RUNNING HEAD: The Motivational Effect of Web Publication

The Motivational Effect of Web Publication on the Writing Process

In Partial Fulfillment for the M.A. Degree

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Spring 1999

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Abstract

In recent years, the Internet has developed into a multifaceted resource in education. It allows teachers and students to collaborate with their peers, conduct research, and exchange correspondence. It also has enabled many schools to publish school information and student work on Web sites to a wide audience. To explore the impact Web publishing has on students, this study compared the motivational value of publishing on the Internet with publishing in a school library. The subjects participating in this study were students from two fifth-grade classrooms at Pacific Beach Elementary School, San Diego. The study found that an Internet audience encourages students to participate in revision activities more than students writing for a local audience and suggests that the Internet can make a valuable contribution in education as a medium to motivate students to engage in the writing process.

Introduction

Effective written communication, an essential skill in today's society and workplace, is a fundamental curricular focus of education. However, motivating students to engage in the writing process, especially the time consuming step of revision, is a challenge. To make writing instruction more meaningful and practical for students, students should have authentic experiences writing for a variety of audiences and purposes (California State Department of Education, 1986). A wide range of audiences helps students to appreciate the importance and value of writing and encourages them to focus on and write for a specific audience. In addition, students should deliver their final product to an appropriate audience. Described as an essential element of the language arts curriculum, composition skills include the entire writing process, including publication. It is the conviction of many educators that:

> … students must develop a sense that something happens after writing – that writing is published or posted for reading and that writing can be mailed or illustrated … The appropriate beginning and end of writing instruction is to develop in students the sense that they are writers, that they can use words and sentences and paragraphs to affect an audience, to express a thought or an opinion, and to make their experience vivid and memorable to someone else. (California State Department of Education, 1987, p. 11)

Providing students with word processors to alleviate the tedious task of rewriting compositions has met with mixed results. For example, Williamson and Pence (1989) found that word-processing furnished students with more time to revise. Without the burden of recopying, the computer enabled students to quickly correct editing errors so they may "go beyond editing to consider larger issues, leading to significant revision and more expert composing" (p. 95). In contrast, a later study conducted by Shaw, Nauman, and Burson (1994) reported that students'

handwritten essays were longer and superior in quality than computer-generated ones. A year later, a study performed by Guthrie and Richardson (1995) supported the research of Williamson and Pence (1989). They observed that students wrote longer and better compositions when word-processors were used. In fact, "because of the ease of revising and editing at the computer and the satisfaction and motivation of publishing their work in a form that looks professional, students were more eager to develop their writing products than if they were only handwriting them" (p. 17).

As computers become more common in schools, teachers are finding creative ways of using technology to enhance their teaching. In addition to word-processing, a computer can serve as a private tutor, offering instant feedback and an individualized sequence of lessons to each student in a content area. Equipped with reference CD-ROMs, a computer transforms into a multimedia library, allowing access to many types of information, including text, video, and sound. Adding Internet access presents teachers and students with more opportunities to gather up-to-date information and communicate with others (Peck & Dorricott, 1994).

The Internet also offers students an added incentive to seriously engage in the writing process that the word-processor does not inherently address. Through Web publishing, the Internet provides students with an enormous potential audience from diverse cultural backgrounds. It also presents students with more opportunities to correspond with readers, to contact mentors, and to publish frequently (Holland, 1996). However, the effect this unseen audience has on students' writing behaviors should be studied to determine its educational value before curricular changes are implemented.

A news brief released by the Office of Educational Research and Improvement (1998) reported that in Fall 1997, 78% of public schools had Internet access, with 27% of instructional rooms having access. This increased to 89% of public schools and 51% of instructional rooms

one year later (Office of Educational Research and Improvement, 1999). As more schools bring their classrooms on-line, the conscientious educator will assess the drawbacks and benefits of integrating the Internet into the curriculum. Otherwise, there is a danger that students' use of the Internet will degrade into merely a form of entertainment without adequate supervision. In some classrooms, teachers have used the Internet to enhance the curriculum by allowing students to conduct research on the Web and correspond with experts in a field of study. Others take advantage of Web projects their students complete in collaboration with other classrooms across the country. For others, the Internet has proven to be a valuable professional resource to share lesson plans and collaborate with others. Some valuable Web sites for teachers are listed in Figure 1 (see Appendix A for a list of Internet resources).

Apple Learning Interchange (http://ali.apple.com/)
Children's Literature Web Guide (http://www.acs.ucalgary.ca/~dkbrown/)
Classroom Connect (http://www.classroom.net/)
Discovery Channel School (http://school.discovery.com/)
Education World (http://www.education-world.com/)
ERIC Clearinghouse on Reading, English, and Communication (http://www.indiana.edu/~eric_rec/)
Florida Center for Instructional Technology (http://fcit.coedu.usf.edu/)
Houghton Mifflin Education Place (http://www.eduplace.com/)
The Internet TESL Journal (http://www.aitech.ac.jp/~iteslj/)
Kodak Education (http://www.kodak.com/US/en/digital/edu/k12Solutions/)
Outta Ray's Head Lesson Plans (http://www3.sympatico.ca/ray.saitz/)
PBS Online (http://www.pbs.org/)
Scholastic, Inc. (http://www.scholastic.com/)
S. C. O. R. E. (http://www.score.k12.ca.us/)
The Year-Long Project (http://www.ed.uiuc.edu/ylp/index1.html)

Figure 1. Web sites for lesson plans and other resources

Increasingly, innovative teachers have reaped significant benefit from the Internet by leveraging it as a communication and collaboration forum. Several types of collaborative efforts have been implemented throughout the United States and beyond. Some limit participation to a specific geographical location. In southeastern New Hampshire, twelve districts comprise a consortium that operates listservs to run three cross-age science projects, Batnet, Birdnet, and Treenet, where teachers and students communicate mainly through e-mail to exchange information. Through e-mail, classrooms share data they have collected from science experiments. Each classroom compiles the data they received from the other classrooms, analyzes the results, and draws conclusions (Lonergan, 1997).

Other collaborative efforts welcome participation from schools throughout the United States in Web-based projects. For example, Monarch Watch (http://www.MonarchWatch.org/) provides several experiments classrooms can perform with Monarch butterflies and records their findings concerning migration patterns on their Web site. It also includes resources on Monarch butterflies and information on research projects scientists are carrying out on Monarch butterflies. On-line scientists are available for student consultation as they carry out their own research (Leu, 1997).

A third type of collaborative effort provides educational stability to students in at-risk situations. For example, Estrella (http://www.estrella.org) is specifically designed for high school-aged children of migrant farmers who live in Texas but travel to Montana and New York during the agricultural season. Equipped with laptop computers, students and parents can communicate with teachers and mentors through e-mail. The Internet also provides teachers and mentors with the ability to coordinate instruction to meet the needs of students and to provide continuity to the educational program. Students receive on-line instruction through NovaNet, an on-line curriculum including basic skills, English as a Second Language, middle and high school

subjects, and a School-to-Work program. Students work at their own pace while teachers monitor their progress through the record keeping feature of NovaNet.

A fourth type of collaborative effort is specifically designed to help developing countries educate their children. World Links for Development ("WorLD") is a project linking schools in developing countries to the Internet so teachers and students can exchange lesson plans, projects, and ideas with others in the educational community and contact experts in their fields, such as scientists from NASA and professors at universities. It also provides on-line teacher training and support for those areas that lack qualified teachers as well as some on-line books and teaching materials. (Carlson & Hawkins, 1998).

A growing trend in on-line usage predicts more schools will use technology as an opportunity to gain a public presence on the Internet. Web 66 (http://web66.umn.edu/), a pioneering Web site promoting Internet exchange among schools contains over 8,800 registered schools in the United States alone. Selecting a sample from Web sites registered at Web 66, Barron and Ivers (1998) reported that 84% of elementary school sites shared information about the school and 43% posted student work. This public presence offers schools the opportunity to share about their school and community, learn about other schools, and build a global community of schools. In addition, as schools involve students in creating web sites, a beneficial side effect may be to hone written communication skills. Nellen (1998) reported:

> The Internet has made the writing process much more complete for my students, who have become their own publishers. The Internet has given them total control over their work and made them more complete artists by giving them control of the process from start to finish. They also have become better writers because they have an audience and have developed their voices. (p. 2)

This researcher became aware of the influential effect of Internet publishing on the motivation to write based on personal experience. During the first few months after bringing her first Web site on-line, she produced only a few articles to publish. However, within a year, she was actively involved, not only in writing several articles and creating new columns but also in the organization and development of the Web site itself. Her readers' feedback (positive and negative) and the potential of increasing her audience fuels her motivation to continue to regularly update her site.

Two months after starting this researcher's web site, an on-line teacher from Boxford, Massachusetts made a request to publish a short story written by one of her fifth-grade students. After the student's story was published and shown to the class, his attitude toward writing and school in general became more positive. By the end of the school year, he was flourishing as a writer and was taking the initiative to express himself through writing. This fortunate and opportune chain of events illustrates the transforming power that can be leveraged from the proper use of the Internet.

The experience of this researcher and others suggests that publishing on the Internet may positively affect student motivation to improve their written communication skills. Web publishing provides an incentive to students to do their best work since their classmates and others across the country (and potentially around the world) may view it. (Kearsley & Shneiderman, 1998; Smith, Boone, & Higgins, 1998). Sirc (1988) attributed the motivation to produce quality work to students thinking about themselves as authors. Schelle (1998) explained his students' increased attention to revision as a change in focus from earning grades to viewing their writing as a reflection of themselves and taking pride in their work. El-Hindi (1998) found that when students saw their work published on the Internet, they not only had positive attitudes about publishing their work, but also felt a sense of belonging to a larger community.

Research supports the belief that a broader audience beyond a classroom teacher is an important factor in the writing process (Kemp, 1993). Often the feedback from a teacher motivates the student to superficially fix only what the teacher specifically points out. However, this short-sighted practice changes as the student has a broader audience. As others comment on a writing product, the student tends to put more thought into how to use the suggestions given to expand or enhance his work. The student must determine several characteristics of his audience, including background knowledge and interests, to bring greater depth to the composition (Spitzer, 1990).

The future of Web publishing appears encouraging in light of current research. However, little research has been conducted on the effect Web publishing has on the writing process. The limited number of studies conducted to date often took place in networked high schools or colleges where students knew their audience. Often each student had his own computer and went through the entire writing process on a computer. An elementary school usually provides a very different environment. Often classrooms have one or two computers, requiring 15 to 30 students to share one computer. To make the most of instructional time, much of the writing process must be performed on paper. In addition, addressing an unseen Internet audience may be too abstract to younger students, particularly before they have received any feedback.

This study explored the effect Web publishing had on elementary school students' motivation to write. Even though students may not have had the benefits of knowing their audience personally or completing the entire writing process on the computer, the promise their products would be on the Internet encouraged them to spend more time in revising activities. The basis for measuring the time students spent in revising activities was determined by the number of drafts produced and the number of revisions made between the first and final drafts.

Methods and Procedures

Intervention

To determine the motivational value of writing for an Internet audience, the research design attempted to examine a single variable, the publishing location. The intervention used in this study consisted of publishing student work in two forums, a Web site and a school library. Both teachers presented the same lessons (see Figure 2 for a sample lesson, see Appendix B for the complete set of lessons) to their classrooms throughout the writing process with some variation during the publishing stage (Day 6 - 7). The control group produced manuals for the school library while the treatment group published a manual on the Internet (available at http://buddies.org/PacBeach/).

Day 2: Composing

Objective: Students will compose the rough draft of their piece, using their prewriting material.

Mini-lesson focus: Imperative sentences

Instructional Input

A. Materials:
   - overhead with narrative written

B. Procedures:
   1. Write a narrative for making a peanut butter sandwich.
      For example, "I got bread, peanut butter, and jelly from the cupboard. I placed two pieces of bread on a plate and spread peanut butter on them. Then I spread some jelly on one and put the other piece of bread on top. I cut the sandwich in half and ate it. It tasted delicious!"
   2. Ask students what type of writing this is (telling a story, narrative).
   3. Ask if this is the way to write directions. Why not?
   4. As a group, change it so that it is giving directions.
   5. Ask students what a recipe usually begins with (ingredients). Discuss why they are there.

Independent Practice:
   1. Tell students to write directions for the procedure they chose, using their drawings as a guide.
   2. Early finishers may review their writing for missing steps.
   3. Those who feel they are finished may type and print out their rough draft for revising group meeting.

Figure 2. Sample lesson during the composing stage of the writing process

Subjects

Two fifth-grade teachers at Pacific Beach Elementary, San Diego, and their students participated in this study. Both teachers have used computers in their classrooms, primarily for word-processing and reference materials (CD-ROMs and Internet sites), for two years prior to this study. Both volunteered for this study with the hope of learning new ways to integrate computers and the Internet into their teaching.

Each teacher also involved their students in "surfing the Net" in a program called "Web Quest" (http://edweb.sdsu.edu/webquest/webquest.html), a Web project sponsored by San Diego State University, since the school was connected to the Internet in September 1998. Each project within the program assists teachers to use the Internet as a resource. It provides students with quality Internet sites on specific topics to facilitate information gathering, analysis, and evaluation.

Students in both classes regularly used the computers during centers time, approximately 20 minutes a week. Students also spent 160 minutes a week in writing instruction (40 minutes, 4 days a week). Activities included brainstorming, modeled writing (a teacher directed activity in which students collaboratively write in a genre), Daily Byte (students edit a few sentences for spelling and grammar), and Writers Workshop.

The control group included 20 students, 10 boys and 10 girls (7 students in the class of 27 chose not to participate in the study, even though all participated in the writing instruction.). 13 students were White and 7 were Hispanic. 3 of the Hispanic students were classified as second language learners. Mean language, reading, and mathematics scores on the Stanford Achievement Test Series, Ninth Edition (Stanford 9), a national standardized test published by Harcourt Brace & Company, taken in April 1998 were 64.80%, 59.15%, and 58.65% respectively.

The treatment group included 26 students, 13 boys and 13 girls (2 students in the class of 28 chose not to participate in the study, even though all participated in the writing instruction.). 15 students were White, 9 were Hispanic, and 2 were African-American. 6 of the Hispanic students were classified as second language learners. Mean language, reading, and mathematics scores on the Stanford 9 were 63.56%, 65.63%, and 59.68% respectively. T-tests (2 sample assuming equal variances) were performed on each category. The results showed that there were no differences between the groups on any of the subscales (see Table 1).

Table 1

Stanford 9 Scores Reported by National Percentiles (April 98)

Test	Control Mean	Treatment Mean	*t* Value	*p* Value
Language	64.80	63.56	-0.15	0.88
Reading	59.15	65.63	0.63	0.53
Mathematics	58.65	59.68	0.11	0.91

* Statistically significant at <0.05 level of confidence.

There were no noticeable differences between the control and treatment groups. Both teachers worked closely together and provided students with similar educational experiences. Their students also had similar characteristics, including academic performance on a standardized test.

Methodology

During the first meeting, the researcher interviewed the two fifth-grade teachers who volunteered for the study, asking basic questions about their teaching and computer experience (see Figure 3). The researcher also consulted with the teachers to determine the writing product that would best suit their needs. Of the writing products not yet assigned, writing the "Steps to a Procedure" was selected because it was a portfolio requirement. As a result of this coordination meeting, the researcher wrote lesson plans and submitted them to the teachers for their approval and use (see Appendix B).

1. How long have you been teaching?
2. How long have you had a computer in your classroom? How is it used?
3. How long have you had Internet access in your classroom? How is it used?
4. How much time do you devote to writing instruction? What types of writing instruction do you provide for your students?
5. What made you decide to participate in this study? What do you hope to gain from it?

Figure 3. Pre-study interview questions for teachers

Prior to writing instruction, students took a survey measuring student attitudes toward writing provided by one of the participating teachers (see Appendix D). Survey items of particular interest are included in Figure 4. Teachers administered the same writing survey at the end of the study. T-tests performed on the survey results (a lower score reports a more favorable attitude) found no significant difference in attitude toward writing between the two groups in the first survey ($t(39)=0.30$, $p=0.77$) or the second survey ($t(39)=0.03$, $p=0.98$) (see Table 2). Nor did the survey indicate a significant change in either the control ($t(32)=0.47$, $p=0.64$) or treatment ($t(46)=1.36$, $p=0.18$) groups. The surveys indicated that most students felt comfortable and confident with writing; however, they were not overly excited about it. Most students would

not voluntarily choose writing as activity. However, when they must write, most students would rather choose their own topic rather than have one given to them.

1. How do you feel when the teacher asks questions about your writing?
2. How do you feel about writing at school?
3. How do you feel when its time for writing in class?
4. How do you feel about the stories you write during writing time?
5. How do you feel about others reading your writing?
6. How do you feel when you get to choose what you write about?
7. How do you feel when the teacher chooses what you will write about?
8. How do you feel when you see your writing displayed?

Figure 4. Selected questions from Writing Attitude Survey

Table 2

Mean Writing Survey Scores

	First Survey				Second Survey			
Score	Control	Treatment	*t*	*p*	Control	Treatment	*t*	*p*
Recreational	22.56	22.87	0.18	0.86	21.50	21.24	-0.13	0.89
Academic	32.17	33.00	0.32	0.75	30.63	30.76	0.05	0.96
Total Score	54.72	55.87	0.30	0.77	52.13	52.00	-0.03	0.98

* Statistically significant at <0.05 level of confidence.

Over the course of nine 50-minute class sessions, students received writing instruction and published their final products as individual booklets or on a web page. During the publishing stage of the writing process, students extensively used the two or three computers in the classroom as well as two computers in the library (not available at all times) to type their projects in ClarisWorks 5.0. Students were provided with instructions on how to use ClarisWorks (see Figure 5 for the treatment version of the document, an enlarged copy is included in Appendix C) as well as a template to assist in designing their documents (provided

on CD-ROM, see Appendix F for location). Students in the control classroom also had access to a digital camera (operated by an adult). Students in the treatment group had access to a digital video/still picture camera and scanner (both operated by an adult). Because of privacy issues, students in the treatment group were informed that their faces and names would not be included on their final products on the Web site. To complete the study in three weeks, ten to fifteen students in the treatment group also received adult assistance in typing their drafts due to the limited number of computers available. Since a word-processed document was not necessary in the control group, many students hand wrote their final drafts; however, color copies of digital photographs were printed for all students who used the technology for use in their final products.

Using ClarisWorks to Publish on the Internet

Materials:
computer with ClarisWorks installed
piece of writing ready to be published
illustrations, pictures, and movies

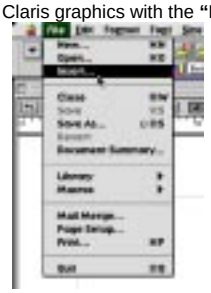
1. Double-click on the document **"Stationery"** on the desktop. 

2. Type the title on the top of the page. Be sure it is centered. 

3. Type the rest of the document.

4. If desired, add illustrations and pictures with the **"Insert"** command in the **"File"** menu.

5. Add Claris graphics with the **"Library"** command in the **"File"** menu.



Step 4

Step 5

6. Indicate position of movies by writing the text for the link and the phrase "insert ___ movie here."
For example: See step # 1. (insert Janice movie #2 here)

Figure 5. Instructions to use ClarisWorks

After students in the treatment group completed their final drafts, the researcher converted their documents into HTML and uploaded the documents and graphics onto the Web site. Because ClarisWorks did not properly translate student files into HTML, the researcher opted to design an HTML template in SimpleText, a text editor, to convert student work manually. After viewing their on-line documents, students had an opportunity to make changes to their individual Web page if they desired.

Students kept all their work (prewriting, drafts, computer printouts, etc.) in Writers Workshop folders. At the end of the study, the researcher collected students' folders then tabulated and analyzed the data collected. The researcher alerted teachers to a few students who submitted incomplete work and requested feedback in the form of a questionnaire (see Figure 6). After data collection was complete, the researcher returned all student work and provided color copies of the treatment's group documents to place in student portfolios since students' final products were on-line rather than on paper.

1. Did you think this was a worthwhile study for your class to participate in? Why or why not?
2. Do you see a change in your students as a result of this study? If so, describe the change.
3. What did you learn as a result of this study? Is there anything you have decided to add to your curriculum as a result of this study?
4. Is there anything you expected from this study that did not occur?
5. What problems arose during the study? How do you think they may have affected the results of the study?

Figure 6. Post-study teacher questionnaire

Measurement

Baseline information to establish equity between the two groups was collected from two sources. First, national percentiles from the Stanford 9 standardized tests in language, reading, and mathematics administered in April 1998 were available from all students except one new student in the treatment group. The reading score from one other student in the treatment group was also missing.

Second, a writing survey, based on a Likert-scale, provided additional baseline information regarding the attitude students had toward writing. Scores from 25-100 were possible, with scores closer to 25 indicating a favorable attitude toward writing and scores nearing 100 indicating a negative attitude toward writing.

Students' motivation to write was quantified in two main ways: the number of drafts the students wrote and the number of revisions they made. The number of drafts was divided into two categories, those hand-written and the total number of drafts. The researcher counted the number of times the student rewrote their document. With computer-generated documents, only documents that included changes were counted since students often printed out multiple copies of the same draft. Also, the drafts typed by adults were not included in the data; however, subsequent revisions made by students were counted. The distinction between hand-written and the total number of drafts was necessary for two reasons, making revisions on the computer takes less time than rewriting a whole document by hand and adults helped students type drafts in the treatment group.

The types of revisions fell into two broad categories: mechanics- and meaning-focused revisions. The first and final drafts were compared in the following categories. The mechanics-focused category included four items. Capitalization included instances of changing either a lowercase letter to an uppercase one and vice versa. Punctuation included the addition or

deletion of punctuation marks. Spelling included all spelling changes. Addition/deletion of words (determinants/prepositions) included the addition or deletion of words for editing purposes. The most frequent occurrences in this subcategory were deleting a repeated word and adding or deleting the words “a,” “the,” and “of.”

The meaning-focused category also included four items. Addition/deletion of words included the addition or deletion of words that added additional information or description. Rewording confusing phrases or sentences included instances where students reworded awkward passages. Addition/deletion of sentences included adding additional or deleting sentences or steps, similar to the addition/deletion of words in the meaning-focused category on a larger scale. Reordering steps included instances where steps or sentences were rearranged because they were not in the correct sequence.

Data Collection and Analysis

During data collection, the researcher alternated between the Writers Workshop folders of the control and treatment groups to minimize discrepancies in the evaluation of student revisions. The researcher also compared each student's first and final drafts twice to check for consistency. See Figures 7 and 8 for representative student samples (a complete collection of students' final drafts is provided on CD-ROM, see Appendix F for location). During this time, revision categories were modified twice to draw a distinction between mechanics- and meaning-focused changes as well as to include types of revisions not initially anticipated. Also, separation of hand-written and computer drafts was deemed necessary since the researcher found that the students in the treatment groups needed assistance in typing their drafts. The drafts typed by adults were not included in the data; however, the computer drafts revised by students were included. A summary of the raw data collected is presented as graphs in Appendix E.

Using the statistical analysis package included with Microsoft Excel 98, a t-test (2 sample assuming equal variances) was performed comparing the control and treatment groups on the categories described above. In cases in which the data on a participating student was not available, the student was removed from the specific category only. Some data from students was not available because of absenteeism.

Three students in the control group were removed from the study since all work from their Writers Workshop folders was missing. Two students in the control group did not complete the writing assignment in the allotted time, possibly due to excessive absenteeism (four days each). These students continued to work on their projects after the study officially ended; however, their work was misplaced in the process. Another student's project in the control group was unavailable, even though she thought she had turned it in.

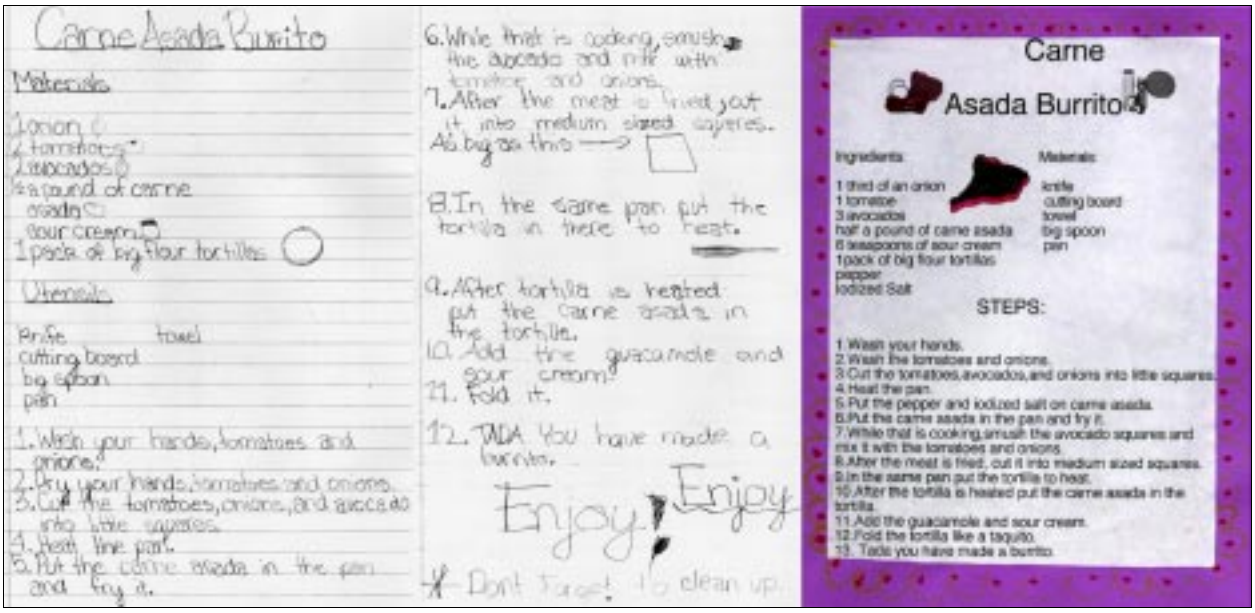


Figure 7. Writing sample (rough and final drafts) from control group

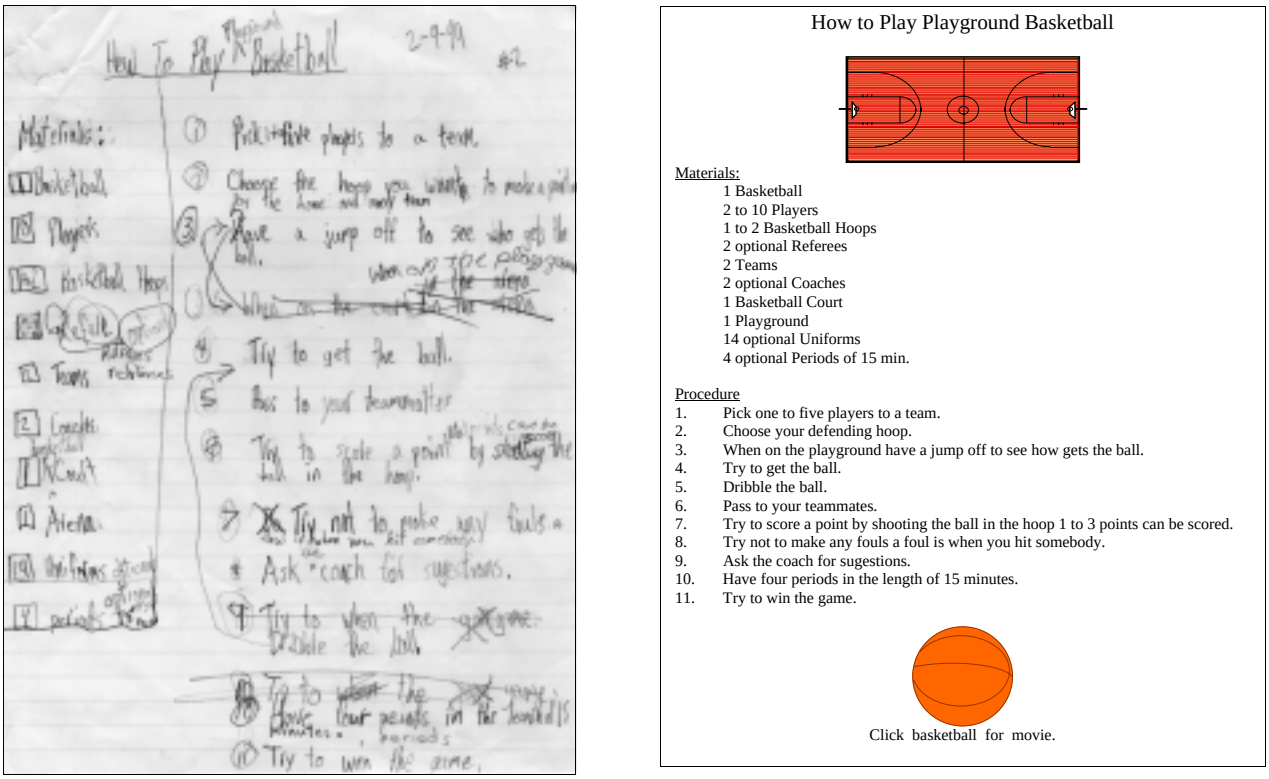


Figure 8. Writing sample (rough and final drafts) from treatment group

Results

Overall, the treatment group demonstrated more motivation to complete writing projects and to spend time in revising activities. The number of hand-written drafts ($t(41)= 3.88$, $p<0.001$) and the total number of drafts written ($t(41)= 6.58$, $p<0.001$) indicated the students in the treatment group produced more drafts (see Table 3). This implies that students in the treatment group spent more time writing.

Table 3

Number of Drafts Written by Control and Treatment Groups

Variable	Control Mean	Treatment Mean	*t* Value	*p* Value
Hand Written Drafts	1.71	2.92	3.88	< 0.001 *
Total Drafts	2.76	4.88	6.58	< 0.001 *

* Statistically significant at <0.05 level of confidence.

The treatment group also made more revisions between first and final drafts ($t(41)= 2.65$, $p<0.01$), most noticeably in the meaning-focused category (see Table 4). This result reveals that students not only spent more time writing, they also spent more time thinking about what they wrote and improving upon it.

Table 4

Summary of Revisions Made by Control and Treatment Groups

	Control Mean	Treatment Mean	*t* Value	*p* Value
Mechanics	16.53	25.19	1.61	0.11
Meaning	4.53	11.77	4.37	< 0.001 *
Total	21.06	36.96	2.65	0.01 *

* Statistically significant at <0.05 level of confidence.

When the meaning- and mechanics-focused categories are reduced to their component parts, more comparisons can be made. The students in the treatment group had significantly more occurrences in all the following meaning categories: addition/deletion of words ($t(41)= 3.29$, $p=0.002$), rewording confusing phrases or sentences ($t(41)= 2.00$, $p=0.05$), and addition/deletion of sentences ($t(41)= 3.34$, $p=0.002$; see Table 5). They also had more occurrences in the punctuation category ($t(41)= 2.43$, $p=0.02$; see Table 6).

Table 5

Meaning-Focused Revisions Made by Control and Treatment Groups

Variable	Control Mean	Treatment Mean	*t* Value	*p* Value
Addition/Deletion of Words	1.53	4.42	3.29	0.002 *
Rewording Confusing Phrases	1.82	3.50	2.00	0.05 *
Addition/Deletion of Sentences	0.94	3.54	3.34	0.002 *
Reordering Steps	0.24	0.31	0.42	0.68
Total	4.53	11.77	4.37	< 0.001 *

* Statistically significant at <0.05 level of confidence.

Table 6

Mechanics-Focused Revisions Made by Control and Treatment Groups

Variable	Control Mean	Treatment Mean	*t* Value	*p* Value
Capitalization	4.76	5.96	0.71	0.48
Punctuation	1.53	3.85	2.43	0.02 *
Spelling	3.53	5.04	1.14	0.26
Addition/Deletion of Words (determinants/prepositions)	6.71	10.35	1.29	0.21
Total	16.53	25.19	1.61	0.11

* Statistically significant at <0.05 level of confidence.

Students in both groups made more mechanical corrections ($\bar{x}_c$=16.53, $\bar{x}_t$=25.19) than revisions for understanding ($\bar{x}_c$=4.53, $\bar{x}_t$=11.77). In fact, students tended to make 2-4 times more mechanics- than meaning-focused corrections (see Table 4). For example, students gave the greatest amount of attention to adding and deleting determinants and prepositions ($\bar{x}_c$=6.71, $\bar{x}_t$=10.35; see Table 6) but gave almost no attention to reordering steps ($\bar{x}_c$=0.24, $\bar{x}_t$=0.31; see Table 5).

Although not included in the measures to determine student motivation to write, the length of student compositions (first and final drafts) was not statistically different between the two groups (first draft: $t(41)=0.75$, $p=0.46$; final draft: $t(41)= 1.20$, $p=0.24$), although the mean length of the control group ($\bar{x}_{first}$=134.00, $\bar{x}_{final}$=142.00) was slightly larger than the treatment group ($\bar{x}_{first}$=118.77, $\bar{x}_{final}$=123.50) for both measures (see Table 7). This may be due in part to the conscious effort of a larger number of students in the treatment group omitting determinants from their writing to make their products similar to the manuals shown as examples during instruction.

Table 7

Number of Words in Drafts of Control and Treatment Groups

Variable	Control Mean	Treatment Mean	*t* Value	*p* Value
First Draft	134.00	118.77	-0.75	0.46
Final Draft	142.00	123.50	-1.20	0.24

* Statistically significant at <0.05 level of confidence.

Conclusions

The results of this study demonstrate that even young children may be motivated to write for a remote audience. Much of the motivation may also be fueled by the professional appearance of their word-processed document, complete with color pictures, photographs, and videos (Smith, Boone, & Higgins, 1998).

Although not a main focus of this study, the number of non-participants in the control group (7 students not returning consent forms, 3 students not submitting Writers Workshop folders) compared to the treatment group (2 students not returning consent forms) should be addressed. At the time the study began, a similar number of consent forms had been collected from both groups. However, after students were informed which group they would be in, several more forms were collected from the treatment group. Students were not questioned on their reasons for participation or non-participation. However, students in the treatment group may have been more motivated to return their consent forms because they were excited about using technology. Another possibility is that they or their parents wanted their work to be published on a Web site.

The feedback this researcher received also indicates that the student who has online access at home may also be motivated by being able to show his family and friends his final product as well as getting feedback from his remote audience. Two weeks after the study ended, several of the students in the treatment group exhibited continuing interest in the project by initiating conversation regarding the Web site and its location. The researcher received no student-initiated communication from students in the control group regarding their project after the study ended. The conscientious teacher takes advantage of these motivators, keeping in mind that developing and refining written communication skills is the main objective of instruction.

This study also demonstrates that students are naturally more focused on correcting mechanical errors than on revising for meaning (see Table 4). The results of this study may have been different if this was not the first time these students had formally gone through the writing process. Students need more opportunities to revise their writing, rather than focusing on editing in the early stages of the writing process. Teachers can encourage revision by regularly requiring students to meet in revising groups and providing revision checklists for student use. Mini-lessons focusing on attention to details, clarity, the flow of the writing, and other revision issues also help direct students in improving their writing (see Lesson Plan Resources for books consulted in preparation for this study that focus on writing instruction). Van Gelderen (1997) indicates that elementary students have the capability to revise when prompted and given proper instruction. Therefore, teachers must focus instruction on revision and encourage students to postpone editing until after they have finished composing.

Since revision is a difficult and labor-intensive process, the promise of a larger audience may be the best incentive to keep working, as supported by the number of drafts written by students in each group (see Table 3) and the number of revisions students made (see Table 4). Several of the students in the control group chose to engage in other activities rather than focusing on writing. All students in the treatment group, except one, remained focused on writing, conferring, and rewriting throughout the entire study. One student in each group did not produce a final draft of their procedure.

Several difficulties arose from the lack of technological resources including:

- Students had to wait to use the few computers available.
- On a few occasions, a computer or the only printer was not in working order.
- Students had to wait for the teacher to take digital photographs.
- Students were not proficient in using the word processor.

The following steps can alleviate the problems above:

- The teacher, classroom aides, or volunteers can type student drafts.
- Students can bring in photographs taken at home to include in their projects.
- The teacher can print out students' photographs for students to place on a computer printout. An adult can subsequently insert the graphics for students.
- The teacher can space out instructional days so students have more time to individually work on the computers throughout the day (during centers' time or when students finish assigned work ahead of schedule).

Since the ClarisWorks' HTML translator does not work well, other programs should be considered. Having students compose their documents in a different program designed to create Web pages such as Claris Home Page or Adobe Page Mill would eliminate this problem. Although teachers and students would need to be instructed in the program's use, many of the procedures are similar to those in the programs they are currently using.

The reduced size of the groups, most notably in the control group, due to choosing not to participate or by misplacing work may affect the validity of the results obtained. However, the researcher performed the statistical analysis on the potential groups (24 in the control, 28 in the treatment) and obtained similar results. Including more classrooms in future studies would lessen the impact of non-participation.

In spite of the technical difficulties encountered in this study, the results obtained as well as the feedback received from the participating teachers support the hypothesis that Web publishing can have a positive effect on student motivation. Both teachers found their students who put effort into their projects took pride in their work; some students were surprised at what they could accomplish. Both teachers also indicated they would continue to use technology in their classrooms to supplement the existing curriculum.

Implications

For all students, Web publishing has the potential to motivate them to engage in the writing process. Publication in itself encourages students to take pride in their work (Schelle, 1998). Not only does publication allow students to experience the entire writing process; it also sends students the message that every person has something important or worthwhile to contribute in the classroom and society as a whole.

At-risk students can particularly benefit from Web publishing when they receive positive feedback from others via e-mail. Although family, teachers, and friends may encourage these young people, receiving a message from someone they have never met can be an exciting occasion they will treasure. In addition, technology has been shown to improve mastery of basic skills, writing, and engagement in school, thereby decreasing truancy and discipline problems (Dwyer, 1996).

Web publishing is also one of the easiest and cost-effective ways to inform families of upcoming events and showcase student work to a wide audience (Kearsley & Shneiderman, 1998). Printing paper copies and distributing them to parents through students is a time-consuming and expensive means to communicate with parents and to share classroom compositions. Furthermore, the paper copy may never reach its intended audience as it may be misplaced. Paper copies must still be available for families without Internet access; however, as more households come on-line, a classroom Web site will become a convenient place for families to keep abreast of student progress. For schools that already have Internet access, providing the same information on-line is often less expensive since paper and copy machines are unnecessary. Schools can obtain Web storage for little or no cost from districts or free web hosting services (such as http://www.geocities.com/). Using Web authoring programs such as

Claris Home Page or Adobe Page Mill makes it unnecessary for teachers to learn HTML programming. Web publishing also has the added benefit of including color pictures as well as video and sound in their projects.

Further research is necessary to determine the educational value of Internet publishing. Long term studies (semester or year) on student motivation to write may determine the lasting effects on students. As students have more opportunity to use the technology, the novelty of the Web site may diminish. In schools where technology resources are limited, Web publishing may take more time than other forms of classroom publishing since all text and graphics must be in a digital format. Therefore, educators must carefully design Internet projects so students make best use of instructional time.

To provide external validity to the findings in this study, additional and larger populations of students should be studied. For example, the small size of the groups in this study prevented analysis within groups. Factors such as gender and ethnicity could not be analyzed for their potential contribution to the results found in this study. Also, only fifth-grade students were included in this study. Students at other grade levels should be studied to determine if these groups produce similar results.

In addition, research should be conducted with students who are well-versed in the writing process. As students become more skilled in revising, the Internet audience may or may not be a motivating factor in the attention given to a project. For example, as revision becomes a natural process, students may be motivated to engage in revision activities regardless of the size of the audience.

Although Web publishing is certainly not the definitive answer to motivating all students to write, it appears to motivate many. Schools interested in Internet publishing may consider budgeting money for renting Web server space as well as purchasing computers and connecting

classrooms to the Internet. In addition, peripherals such as digital cameras, scanners, and color printers can enhance many class projects, not just Web pages. For example, a student or class can immediately print out a photograph taken with a digital camera and incorporate it in a project. Feedback from the teacher of the control group supports that technology in general, not only Web publication, can affect student motivation.

Schools will need to provide technology training and support to their staff. However, once teachers know how to operate the equipment, they can begin to use it to supplement the curriculum and expand their students' learning experiences, not only in Web publication but in other technology projects as well.

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A collection of research on computer writing environments and writing aids including predictions of future use.

Bruce, B. C., & Rubin, A. (1993). *Electronic Quills: A situated evaluation of using computers for writing in classrooms*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

A study in Alaska using the QUILL software package. The package includes e-mail capability, an idea generator/organizer, and editor.

Daiute, C. (1985). *Writing and computers*. Reading, MA: Addison-Wesley Publishing Company.

A publication focusing on the writing process, characteristics of writers of different ages, and selection of computer hardware and software.

Handa, C. (Ed.) (1990). *Computers and community: Teaching composition in the twenty-first century*. Portsmouth, NH: Boynton/Cook Publishers.

A collection of research and essays dealing with the use of computer networks in the writing classroom.

Holdstein, D. H., & Selfe, C. L. (Eds.) (1990). *Computers and writing: Theory, research, practice*. New York: The Modern Language Association of America.

A collection of essays exploring issues of computer use in the writing classroom, including curricular focus, ethical considerations, limitations of software, and networking.

Knapp, L. R. (1986). *The word processor and the writing teacher*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

A collection of teaching techniques and writing activities using word processors at all levels of the writing process. Includes software applications all students as well as those in special populations.

Myers, L. (Ed.) (1993). *Approaches to computer writing classrooms: Learning from practical experience*. Albany, New York: State University of New York Press.

A description of several University computer laboratories, this book outlines basics such as room layout, curricular outlines, and professors' personal experiences.

Selfe, C. L., Rodrigues, D., & Oates, W. R. (Eds.) (1989). *Computers in English and the language arts: The challenge of teacher education*. Urbana, IL: National Council of Teachers of English.

A collection of reports of teacher training programs that integrate computers into writing instruction.

Lesson Plan Resources

California State Department of Education (1996). *Practical ideas for teaching writing as a process at the elementary school and middle school levels*. Sacramento, CA: Author.

A collection of research and lesson plans dealing with each of the steps in the writing process as well as different writing products.

Clemmons, J., & Laase, L. (1995). *Language arts mini-lessons: Step-by-step skill-builders for your classroom*. New York: Scholastic.

Lesson plans for upper elementary classrooms dealing with language arts topics such as revision, note taking, grammar, and reading comprehension.

Harcourt Brace Jovanovich (1988). *99 tips for teaching the writing process*. San Diego, CA: Author.

A list of suggestions to help students go through each step of the writing process.

Tully, M. (1996). *Helping students revise their writing: Practical strategies, models, and mini-lessons that motivate students to become better writers*. New York: Scholastic.

Strategies and lesson plans that facilitate revision in elementary school classrooms. Includes several activities to make revision fun.

Wresch, W. (Ed.) (1991). *The English classroom in the computer age: Thirty lesson plans*. Urbana, IL: National Council of Teachers of English.

A collection of lesson plans to introduce different writing products, grouped by difficulty, with teacher evaluations and comments.

Appendix A: Internet Resources

Apple Learning Interchange (http://ali.apple.com/)

For teachers from preschool through adult education, this site includes lesson plans, resource guides, current projects, staff development opportunities, and chat rooms.

The California Instructional Technology Clearinghouse (http://clearinghouse.k12.ca.us/)

A comprehensive Web site providing reviews of educational software.

Children's Literature Web Guide (http://www.acs.ucalgary.ca/~dkbrown/)

For parents and language arts teachers from elementary school through high school, this site includes resources regarding books, authors, publishers, and discussion boards.

Classroom Connect (http://www.classroom.net/)

For teachers from elementary school through high school, this site includes projects, lesson plans, mailing lists, research articles, and links to other Internet sites categorized by subject and grade level.

Discovery Channel School (http://school.discovery.com/)

For teachers from elementary school through high school, this site includes lesson plans, discussion boards, and links to other Internet sites categorized by topic.

Education Week on the Web (http://www.edweek.org/)

A site reporting the latest news in education.

Education World (http://www.education-world.com/)

A weekly on-line magazine complete with articles, lesson plans, and Web site reviews.

ERIC Clearinghouse on Reading, English, and Communication

(http://www.indiana.edu/~eric_rec/)

For parents and language arts teachers from elementary school through high school, this site includes lesson plans, articles, and links to other Internet sites.

Estrella (http://www.estrella.org)

A program designed to improve the education of high school aged children of migrant farmers in Texas.

Florida Center for Instructional Technology (http://fcit.coedu.usf.edu/)

For teachers from preschool through adult education, this site includes lesson plans, simulations, workshops, and more ideas to integrate technology into the curriculum.

The Global Schoolhouse (http://www.gsh.org/)

For parents and teachers from elementary school through high school, this site includes projects, research articles, and more.

Houghton Mifflin Education Place (http://www.eduplace.com/)

For parents and teachers from elementary school through high school, this site includes lesson plans, articles, discussion boards, and more.

The Internet TESL Journal (http://www.aitech.ac.jp/~iteslj/)

For teachers of Second Language Learners from elementary school through adult education, this on-line monthly journal includes lesson plans, teaching techniques, articles, and reports. Previous issues are archived on the site.

Kodak Education (http://www.kodak.com/US/en/digital/edu/k12Solutions/)

For teachers from elementary school through high school, this site includes lesson plans and suggestions on using photography to enhance curricular areas.

Learning & Leading With Technology (http://www.iste.org/L&L/)

An on-line resource featuring selected educational technology articles from the monthly journal. Also includes supplementary material for the month's features.

Monarch Watch (http://www.MonarchWatch.org/)

For teachers and students of all ages, this site includes projects, research articles, and other resources on Monarch butterflies.

National Center for Education Statistics (http://nces.ed.gov/)

Research, resources, and articles pertaining to public education.

NetSchools (http://www.netschools.net/)

A distance education program designed to expand the learning environment of students in cooperation with local schools.

The Official Eric Carle Web Site (http://www.eric-carle.com/)

A web site including information about the writer and his publications, also includes a discussion board where teachers can exchange ideas and other suggestions.

Outta Ray's Head Lesson Plans (http://www3.sympatico.ca/ray.saitz/)

For English teachers from junior high school through high school, this site includes lesson plans for literature, poetry, and writing.

PBS Online (http://www.pbs.org/)

Includes resources (including teacher's guides, lesson plans, and mailing lists) for most regular programs on PBS. TeacherSource highlights resources in curricular areas.

Reading Online (http://www.readingonline.org/)

An on-line journal of the International Reading Association (http://www.reading.org/). Includes selected articles from IRA journals and discussion boards.

Scholastic, Inc. (http://www.scholastic.com/)

For parents and teachers from elementary through high school, this site includes lesson plans and other resources. Also includes on-line journals for parents and teachers that highlight articles from *Parent & Child*, *Early Childhood Today*, and *Instructor*.

S. C. O. R. E. (http://www.score.k12.ca.us/)

An extensive collection of unit and lesson plans by subject and grade level.

U.S. Department of Education (http://www.ed.gov/)

News, research, and programs pertaining to public education.

Web Quest (http://edweb.sdsu.edu/webquest/webquest.html)

Web site that describes a project sponsored by San Diego State University that engages elementary students to use the Internet as a resource.

Web 66 (http://web66.umn.edu/)

For teachers from elementary school through high school, this site includes a registry for school Web sites as well as resources and links for building and maintaining Web sites.

The Year-Long Project (http://www.ed.uiuc.edu/ylp/index1.html)

A collection of projects completed by student teachers at the College of Education at the University of Illinois at Urbana-Champaign, this site contains unit plans on a variety of topics. Select “Exemplary Lesson Plans” to view plans.

The Young Writers Club (http://www.cs.bilkent.edu.tr/~david/derya/ywc.html)

A publishing forum for young writers. Students can submit stories, enter writing contests, and get ideas for research and writing projects.

Appendix B: Lesson Plans

Day 1: Prewriting

Objectives:

- Students will record, with illustrations or words, the steps in the procedure for which they will be writing directions after pantomiming them.
- Students will write a list of all materials necessary for their procedure.

Anticipatory Set:

1. Share recipes and manuals for different appliances.
2. Ask students what the purpose of manuals are (for the manufacturer of the product as well as the user).
3. Illicit from students things they can teach others and record them (games, toys, tools).
4. Tell students that the final copy of their set of directions will be published in a class manual (web page/placed in school library).

Instructional Input

A. Materials:

- recipes and manuals
- Writers Workshop folders, pencils, paper

B. Procedures:

1. Model the prewriting strategy (pantomime) by telling students they are going to write the directions for making a peanut butter and jelly sandwich.
2. Act out the steps as students say them. Then draw pictures to represent the steps.
3. Illicit from students and record all the materials necessary for making a peanut butter and jelly sandwich.

Independent Practice:

1. Tell students to choose the procedure for which they will be writing directions and give the guideline that the procedure should have at least 7 – 10 steps.
2. Tell students to record the steps to their procedure. They may illustrate the steps or write them down, whichever makes them feel more comfortable.
3. Also tell students to list all materials necessary for their procedure.
4. Early finishers may begin composing their rough draft.

Day 2: Composing

Objective:

- Students will compose the rough draft of their piece, using their prewriting material.

Mini-lesson focus: Imperative sentences

Instructional Input

A. Materials:

- overhead with narrative written

B. Procedures:

1. Write a narrative for making a peanut butter sandwich.
   For example, "I got bread, peanut butter, and jelly from the cupboard. I placed two pieces of bread on a plate and spread peanut butter on them. Then I spread some jelly on one and put the other piece of bread on top. I cut the sandwich in half and ate it. It tasted delicious!"
2. Ask students what type of writing this is (telling a story, narrative).
3. Ask if this is the way to write directions. Why not?
4. As a group, change it so that it is giving directions.
5. Ask students what a recipe usually begins with (ingredients). Discuss why they are there.

Independent Practice:

1. Tell students to write directions for the procedure they chose, using their drawings as a guide.
2. Early finishers may review their writing for missing steps.
3. Those who feel they are finished may type and print out their rough draft for revising group meeting.

Day 3: Revising

Objective:

- Students will review their rough drafts and make revisions based on peer suggestions.

Mini-lesson focus: Attention to details

Instructional Input

A. Materials:

- chart with revising questions

B. Procedures:

1. Review directions written from previous mini-lesson. Ask the following questions:
   Are the directions given in the correct order?
   Are the directions clear?
   Is there anything that is unclear or confusing?
   Are the directions missing any steps?
   Do the directions begin with a materials/ingredients list?
2. Make changes/additions to rough draft as suggestions are made, or talk about why you might not want to follow a suggestion (not necessary, like another word choice instead, etc.).

Independent Practice:

1. Form revising groups of 3 – 4 as students finish their drafts.
2. As students complete their drafts, they may type and print out their drafts for editing.

Day 4: Editing

Objective:

- Students will correct spelling and punctuation based on peer and teacher input.

Mini-lesson focus: Attention to details

Instructional Input

A. Materials:
   - chart with editing checklist

B. Procedures:

   Review directions written from previous mini-lesson. Provide an editing checklist:

   Each sentence begins with a capital letter and has ending punctuation.
   Commas separate items in a series.
   Questionable spellings are circled and checked using a dictionary.

Independent Practice:

1. In revising groups, students will correct spelling and punctuation.
2. If students have questions their peers cannot answer, students may ask for teacher input.

Day 5: Publishing

Objective:

- Students will use the justification tools (left and center) and tabs when typing their procedures.

Mini-lesson focus: Basic word processing skills

Instructional Input

A. Materials:
   - computer with ClarisWorks
   - sample document (see Appendix C)

B. Procedures:
   1. Begin by typing up a procedure, using spaces to try to center and indent items.
   2. Ask students why this may not be the best way to enter a story.
   3. Show students the different symbols on the toolbar (justification and tabs). [Technical Note: Make sure that resolution on LCD monitor is 640 X 480].
   4. Show students how to select text to make changes.
   5. Edit the document and ask students for comments.

Independent Practice:

Allow students to continue to revise their procedures and call students to type in their procedures (if students have time during the rest of the day, they may type in their students at that time as well).

Day 6: Publishing

Objective:

- Students will draw illustrations, take photographs, and make video clips to add to their procedure.

Mini-lesson focus: Creating graphics

Instructional Input

A. Materials:
   - computer with ClarisWorks
   - sample document (see Appendix C)
   - digital camera (digital video camera for treatment group)

B. Procedures:
   1. Begin with document begun the day before.
   2. What else can we add to our procedure to make it easier to understand?
   3. Today we will be making illustrations, pictures (and movies) to add to our procedure.
   4. Show students how to use the digital cameras.
   5. Take groups of four at a time to take pictures. Record the order they come and the number of pictures (for ease of identification).

Independent Practice:

1. Allow students to continue to revise and type in their procedures.
2. Those students drawing illustrations will give them to the teacher to scan in for tomorrow's lesson.

Day 7: Publishing

Objective:

- Students will insert graphics and photos into their documents.

Mini-lesson focus: Inserting graphics

Instructional Input

A. Materials:
   - computer with ClarisWorks and sample document (see Appendix C)
   - digital camera (digital video camera for treatment group)

B. Procedures:
   1. Begin with document begun the day before.
   2. Today we will be adding pictures (and movies) to our procedure.
   3. Show students how to insert and resize pictures.
   4. Show students in treatment group how to save as html.

Independent Practice:

Allow students to continue to revise, type, and illustrate in their procedures.

Day 8: Publishing

Objective:

- Students will organize the procedures for their class manual.

Mini-lesson focus: Organizing/Categorizing

Instructional Input

A. Materials:

- digital camera (digital video camera for treatment group)

B. Procedures:

1. With students that are finished with their final pieces, ask for volunteers to help put the class manual together.
2. With those students, ask them to collect the titles of all the procedures in their classroom.
3. If we just put them together in any order, what problems might arise?
4. How can we organize these procedures so they are easier to locate? (Illicit from students: put in categories, add a title page and table of contents)

Independent Practice:

Students will continue to type their procedures and work on getting the class manual put together.

Day 9: Wrap up any loose ends. Present finished product (if ready).

Appendix C: Excerpts from Lessons

Day 1: Prewriting

Purpose of a Manual

How to use product.
What the product can do.
How to play or work the product.
What you shouldn't do with the product.
How to put things together.
Gives information about product.

Day 2: Composing

How to Make a Peanut Butter and Jelly Sandwich

Ingredients:
- peanut butter
- 2 tbsp jelly
- 2 slices of bread
- 1 knife
- 1 tbsp for jelly
- 1 plate

Remove 2 slices of bread from bag.
Open jar of peanut butter.
Scoop 2 tbsp of peanut butter.
Open jar of jelly.

Take the feeling out of writing (remove opinions).
Sentences are shorter.
Writing in a list. Easier to read.

Day 4: Editing

capitals	=
adding letter or word	V
adding punctuation	O
capital to lower case	\
paragraphs - indenting	¶

Day 5: Publishing

Using ClarisWorks to Publish on the Internet

Materials:
computer with ClarisWorks installed
piece of writing ready to be published
illustrations, pictures, and movies

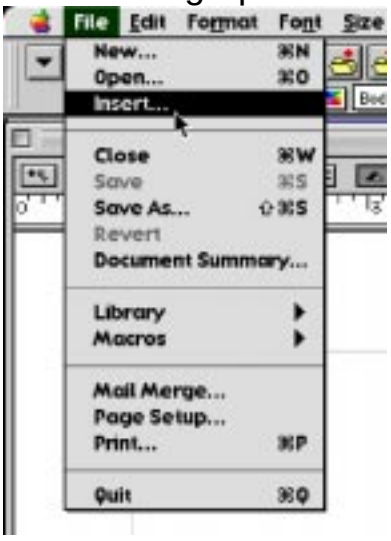
1. Double-click on the document **"Stationery"** on the desktop.

2. Type the title on the top of the page.
   Be sure it is centered.

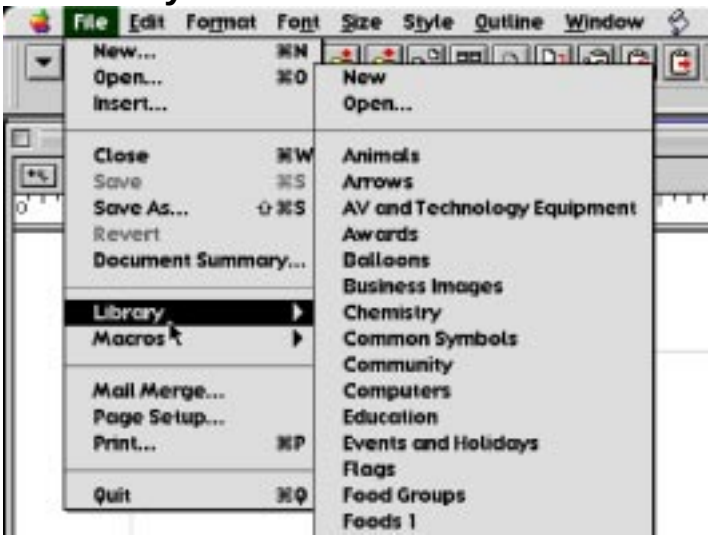
3. Type the rest of the document.

4. If desired, add illustrations and pictures with the **"Insert"** command in the **"File"** menu.

5. Add Claris graphics with the **"Library"** command in the **"File"** menu.



Step 4



Step 5

6. Indicate position of movies by writing the text for the link and the phrase "insert ___ movie here."
   For example: See step # 1. (insert Janice movie #2 here)

Appendix D: Writing Surveys

WRITING ATTITUDE SURVEY
ACADEMIC & RECREATIONAL
(adapted from Kear and McKenna)

Directions:

Please listen to each question being read to you. Match your feeling for each question to a face. Each face has a number. Write that number down. Be honest. There is no right or wrong answer. This will measure how you feel about writing.

1: You feel very excited, can't wait, super: YAHOO! :)
2: You feel happy, comfortable, confident: Cool!
3: You feel fine, O.K., whatever: Ho-hum. :I
4: You feel upset, angry, uncomfortable, sad: GRRR! :(

1. How would you feel if you wrote a story on a rainy Saturday? _____
2. How do you feel when you write a story in school during free time? _____
3. How do you feel about writing for fun at home? _____
4. How do you feel about getting a new journal, diary, notebook? _____
5. How do you feel about spending your free time writing? _____
6. How do you feel about starting a new story? _____
7. How do you feel about writing during your summer vacation? _____
8. How do you feel about writing instead of playing? _____
9. How do you feel about going to a bookstore? _____
10. How do you feel about writing different kinds of stories? _____
11. How do you feel when the teacher asks questions about your writing? _____
12. How do you feel about doing writing worksheets? _____
13. How do you feel about writing at school? _____
14. How do you feel about writing for homework? _____
15. How do you feel about learning by writing things down? _____
16. How do you feel when its time for writing in class? _____
17. How do you feel about the stories you write during writing time? _____
18. How do you feel when you read your writing out loud in class to share? _____
19. How do you feel about using a dictionary to help with your writing? _____
20. How do you feel about taking a writing test? _____
21. How do you feel about others reading your writing? _____
22. How do you feel about using tools like a thesaurus or word lists? _____
23. How do you feel when you get to choose what you write about? _____
24. How do you feel when the teacher chooses what you will write about? _____
25. How do you feel when you see your writing displayed? _____

Writing Survey

Name: _____ Date: _____

1. Do you consider yourself an author? Why? Why not?

2. Why do you think people write?

3. Do you think most people like to write?

4. Do your parents write? If so, what do they usually write?

5. Who is your favorite author? Why?

6. Are there any books by a particular author that have changed the way you write?

7. How do you decide what you're going to write about?

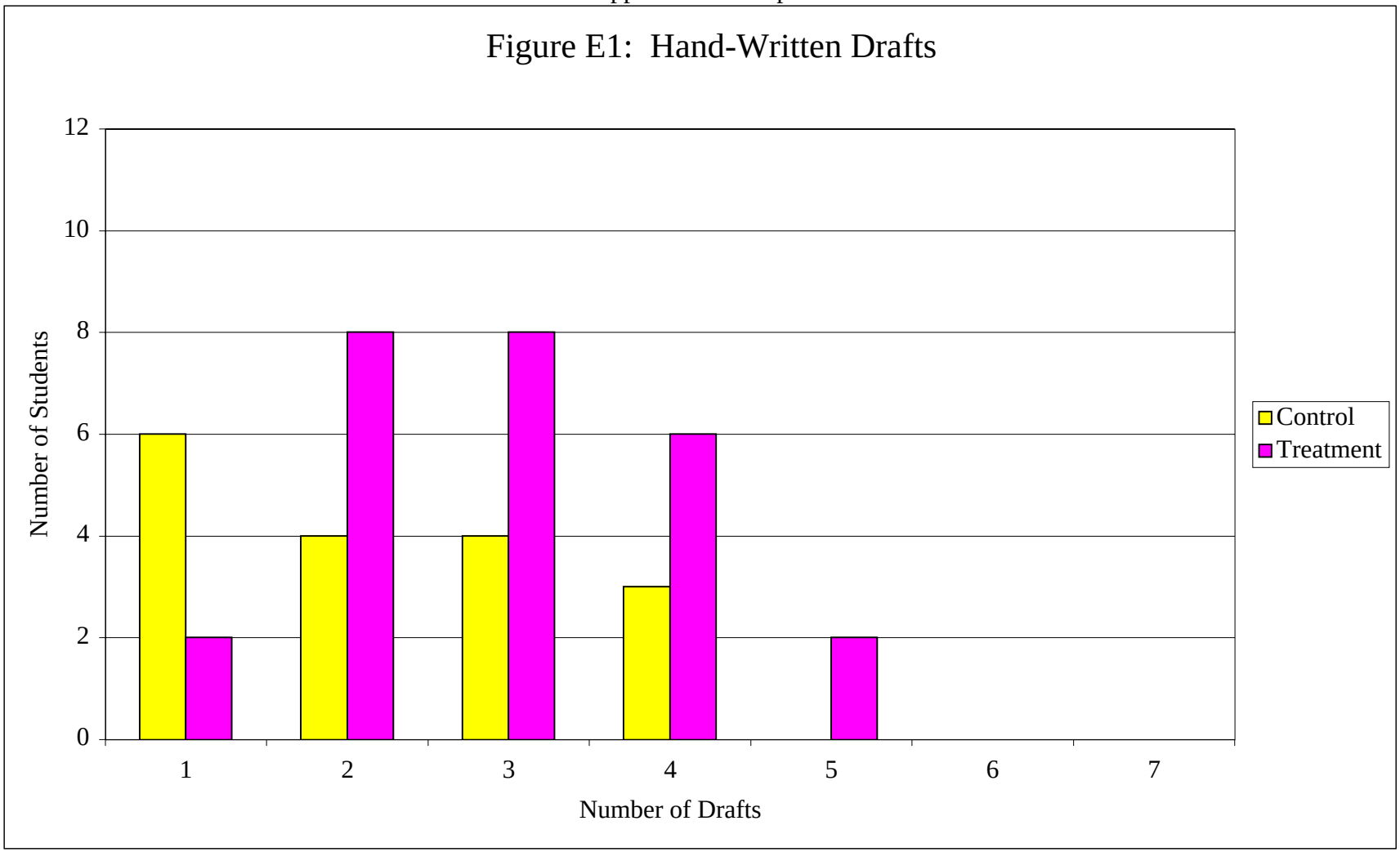
8. What are your favorite topics to write about?

9. When and where do you like to write?

10. What helps you to write?

(from *Portfolio Assessment*, Creative Teaching Press)

Appendix E: Graphs



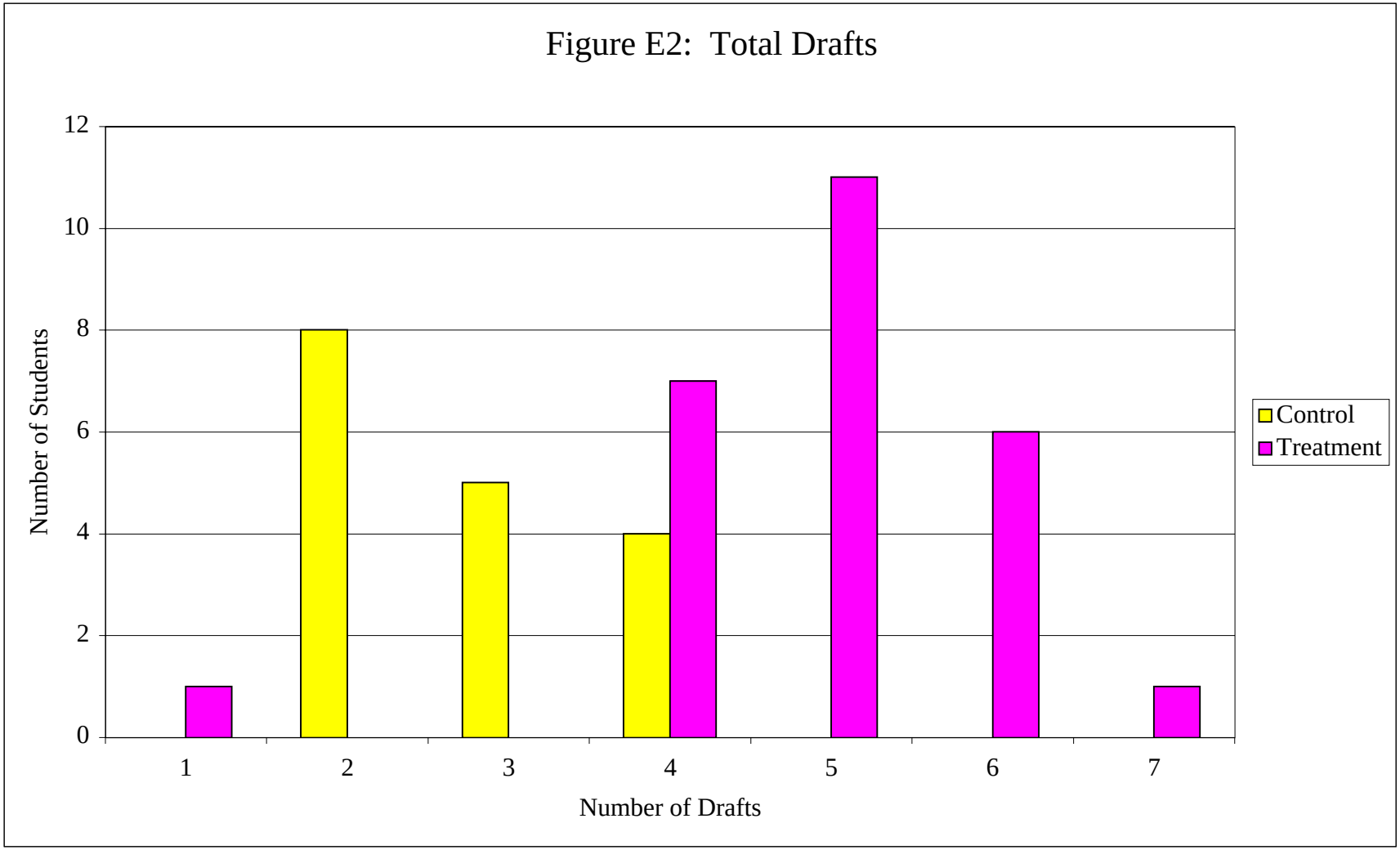


Figure E2: Total Drafts
12
10
8
6
4
2
0
Number of Students
1
2
3
4
5
6
7
Number of Drafts
Control
Treatment

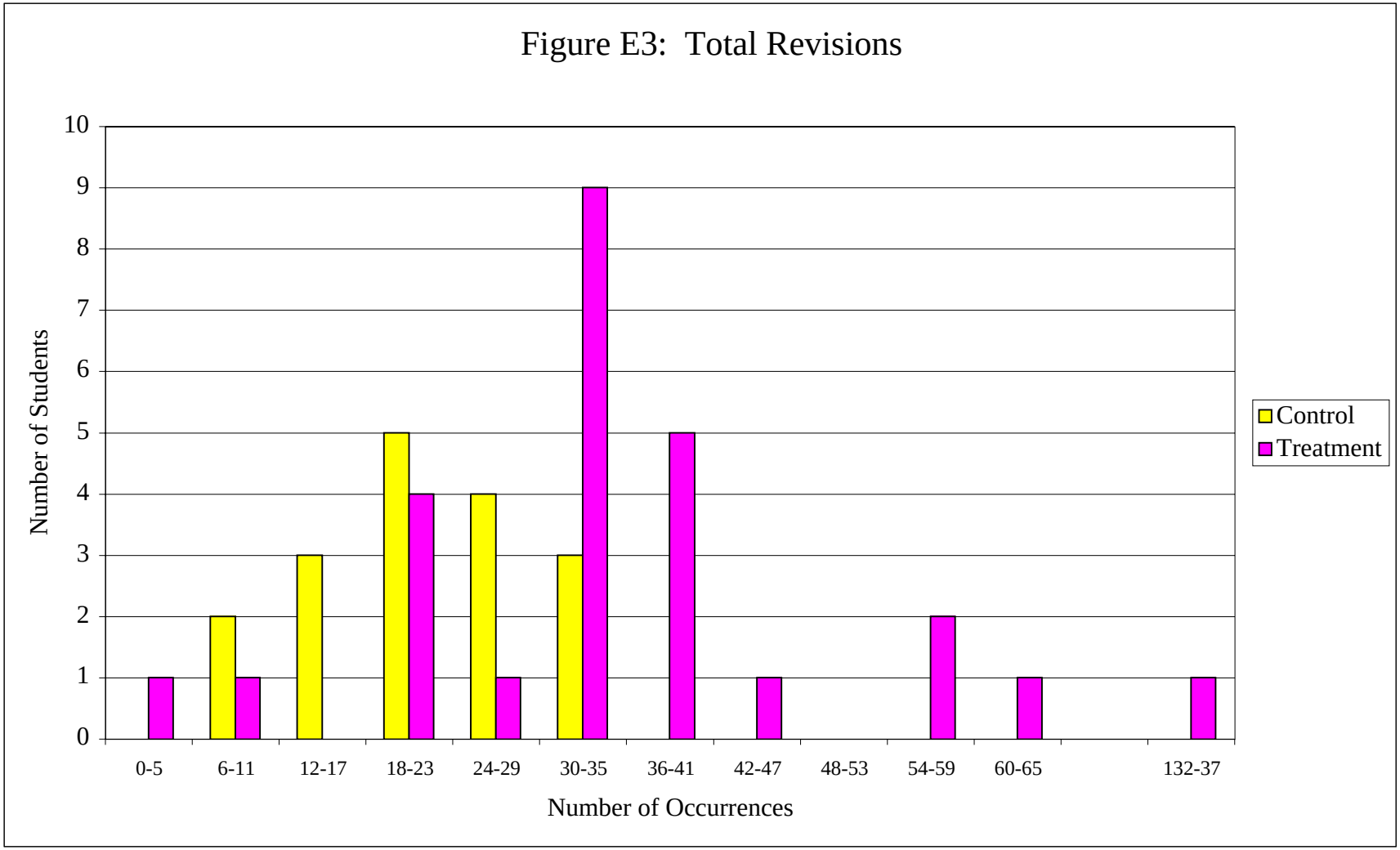


Figure E3: Total Revisions
10
9
8
7
6
5
4
3
2
1
0
Number of Students
0-5
6-11
12-17
18-23
24-29
30-35
36-41
42-47
48-53
54-59
60-65
132-37
Number of Occurrences
Control
Treatment

Figure E4: Total Meaning-Focused Revisions

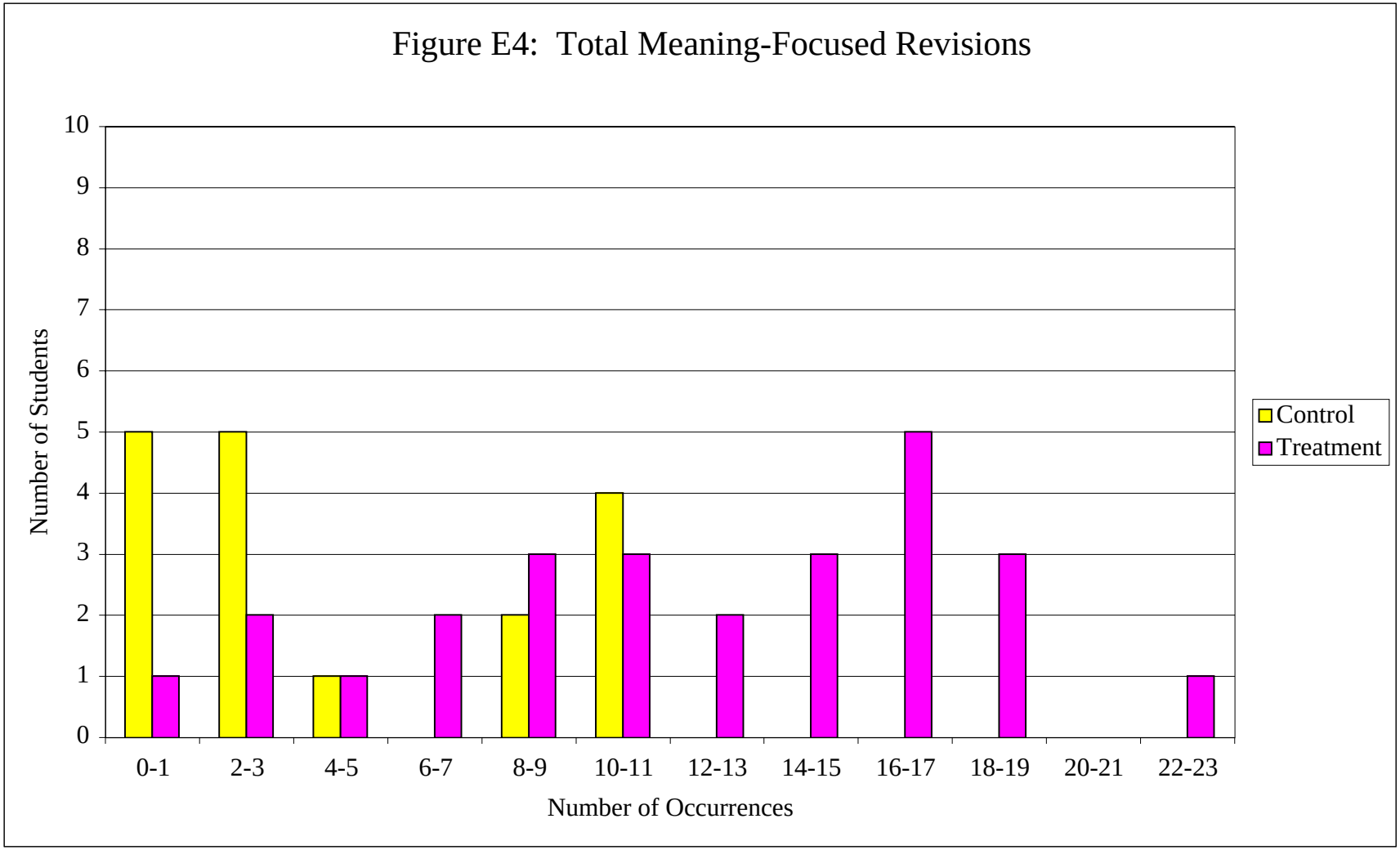


Figure E5: Total Mechanics-Focused Revisions

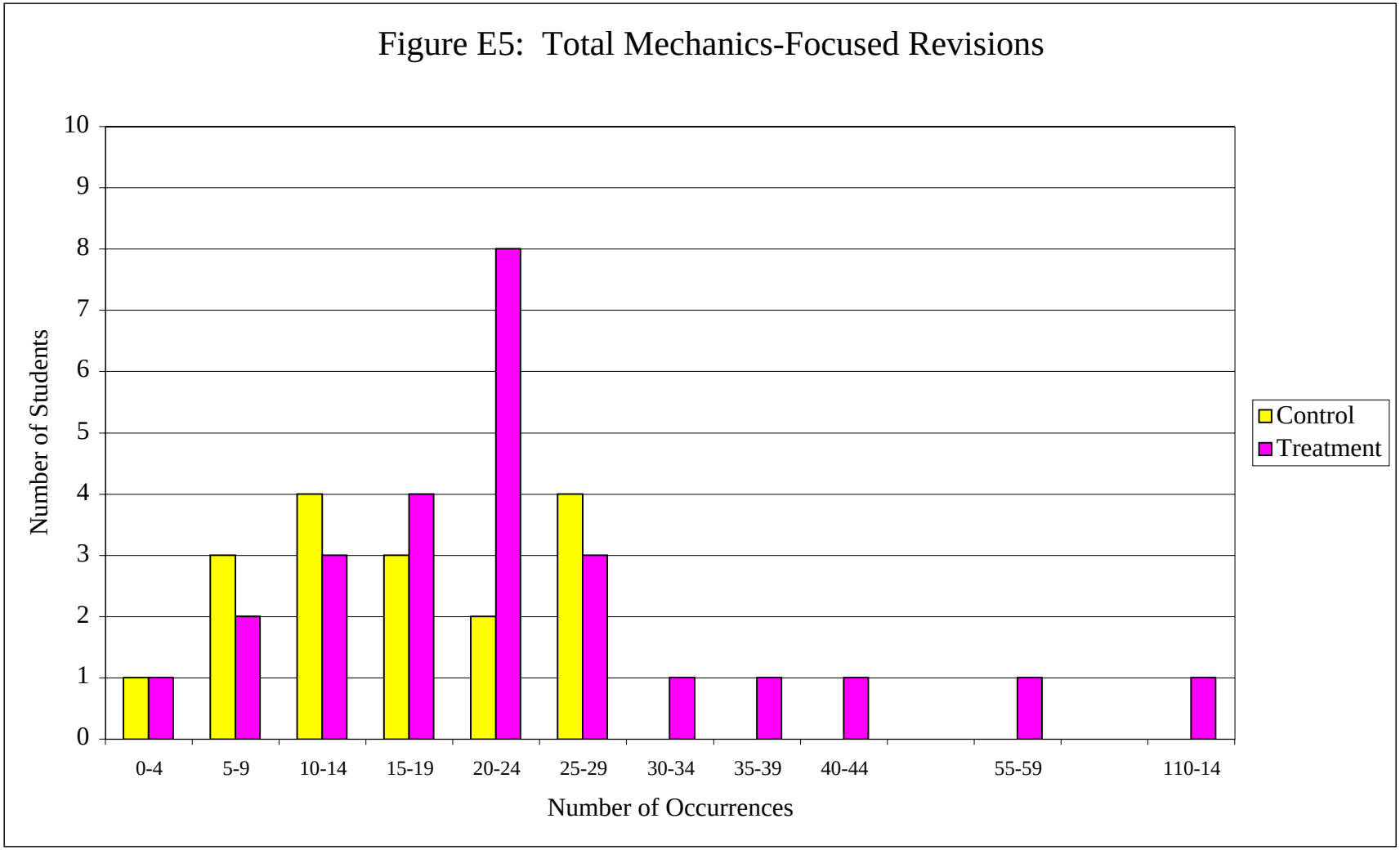


Figure E6: Words in First Draft

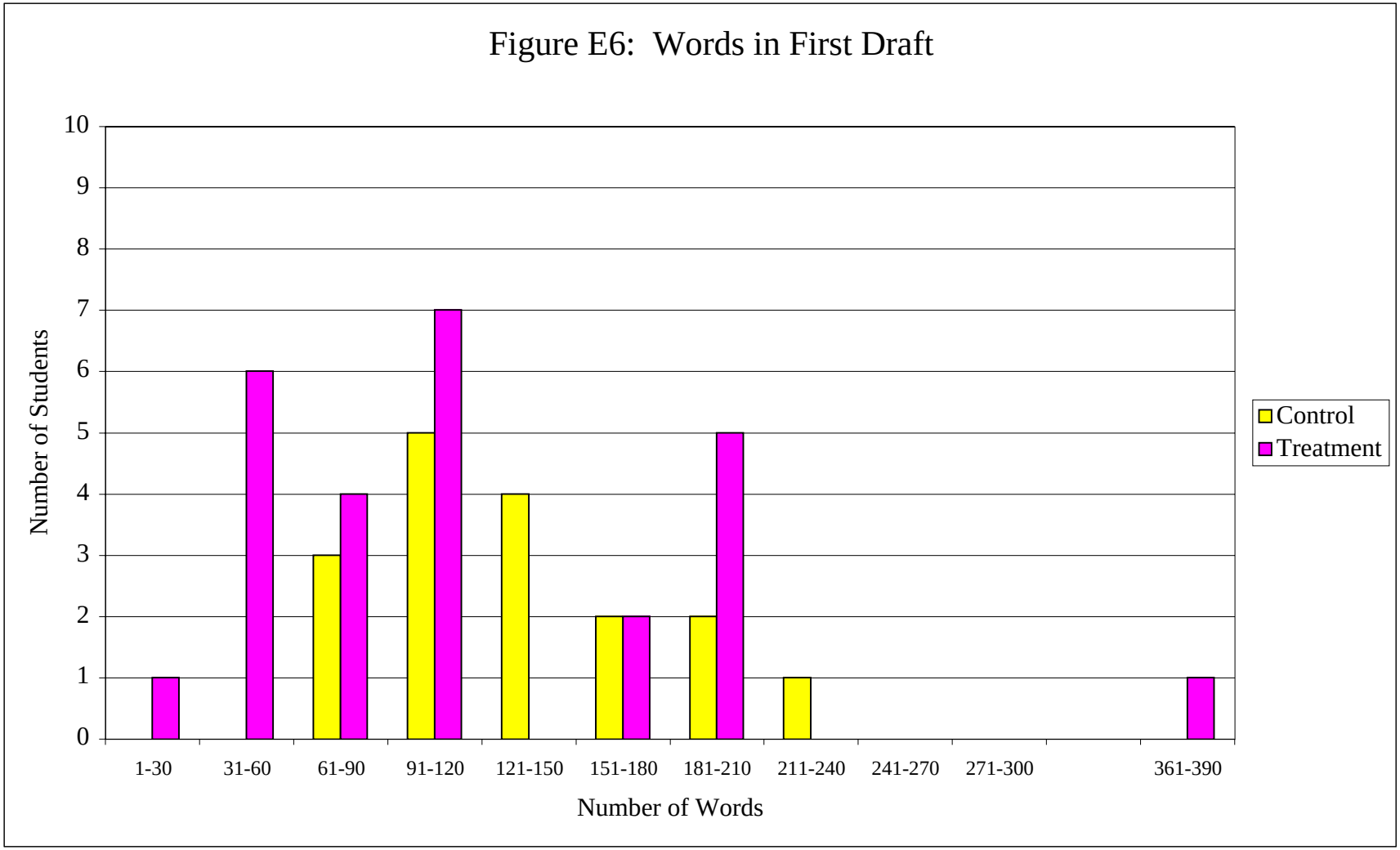
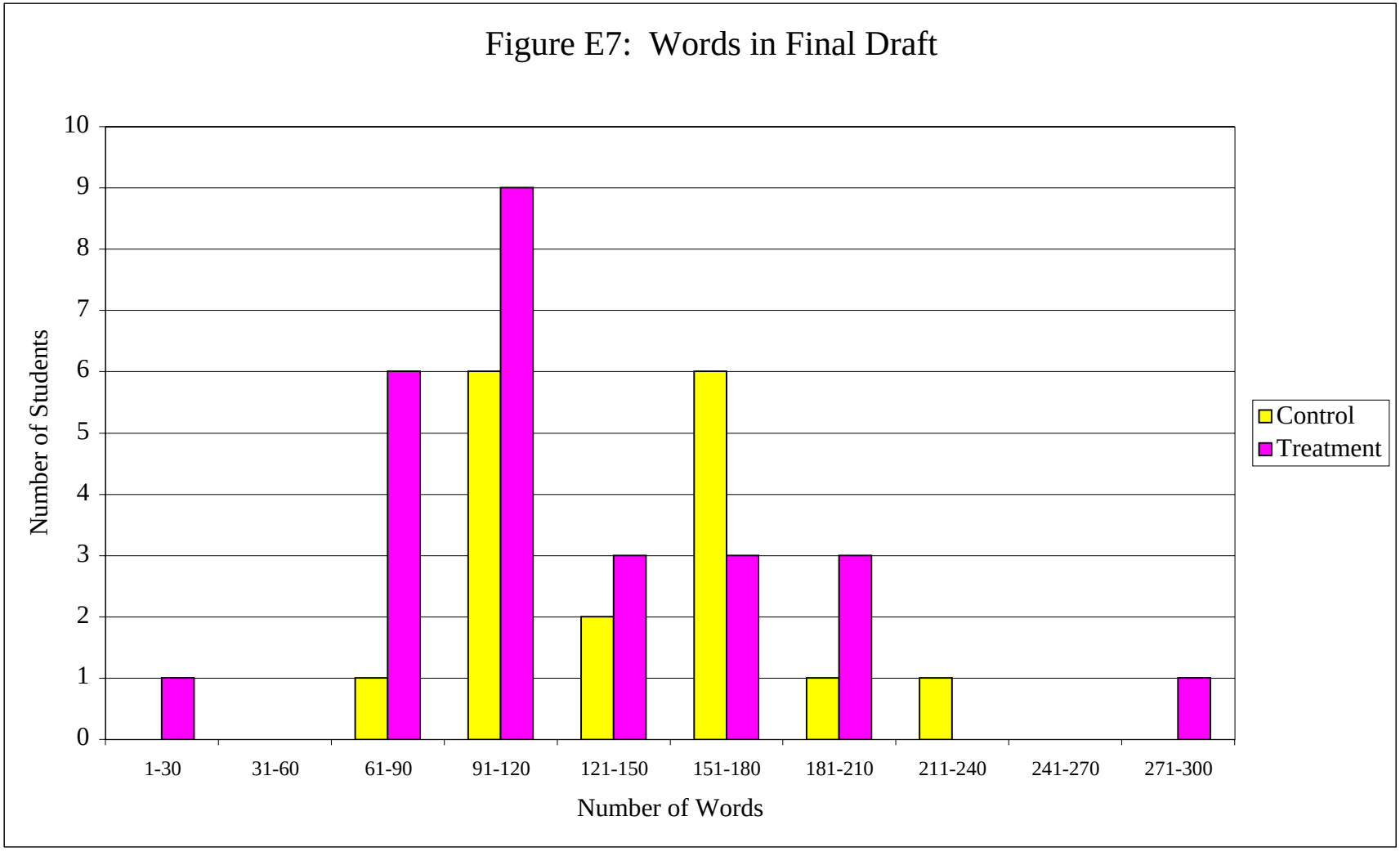


Figure E7: Words in Final Draft



Appendix F: CD-ROM Contents

The CD-ROM included with this project includes the following files:

1. A Read Me file with the contents of the CD-ROM (ReadMac.txt, ReadIBM.txt)
2. This document in two formats and supplementary material (in folder: Study):
    a. a Microsoft Word document (study.doc)
    b. a PDF file (study.pdf)
    c. raw data of study in Microsoft Excel (data.xls)
    d. ClarisWorks stationery file (Station.cws)
3. Student writing products (in folder: Products):
    a. Treatment writing products in two formats (in folder: Treatmnt):
        i. a PDF file (treatmnt.pdf)
        ii. html files (for use with a web browser, begin with index.htm) (in folder: html)
    b. Control writing products as a PDF file (control.pdf)
4. Installers for the following programs (please restart after installation):
    a. Mac (in folder: Mac)
        i. Acrobat Reader 3.01 (arws301e.sit)
        ii. Netscape 4.51 (Comm451.bin)
        iii. Quicktime 3 (QuckTime.hqx)
    b. IBM (in folder: IBM)
        i. Acrobat Reader 3.02 (AR302.EXE)
        ii. Netscape 4.51 (CC32E451.EXE)
        iii. Quicktime 3 (QUICK.EXE)