving that CAI

is an effective teaching methodology in the freshman writing class, four sections of freshman composition were used. Sixty-seven students' analyses of their first essays and last essays were compared in a pre-post test format in the specific writing skill areas of excessive use of "to be" verbs and excessive use of vague words and pronouns. T-tests were used to obtain a mean score for the pre-and post usage.

Responses

The first skill to be analyzed was the excessive usage of "to be" verbs. For this "to be" section of the study, the students were asked to reduce their "to be" verb usage to get at least a 20 ratio. This helps the students reduce wordiness. In the Writer's Helper program, the ratio is higher the less the item is used. The ratio is based on total word usage. The results of the t-test in Figure 1 below show that the final essays have a fewer ratio of "to be" verbs.

Figure 1
"To Be" Verbs

Item	Score 1	Score 2
N	67	67
Mean	21.4791	24.0400
Std. Dev.	5.8833	7.2723
Difference in Means		2.5609

The first essays the students wrote had an average mean ratio of 21.5 "to be" verbs while the final essays had an average mean ratio of 24 thus showing an average mean difference in pre-to post essays of 2.6 less "to be" verbs.

The second skill the students analyzed was the excessive use of vague words and pronouns. Figure 2 below shows the pre-and

post results. The pre-average mean shows a 13.7 ratio usage while the post-average mean shows a 20.6 ratio usage. Thus, students were able to reduce excessive vague references by a 6.95 average mean difference.

Figure 2

Vague Words and Pronouns

Item	Score 1	Score 2
N	67	67
Mean	13.64776000	20.60597000
Std. Dev.	7.34711600	8.24490500
Difference in Means	6.95820900	

Therefore, the empirical data just presented helps to support the theory that computer writing is an effective teaching methodology in the writing discipline.

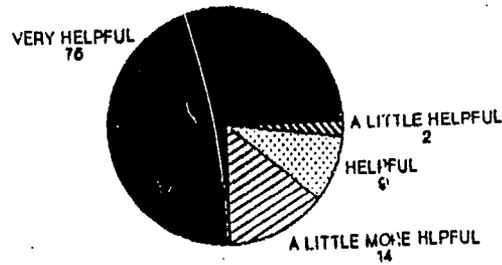
Procedure

The second part of this study was a computer-user's response questionnaire to see if the users had positive views toward using computers in the writing classroom. The students responded on a Likert-Type 5-1 scale (5=very helpful, 4=a little more helpful, 3=helpful, 2=a little helpful, 1=unhelpful). The seventy-two students (only 67 were used in the first study because five did not have first essay analyses) who responded to the 7 questionnaire statements showed positive student-user views on writing by computer in the writing classroom.

Responses

Figure 3 below shows the student-users answers to the statement of "After using the computer for writing six essays. I found the project to be _____.

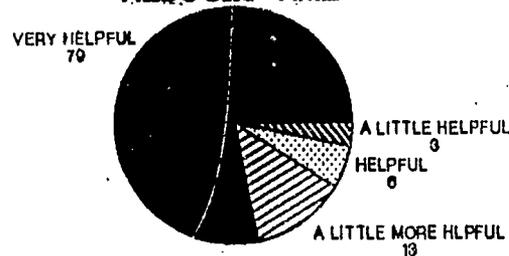
Figure 3
USER RESPONSES
 % OVERVIEW



Ninety-eight per cent of the users found the essay writing by computer helpful. Seventy-six per cent saw it as very helpful, 14 per cent a little more helpful, and 9 per cent helpful.

Figure 4 below shows the users' responses to "I found using the computer reduced much time in revision".

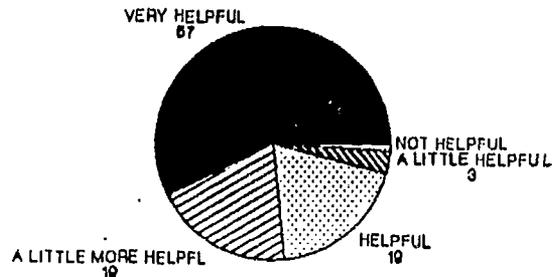
Figure 4
USER RESPONSES
 REDUCES TIME



Ninety-seven per cent of the users found that using computer was helpful. Seventy-nine per cent saw it as very helpful, 13 percent a little more helpful, and 6 per cent as helpful.

Figure 5 below shows the results of the statement "Writer's Helper's revising and revising aids I found to be _____ in my essay rough draft analysis".

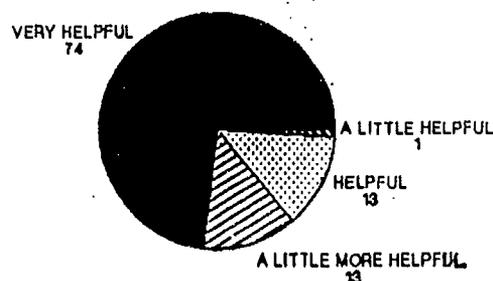
Figure 5
USER RESPONSES
REVISING/REVIEW AIDS



Ninety-seven per cent of the users saw this software as helpful. Fifty-seven percent saw it as very helpful, 19 per cent as a little more helpful, and 19 per cent as helpful.

Figure 6 shows the student-users responses to the statement "WordPerfect processing capabilities for my essay writing I found to be _____".

Figure 6
USER RESPONSES
WORDPERFECT



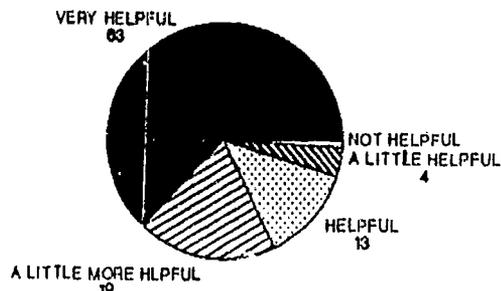
Ninety-nine per cent of the users rated the statement helpful. Seventy-four per cent saw it as very helpful, 13 per cent saw it as a little more helpful, and 13 per cent saw it as helpful.

Figure 7 below shows the student-users' responses to the statement "I found Writer's Helper's analysis of my pronoun

reference and "to be" verbs to be _____.

Figure 7

**USER RESPONSES
WRITER'S HELPER ANALYSIS**

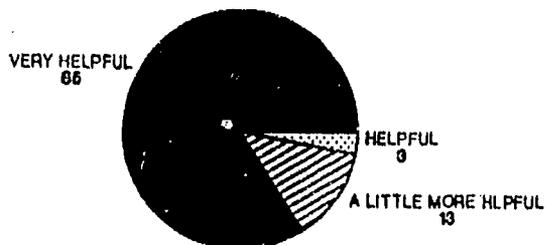


Ninety-six per cent of the users saw Writer's Helper's analysis as helpful. Sixty-three per cent saw it as very helpful, 19 per cent as a little more helpful, and 13 per cent saw it as helpful.

Figure 8 shows the student-users' responses to the statement "Overall, I would rate the computer used in the writing classroom as _____".

Figure 8

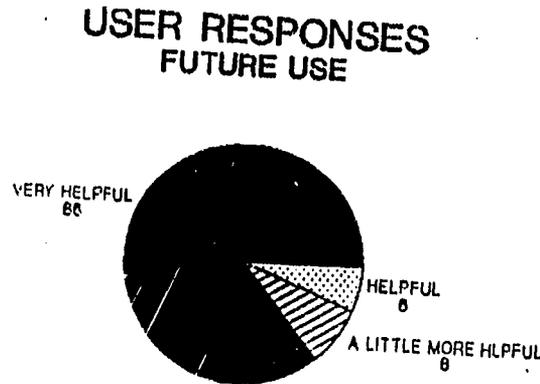
**USER RESPONSES
COMPUTER WRITING RATING**



One hundred per cent of the student-users rated this statement as helpful. Eighty-five per cent rated it as very helpful, 13 per cent as little more helpful, and 3 per cent helpful.

Figure 9 below shows the results of the last statement on the student-user questionnaire. The users responded to the statement "As useful to any other and future classes, I would rate the project (Writing with a Byte) as_____".

Figure 9



Once again, one hundred per cent ranked the project at least helpful. Eighty-six saw it as very helpful, 8 per cent saw it as a little more helpful, and 8 per cent saw it as helpful.

All results of the seven student-user statements feel writing with computer in the writing classroom is at least 97-100 per cent helpful. The student-user responses show that the students think that using the computer in the writing classroom is a positive teaching methodology.

This study's findings include statistical data and computer-user responses to support the theory of use of the computer in the freshman writing class is an effective teaching method.

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