EFFECTIVENESS OF USING THE WORD PROCESSOR IN WRITING CLASSES TO ENHANCE REVISING AND EDITING SKILLS

A THESIS
PRESENTED BY
DİLEK YAVUZ
TO
THE INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARTS
IN THE TEACHING OF ENGLISH AS A FOREIGN LANGUAGE

BİLKENT UNIVERSITY
AUGUST 1997

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To my parents,

Nuriye- Süreyya Yavuz

ABSTRACT

Title	Effectiveness of using the word processor in writing classes to enhance revising and editing skills
Author :	
Thesis Chairperson	Dr. Tej Shresta Bilkent University , MA TEFL Program
Thesis Committee	Prof. Theodore S. Rodgers Dr. Bena Gül Peker Bilkent University, MA TEFL Program

Many researchers have argued that word processing should naturally lead to better revision of written works, including students' compositions, since changes can be made easily and effectively. Yet, research conducted to date has not consistently supported this notion. There have been a number of studies comparing computer-using groups with those writing by traditional pen and paper some of which showed advantage and some no advantage for computer users. For an overview of a number of studies see Pennington (1996).

Some researchers and proponents of word processing in writing classes have examined only the length of compositions and number of revisions, or type of editing (surface level, deep level, editing for mechanics, structure and so forth) without examining overall quality of the compositions. This study aimed at examining only the quality of revisions. In the present study, it was hypothesized that using the word processor in writing classes would enhance students' revising and editing skills. Furthermore, it was hypothesized that using the word processor in writing classes would

help students develop positive attitudes towards writing in general, and revising, and editing in particular.

The hypotheses were tested by designing a mixed quasi-experimental and descriptive study. Twenty-two secondary school second year students from Özel Bilkent Lisesi were the subjects of the study. The students were randomly divided into two equal groups -- the experimental, computer using group, and the control group, which wrote with traditional pen and paper methods. All subjects were exposed to sixteen-hours of treatment in which the word processing group used the word processor whereas the pen group used traditional pen and paper in writing classes. During the sixteen-hour experiment, spread over two months, students wrote about different topics during two-hour sessions every week. Students were given pre- and post-tests. Moreover, all twenty-two subjects were given an attitudinal questionnaire prior to the study, and the word processing subjects were given a second attitudinal questionnaire parallel to the first questionnaire after the treatment period. The first questionnaire sought to determine all the twenty-two subjects' existing attitudes toward writing, revising, and editing. The second questionnaire for the word processing group aimed at determining possible changes in the word processing group's attitudes toward writing, revising, and editing.

Post-test results confirmed that the word processing group scored significantly higher in post-tests, in both editing and revising, than the pen group. In addition, analysis of the attitudinal questionnaires supported the conclusion that word processing makes writing more enjoyable, and thus, helps students develop positive attitudes towards writing.

BILKENT UNIVERSITY

INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES

A THESIS EXAMINATION RESULT FORM

August 31, 1997

The examining committee appointed by the
Institute of Economics and Social Sciences for the
thesis examination of the MA TEFL student

DİLEK YAVUZ

---

has read the thesis of the student.

The committee has decided that the thesis

of the student is satisfactory.

Thesis title	Effectiveness of using the word processor in writing classes to enhance revising and editing skills
Thesis advisor	Prof. Theodore S. Rodgers Bilkent University, MA TEFL Program
Committee Members	Dr. Tej Shresta Bilkent University, MA TEFL Program
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We certify that we have read this thesis and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 INTRODUCTION

Background of the Study

The computer is becoming a familiar technology in business, home and school. One of the most familiar types of computer software is word-processing software. Of particular interest is the support which word-processors supply for editing and revision of multiple drafts of a written piece, now considered basic in most current views of writing instruction. Therefore, it appears that imaginative use of word-processing software holds promise for the teaching of composition writing. This study explores ways in which the use of computer word-processing functions focusing on text editing and revision can be used to support student growth in the skill of writing.

Although the power of the computer has revolutionized almost every other field of human endeavor since the 1940s, its educational use began only in the late 1950s and early 1960s (Underwood, 1984). The utilization of computers in teaching in Turkey can be traced back to the late 1980s when Turkish universities and secondary schools adopted the medium for various forms of education. The first official effort to incorporate computers in education was made by the Ministry of National Education with the implementation of the Computer Aided Instruction (CAI) project in the late 1980s (METARGEM, 1991). However, the project did not include Computer Assisted Language Learning (CALL). It was primarily concerned with the use of the computer in math, science and technical subjects such as electronics. Only in 1990 did several language teaching institutions start to employ the computer in language teaching. Examples of such institutions are ODTÜ

Gelistirme Vakfi Lisesi (1995), Özel Bilkent Lisesi (1993), Kara Harp Okullari (1996), and Bilkent University (1992).

The computer equipped with word-processing software can potentially ease the task of students in putting a text together, and editing and revising it, while at the same time stimulating interest and motivation (Kaliski, 1985). Pennington (1996, cited in Fotos, 1996) argues that the computer as a word processor offers a superior writing medium compared with traditional tools. She mentions that many users indicate that the computer improves writers' attitudes toward writing, increases motivation to write and facilitates revising and editing by creating the conditions for improved writing products. She notes that these claims were confirmed by a number of studies (cited in Bangert-Drowns, 1993; Cochran-Smith, 1991; Hawisher, 1989; Pennington, 1991,1993; Syder, 1993). Honig (1986) and Coburn et al. (1985) state that even ordinary word processing functions yield some extraordinary educational outcomes when applied in classrooms. They maintain that using word processing programs encourages students to write who might otherwise avoid writing. All students using such programs tend to write longer, more detailed stories and essays.

The assumption that the computer can promote the efficiency of writing courses by enriching the quality of teaching and learning was the impetus for this research study. This study focused on the word processing capabilities of the computer as an aid to writing instruction, in particular for revising and editing skills. The idea of focusing on writing skills derived from the importance given to writing in academic studies.

Another motivation for this research study derived from the newly established computer laboratory at the researcher's home institution, YADIM (The Foreign Languages Center of Çukurova University). YADIM was given a computer laboratory in 1995; however, its use has been delayed because there are no staff members trained in Computer Assisted Language Learning (CALL). In addition, YADIM has not been able to afford to purchase software needed to support the laboratory. Thus, the limited availability of other kinds of software at YADIM led this study to focus on the utilization of the existing word processing program, Word, as a basis for English classes to enhance writing skills.

YADIM offers a one-year intensive English language teaching program for the students who will attend English-medium departments (e.g. engineering, economics) after the successful completion of the program. YADIM provides a skill-based program to two groups of students, graduate and undergraduate, which consists of four levels, each covering an eight-week period, namely, level 1 (elementary), level 2 (pre-intermediate), level 3 (intermediate), level 4 (upper-intermediate). The course content and its delivery to the levels is shown in Table 1.

Table 1

Course Content and Delivery to Each Level

Levels	Core language	Listening	Speaking	Reading	Writing	Study Skills
Level 1	⊕					⊕
Level 2	⊕	⊕	⊕	⊕	⊕	⊕
Level 3	⊕	⊕	⊕	⊕	⊕	⊕
Level 4	⊕	⊕	⊕	⊕	⊕	⊕

Note. required courses = ⊕

As the table indicates one of the components of the four-level program is writing. The objective of the writing class is to enable students to communicate effectively and efficiently through writing in English in their home departments. As can be seen in Table 1 students have a writing course at Level 2, Level 3, and Level 4. Students also have the opportunity to practice what they have learnt in writing courses in study skills courses which are delivered to all of the levels (see Table 1).

At the end of the academic year students take a standard proficiency test before being released to their departments. This proficiency test is designed to measure students' ability in English regardless of the training they have had in language throughout the year. The writing section of the proficiency test comprises 20% of the total proficiency grade. The sections of the proficiency test and its grading are shown in Table 2.

Table 2

Sections and the Grading of the Proficiency Test Given at YADIM

Sections	Percentage of Grade
Listening	20%
Speaking	20%
Reading	20%
Writing	20%
Translation	20%

As can be seen in Table 2, the proficiency test consists of five sections, namely listening, speaking, reading, writing, and translation. Again it should be noted that writing comprises 20% of the proficiency grade.

Statement of the Problem

Writing skills are critically important to learners, especially to the ones who learn the language for academic purposes like the students at the English Language Teaching Center (YADIM) of Çukurova University and similar institutions in English-medium universities. At YADIM writing as a communicative activity is a skill that is encouraged and nurtured throughout the one-year academic program. Although the writing skill is given considerable importance by YADIM teachers and is taught through the process approach as recommended by many researchers, for example Jacobs, Zamel, Perl, Raimes (cited in Kroll, 1990), student writing performance both on the achievement and proficiency tests reveals that their success

in the writing section is not satisfactory. The success rate in the writing portion of the last proficiency test in June 1996 was only 53%.

The writing problems of the students vary from one individual to the next, but typical problems include appropriate use of elements of organization, supporting material, vocabulary and expression, grammar and mechanics. One of the common reasons given for ineffective student writing is their negative attitude toward writing. The students view process writing as a burden since it requires extensive revision and rewriting.

Helping students develop a positive attitude towards writing is frequently viewed as leading to improved student achievement. Since it makes revising and editing easier and generates interest in the learner, computer word processing, as an aid in writing classes, can assist in development of proficiency in student writing and in improvement of student attitudes toward writing.

Purpose of the Study

The main purpose of this study is to test the effectiveness of using the word processing functions of the computer to teach writing. On the basis of the assumption that there is a significant correlation between using the computer as an aid in writing classes and students' success in editing and revising skills the following hypotheses were formed:

- The students who are exposed to the computer aided writing instruction will be better in revising and editing text than those who are exposed to traditional, pen and paper, writing instruction.

- It was also anticipated that students using the computer in writing classes would develop a more positive attitude towards writing, revising and editing.

Research Questions

This study addressed the following research questions:

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop revision skills?

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop editing skills?

- Do students' attitudes toward writing improve as a result of learning and using word-processing?

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop a positive attitude towards revising?

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop a positive attitude towards editing?

Significance of the Study

The test site for the research study was Özel Bilkent Lisesi (ÖBL) which has a computer lab and indicated willingness to participate in the study. It is expected that the findings of the study will be useful for Özel Bilkent Lisesi (ÖBL). The computer lab at ÖBL has been used by a limited number of teachers for limited purposes. Thus, this thesis is expected to heighten the awareness of the teachers at

ÖBL in respect to computer aided language instruction in new subject areas such as in the teaching of writing.

The findings of the study should also help to activate the computer laboratory at YADIM that is awaiting effective use. It should also guide instructors working at YADIM and suggest to them new language teaching approaches, particularly in writing classes.

There is a growing belief that the computer offers a great number of possibilities for language teaching and learning. Appreciating the computers' contribution to teaching and learning, The Turkish Ministry of Education has conducted research studies regarding the use of the computer in education, and in 1991 a number of seminars on this topic were held (METARGEM, 1991). However, it is notable that the use of the computer, particularly in teaching foreign languages, has as yet rarely been tested in Turkey.

Thus, this study should also be of importance to the field of EFL in Turkey. Since the computer as an educational technology is relatively new in Turkey (less than ten-years old) this study should be of great help especially for Turkish schools that have recently acquired computers and are willing to explore technological alternatives for effective teaching and learning. In this study, several terms are used with quite specific reference. The following section glosses these terms.

Glossary of Terms

Some researchers use revising and editing interchangeably (e.g. Gebhardt & Rodrigues, 1989). However, in this study the terms revising and editing carry

different meanings as they are defined by Clouse (1992), Cooley (1993), Cooper (1978), Cowan (1987), Elbow (1981), Hairston (1986), Lincoln (1986), and Meyers (1989).

In this study the following definitions apply:

REVISING: The word *revision* (re-vision) means "seeing again". Revision involves seeing written work from the reader's point of view. It is the process by which writers re-shape their text to make it more "reader-friendly". As the writer revises the chief concerns are content clarity, organization, and effective expression.

EDITING: Editing typically follows revision. Editing involves identifying and correcting mistakes in grammar, usage, capitalization, punctuation, and spelling.

WORD PROCESSOR: A word processor is a computer program that enables the users to write, revise, edit, adapt, save, load, and print text (Lareau & Vockell, 1989; Edward, 1987).

CHAPTER 2 LITERATURE REVIEW

Introduction

The purpose of this study was to test the effectiveness of using the computer as an aid in writing classes. The study focused primarily on whether using the word processor in writing classes helps students develop revision and editing skills. Furthermore, the study sought to determine whether using the word processor rather than traditional pen and paper techniques makes any change in students' attitude toward writing, revising, and editing. As a framework for the study, this chapter reviews literature related to teaching writing, computer assisted language learning and using the computer as an aid in writing classes. This chapter contains the following sections: (1) Writing issues in English Language Learning; (2) The computer in language learning; (3) The advantages and disadvantages of the computer in language learning; (4) Word-processing in teaching writing; (5) Capabilities of word-processing; (6) The advantages of using word-processing in teaching writing; (7) The disadvantages of using the word-processing in teaching writing; (8) Cautions concerning using word-processing.

Writing Issues in English Language Learning

Both contemporary theory and practice highlight the significant contribution of writing to the learning process. Thus, over the past 20-30 years, there has been an increasing amount of research on the composing processes of student writers (Jacobs, et al. cited in Kroll, 1990). In time it was realized that extra assistance was needed to support the teaching of writing. This realization underscores the fact that writing, both in one's native language and in a foreign/second language, requires greater efforts in improvement than do other skills (Arnt and White, 1991; Byrne, 1991; Honig, 1986; Kroll cited in Celce-Murcia, 1991; and Zeigler, 1981).

A writing lesson presents difficulties not only for the student but also for the teacher. First, efforts to help students learn to write with facility is one of the most

difficult tasks teachers face. Second, responding to and commenting on student's writing is tiring and takes a great deal of time, often 20 to 40 minutes to comment on a single student's paper (Sommers, cited in Mckay, 1984). Third, correcting compositions can be a very frustrating experience for the teacher since after spending long hours carefully correcting compositions, students frequently do not pay attention to their corrected errors or do not know how to use the teacher's corrections to revise their writing and thus often fail to revise their writing (Frank, 1983 and Kroll cited in Celce- Marcia, 1991).

To facilitate the development of writing skills, to help learners become genuinely involved in the learning process and to help writing teachers in their work, language experts have sought alternative ways to teach writing. The history of writing pedagogy shows that during recent years writing instruction has focused more on the composing process --that is the process of generating ideas, organizing, editing, and revising-- than on the writing product. Parson (1986) acknowledges that writing is much more than punctuation, grammar, and topic sentences. He believes that "... it is dynamic, cognitive, interactive process, rather than just a vehicle for focusing on mechanical and stylistic correctness" (p. 2). He confirms that "the teacher- centered, product-focused, prescriptive mode of traditional writing instruction shifted to student-centered, process-focused instruction, where exploration and experimentation are valued, and where skills are taught in the context of the student's own writing intentions" (p. 5). Raimes (1983, p. 10) states that "... in process approach, the students do not write on a given topic in a restricted time and hand in the composition for the teacher to "correct" -which usually means to find the errors. Rather, they explore a topic through writing, showing the teacher and each other their drafts, and using what they write to read over, think about, and move them on to new ideas".

The research conducted on how writers compose has taught instructors a great deal about how writers actually work, and this has resulted in more language teachers teaching writing as a process (Britton et al. (1990), Gill et al (1986), Goldstein and Carr (1996), Lindemann and Willert (in Collins and Sommers,1985) , Martin, Mclead & Rosen (cited in Sommers, 1985), and Sommers (1985)). One of the outstanding aspects of the process oriented approach is that students continue revising what they have written until they produce satisfactory and effective final drafts. Emig (1971) and Sommers (1985) confirm that revision is the best way to make writing better. They explain that skilled writers revise constantly, trying to resolve the tensions between what they want to say and what the sentence actually records.

Parson (1987) states that the student writer often attempts to get the writing completely right the first time through in order to avoid revising and recopying. The teacher, meeting the assignment for the first time, grades the copy marking every mechanical error in red ink and gives it back to the student who usually pays no attention to the teacher's comments. Parson states that the emphasis in the product-oriented approach is on final product, proper form, mechanical correctness, and the inevitable result is that some students learn to write while others find writing a painful and pointless repeated failure. There is adequate evidence to support the assertion that the teaching of writing as a process is a valuable practice both in writing in one's native language and in second/foreign language (Marjoire, 1994). Goldstein et al. (1996) conducted a research study on the frequency with which the process approach to writing is used and the writing performance of students whose teachers use this method. Data were drawn from the 1992 National Assessment of Educational Progress in Writing, which was administered to a representative national (U.S.A) sample of approximately 7,000 fourth grade, 11,000 eighth-grade and 11,500 twelfth-grade students from about 1,500 public and private schools. Results

indicated that students of teachers who always encouraged particular elements of process writing, such as planning and defining purpose and audience, were generally better writers than students of teachers who reportedly never encouraged process writing. Second, average writing ability was higher among students whose teachers emphasized process writing. Another study conducted by Thomas (1992) determined how exposure to learning writing as process would effect the attitudes of students. Subjects had had no experience with writing as a process. Results indicated that exposure to learning to write as process increased students' enjoyment of writing, and enthusiasm for writing, as well as their willingness to write more often. Thomas reports that students also expanded their awareness of the process stages of writing and they started to view themselves as real writers.

The Computer in Language Learning

At every tick of a clock, computers play an important role in our lives, from transportation to entertainment, from medicine to security systems. One important domain of life that appears likely to be influenced by advances in computer technology is that of education. Although the history of the computer pre-dates World War II when they were used in commerce and government administration, educational uses of the computer began only in the late 1950s and early 1960s (Underwood, 1984). "The 1960s and 1970s witnessed the evaluation of CALL (computer assisted language learning) as a result of development in research related to the use of computers for linguistic purposes and for creating viable language-learning conditions" (Dhaif, 1989, p. 17). Dhaif states that in America a computer-based introductory Russian course at Stanford in the 1960s was one of the pioneering projects in CALL and was referred to as computer assisted instruction (CAI). As Dhaif mentions, another project that was developed at the same period was called PLATO (programmed logic for automated operations). PLATO was developed to

teach a range of subjects at the University of Illinois. At the same university, a computer-based Russian course marked another move towards CALL. This course was mainly concerned with translation of written Russian into English and it concentrated on dealing with grammar and the written form of language.

Dhaif notes that in the early 1970s a number of CALL programs were developed at Dartmouth College in New Hampshire to teach a range of languages such as Danish, French, German, Latin, and Spanish. At first, computer programs were used primarily at universities. Since the beginning of the 1980s and early 1960s CALL packages have become more readily available for general audiences. Moreover, a computer lab has become an integral component of foreign-language-learning programs in many educational institutions.

From a theoretical point of view, the evolution of CALL was greatly influenced by developments in four areas of research: (a) individualization of instruction, (b) experiments in programmed instruction, (c) developments in computational linguistics, (d) work on machine translation in the 1950s (Dhaif, 1989).

CALL increased dramatically during the early 1980s. Before the 1980s, teachers had used traditional forms of CALL, such as drill and practice exercises, but after the 1980s, they moved away from these traditional forms to less traditional methods such as: cloze exercises, comprehension exercises (aural or written), dialogue (routine exchanges, role play, task-oriented, free), dictation, gap-filling exercises, grammatical manipulation, group/pair work, message production, monologue presentation, multiple-choice exercises, precis, pronunciation and intonation, rule learning, substitution exercises, translation, vocabulary work and written composition (Coburn, Kelman, Roberts, Synder, Watt and Weiner, 1985).

The Advantages and Disadvantages of the Computer in Language Learning

While some wholeheartedly believe that the positive impact of the computer on improving education is greater than that of any other prior invention including books and writing, others, who are not in favor of using computers in second language teaching and learning, say that underlying computer instruction, there is only the theory of conditioning which results in passive training not active education (Coburn et al 1985). Still others note that the computer is only a tool and

> like any tool, it comes with inherent advantages and disadvantages, is more suited to some teaching styles than others-and is neither the answer to all our educational ills nor the end of all that is good in our educational system. Like any tool, it can be used well or poorly, be overemphasized or ignored, and it depends on the human qualities of the wielder for its effectiveness.
>
> (Coburn, et al. 1985, p. 75)

A number of commentators namely, Ahmad, Corbett, Rodgers and Sussex (1992), Candlin and Leech (1986), Coburn et al (1985), Dhaif (1989), Fortescue and Jones (1987) and Gatbonton and Segalowitz (1995) have commented on the advantages of the utility of the computer in second language learning. These advantages include the following:

First, CALL programs present the learner with novelty. They teach the language in new, different and interesting learning conditions and present language through games and problem solving techniques. Thus, even tedious pattern drills can become more interesting. Second, they offer a valuable source of self-instruction adaptable to the learner's level. They also provide immediate feed back for error identification and self-correction. Third, the computer can change content

speciality depending on the software used: it can act as a linguistics teacher, literature tutor, reading instructor, and composition specialist. Fourth, given the appropriate software, the computer repeats lessons, concepts and directions ad infinitum without experiencing the boredom, frustration, or exhaustion of overworked human teachers. Fifth, using the computer in teaching languages can offer unlimited types of activities with considerable potential for supporting learning in various situations. The computer can be connected to a video for visual input or to a cassette recorder for audio input or recording the learner. Sixth, the computer and the CAI programs they run are available twenty four hours a day. Thus, students who can not match their schedules with those of human teachers can benefit from the computer. Seventh, although computers cannot replace classroom teachers, they can allow them to give special attention to each student in turn while the rest of the class is productively occupied. Eighth, computers give the learner the flexibility of choosing her/his own time frame and pace of study. Ninth, computers can allow learners to take distance courses as well as on-site courses.

However, some commentators agree with Ahmad et al (1991), Meunier (1994), Pavanini (1993), Pullen et al (1987), and White (1994) that the computer has disadvantages and limitations as well. In sum, their comments refer to the following disadvantages and limitations: First, the computer is a tool which is incapable of action and which has no inborn wisdom, no mind of its own, no initiative and no inherent ability to teach and to learn. Second, the computer can not meet all of the students needs in a class. No traditional classroom is homogenous and there are always at least one or two students who need individual attention. Third, software evaluation and purchase expense are big problems. Fourth, the computer fails to conduct an effective 'open-ended' dialogue with the learner. It does not have the ability to understand the learner's language. Fifth, the computer can be called the

'new language laboratory' which means the new way of delivering decontextualized practice activities in large quantities and in 'pseudo-individualized' form.

While some commentators compare the CALL lab with the abandoned language lab, others reject this comparison. For example, Higgins (1988) stresses that the computer, as a language learning aid, can be as disappointing as the misused and abandoned language laboratory not because of the nature of the machine but because of the way people decide to use it. Philips (1986, p. 103) and Sivell (1994) agree with Higgins and explain that a major problem with both the language lab and the computer lab is that most of the resources are spent on the development of hardware rather than on lab materials. Philips maintains that "we are busy pouring old methodological wine into the bottles of the new technology" (1986, p. 103).

Word Processing in Teaching Writing

"Of all the computer-based tools available to educators, word-processing is one of the most accepted and widespread" (Pennington, 1996, p. 93). Higgins (1988), and Selfe (1986) agree with Pennington that the computer's most popular role is as a word-processor.

"It can be maintained that the computer --most centrally, in the form of a word processor-- offers a superior writing medium compared with traditional tools" (Pennington, 1996, p. 94). Many have claimed that the computer enables foreign language learners to turn their ideas into written communication more effectively and the teacher to present skills and monitor and correct the students more easily. Some educators, anticipating possible contributions of computer technology to language teaching and learning, have utilized the computer in the writing class to lessen the teacher's work load, especially in the revising and editing stages of the writing process and to motivate students to improve writing skills.

As discussed previously, recent process approaches claim that writing is recursive rather than linear. Edwards (1987, p. 12) agrees that the composing process can not be limited by discrete steps or stages. Edwards illustrates the recursive writing process as shown in Figure 1.

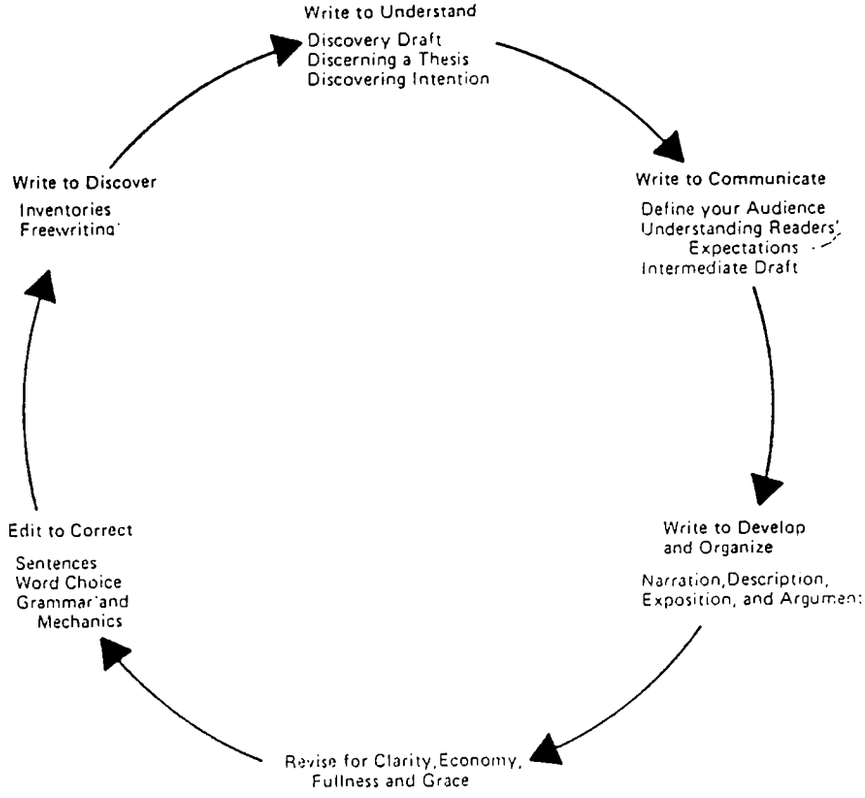

Figure. 1. The composing process

As seen in the figure, recursive writing comprises the following processes: write to understand; write to communicate; write to develop and organize; revise for clarity, economy, fullness and grace; edit to correct; write to discover. Edwards points out that "the microcomputer makes the recursiveness of writing quite concrete" (p. 13). He states that the possibilities for changing text by adding to it, rearranging it, or deleting from it, are unlimited. Liechty (1989) agrees with Edwards that it is this recursive writing on the word processor that best enhances a writer's natural processes of invention, composition, and revision. Liechty conducted a meta-analysis that addressed two questions: How can computers be

effectively employed in the composition classroom, and to what extent does instruction in writing complement the use of the word processor in developing writing skills? Thirty-eight current research studies on the effects of using word processing to teach composition were reviewed by Liechty. The studies were categorized in two ways. The first group compromised studies in which participants received simultaneous instruction in the writing process as they used word processors. The second group included studies in which participants did not receive such traditional instruction. Within these categories the studies were also grouped by the maturity or ability level of the participants (young, basic, or able writers). The results from the findings indicated that first, given the increased time on task, greater length of writing samples, and positive attitudes of most students writing with word processors, the computer seems to be a valuable instructional tool in the composition classroom. Second, the word processor in the writing classroom aids collaboration with teachers and peers. Third, the computer helps the younger writer to recognize and correct errors. Fourth, a relationship exists between the combination of process-approach instruction and word processing and improved quality of compositions especially for young and low-ability writers. At the end of this study, it was recommended that school systems encourage and support the use of word processors supplemented with the process approach to teach composition.

Pennington (1991) maintains that the reason for these educators' enthusiasm to utilize the computer in their classes seems to be a perception of a direct relationship between the properties of the medium and some beneficial effects on writing behavior. This view is supported by a growing body of literature demonstrating positive effects of word-processing, including the studies cited in Pennington, 1991 (Bradley, 1982; Monohan, 1982; Bean, 1983; Dauite, 1983; Manigan, 1984; Schwartz, 1984; Womble, 1984; Daiute, 1985b; Grabe & Grabe, 1985; Dickinson, 1986; Nichols, 1986; Selfe & Wahlstrom, 1986; Blanton, 1987;

Dalton & Hannafin, 1987; Piper, 1987; Johnson, 1988; McAllister & Louth, 1988, 1988; Weiss, 1988; Bernhardt et al. , 1989; Chadwick & Bruce, 1989; Hermann cited in Holstein & Selfe, 1990). In addition to the studies cited by Pennington, the following studies reached a conclusion that support the utilization of the computer in teaching writing: Daiute, 1986; Harris, 1985; 1991; Lam & Pennington ,1987; Lutz, 1987; Pennington & Brock, 1991; Phinney, 1989; Phinney & Mathis, 1988,1990; Reid et al, 1983; Reid, 1986; Schwartz, 1982.

These research studies were conducted in English language teaching environments both ESL/EFL, and results from the research findings all seem to confirm that students who use the computer in writing classes show greater performance in writing than those who use pen and paper, particularly in editing and revising skills.

Capabilities of Word Processing

Selfe (1986, p. 1) states that a computer equipped with word-processing software can do several things for writers and student writers. She notes that a person can take advantage of the following capabilities of the computer:

Recognizing.

Computers can recognize and point out a particular word, phrase, or sentence when it is used in a student paper; identify marks of punctuation; find the occurrences of various linguistic features in any given text, and identify names or numbers. Computers can, with their recognizing skill, search for a particular item in a long text and evaluate whether the item matches a preset response or list of responses determined by a writing teacher.

Counting.

Given the right kinds of directions, computers can also count everything they can recognize. They can count and calculate, for instance, the average number of letters per word, the average number of words in a theme, or the average length of sentences in any given text.

Storing and Record Keeping.

In addition to recognizing and counting, computers can store information and keep records. Appropriate software can, for example, direct computers to record the specific responses students make to a writing activity or question; store free writes, audience analyses, and journal entries; keep drafts or parts of drafts; and save demographic information or grading information about students, classes, or groups.

Evaluating.

Because computers can recognize certain patterns and store information, with the help of intelligent software they can also evaluate responses by matching key words or phrases against a preset list of appropriate or inappropriate answers determined by a teacher.

Keeping Time.

Most computers now have internal clocks that allow them to time writing exercises or journal writing episodes, keep track of how long students spend on a particular activity, and print records of the time students spend on computer-assisted lessons.

Teaching Techniques with Word Processing

Rodrigues and Rodrigues (1986) assert that "as researchers have discovered much about how writers write, teachers have developed some useful pedagogues for translating research into practice". Some of the most popular methods Rodrigues and Rodrigues mention are Collaborative writing with computers, The Computer Writing Conference, Electronic journal writing and the "I search" method of research writing with computer tools.

1. Collaborative writing with computers.

Many scholars, who put great importance on collaborative learning, including Bruffee (1973, cited in Rodrigues & Rodrigues,1986, p. 43) and Rodrigues and Rodrigues (1986) contend that students learn more from their peers than they could possibly learn from teachers while reviewing their peers writing. Sommers (1985) agrees that the computer encourages collaborative learning since groups of writers become closer while they are teaching one another about the computer as well as while they are showing their writing.

2. The Computer Writing Conference.

There are a number of ways of using conference techniques while teaching writing. Rodrigues and Rodrigues (1986) mention that there are two popular ones that are called the Garrison approach and the approach developed by Donald Murray and revised by Thomas Carricelli. In both approaches, as Rodrigues and Rodrigues put it, teachers help students conceive and refine their ideas. Both methods assume that teachers will be involved in student writing while it is in progress and that students are learning that writing is a process and that to complete that process writers talk with others to get advice. Furthermore, Rodrigues and Rodrigues explain that in all versions of the conference method, students' papers are treated as

drafts, and teachers offer advice about all stages of writing --pre-writing through proof-reading.

3. Electronic journal writing.

For years, journal writing has been used by many people not only as an activity to help students improve their writing, but by educators from different fields, to help students learn. Rodrigues and Rodrigues (1986, p. 41) assert that journal writing is supposed to be very useful when viewed as an integral part of the writing course. They agree that journals are valuable if students write them on paper however they also insist that journals would be even more effective when students use the computer to solve organizational problems. Students can separate sections, opening new files on their disks rather than using spiral-ring notebooks with divider cards. Sorenson (1990, p. 44) confirms that using the computer as a journal can make students enjoy composing frequently for a specific, responsive audience.

4. The "I search" method of research writing with computer tools.

Most college students are supposed to do some kind of research at least at one stage of their education. Macrorie (cited in Rodrigues & Rodrigues , 1988, p. 46) recommends that "instead of writing the traditional research paper --collection of quotes and paraphrased passages about topics of little interest to students-- teachers assign what he calls the "I-search" paper. I-search is a technique that is used in research writing in which students present the result of their explorations and discoveries about a topic that "chose" them, a topic that was selected because it had something to do with their personal interests and needs (Rodrigues & Rodrigues, 1986). Rodrigues and Rodrigues say that computer tools can be used to collect, sort, organize and report data for I-search papers. Students can use subscription data

services through a computer that has a modem instead of looking up articles in newspapers or books.

The Advantages of Using Word Processing in Teaching Writing

Most of the studies of educational applications of word-processing have evaluated its effectiveness in terms of measures such as student and teacher attitudes, revision behavior, and holistic assessments of the quality of written products (Pennington, 1991). Using such measures, many researchers investigating native and non-native writing during the last decade have uncovered positive effects of word-processing. These research studies support the notion that the potential benefits of the computer for the ESL student writer seem to be greater than the disadvantages of utilization of the medium. Improvement in the effective factors of attitudes toward writing, motivation to write, time spent on writing, and perceptions about one's writing behavior appear to be the major benefits of computer-assisted writing (Phinney, 1988). In the light of the research studies that emphasize the positive impact of the word processor, the advantages of word processing can be summarized as follows:

1. Creates a positive attitude toward writing

Most teachers of English would agree that a positive change in attitude may lead to much more learning than hours of exercises. Approaches that can help writers in drafting and minimize the boredom and discouragement of constant re-writing are likely to make writing instruction more popular and effective. If motivation is at the heart of the writing process as Honig (1986) mentions, then the writing teacher's very best effort should be concentrated on motivation. Using the computer to enhance the learning process is one of the latest gambits of some researchers such as Rodrigues and Rodrigues (1986) who lay great stress on

motivation in language learning. These researchers insist that one of the conspicuous advantages of the computer is its motivation factor. A growing body of literature support this view, including the studies conducted by the following researchers in the last decade:

Bickel, 1985; Bridwell, Sirc & Brooke cited in Bridwell & Duin, 1985; Collins and Sommers, 1985; Daiute, 1985; Evans cited in Collins & Sommers, 1985; Etchison, 1987; Jones, Meis & Bolchazy, 1985; Lam & Pennington, 1995; Lindeman and Willert cited in Collins & Sommers, 1985; Pennington, 1993; Pennington, 1995; Piper, 1987; Phinney cited in Pennington, 1991. Findings of these research studies concerning the utilization of the computer in writing classes to help students develop more positive attitude toward writing can be summarized as follows:

- The computer was rated highly by learners since there are elements of competition, novelty, diversity and sophistication which enhance learners' motivation in language learning with the computer.

- The computer helps students to overcome attentional constraints and dispel negative attitudes toward writing because of its novelty and the physical act of writing with an electronic keyboard.

- Reluctant attendees who previously viewed writing as a negative experience began to enjoy writing when they started writing on the computer. They began spending more time writing at the computer. This is evidence of the computer's motivational factor.

- An increased desire to write was observed when students used the computer in writing. Increased motivation causes students to want to write more, revise more and experiment more with their ideas willingly in the target language on the screen and in hard copy versions of their writing.

- The computer makes writing more enjoyable and makes students more aware of their own textual deficiencies and makes them more fluent.

- Writing on computers relieves physical, psychological, and cognitive constraints to a certain degree.

- Writing on the computer stimulates student's creativity, their exploration of ideas, consequently, their evaluation and revision of those ideas in the target language.

- Students use the words "play" and "fun" far more often than they ever have in writing classes and this "fun factor" makes for a successful learning environment.

- Since the computer lab encourages students to collaborate more with one another to improve ideas and wording, the computer makes writing a more enjoyable task.

Pennington (1996) explains the computer's ability to motivate in another interesting way. She notes that writing on the computer is a more active job than writing with pen and paper. She explains that

> writing by hand with pen and paper involves a coordinated effort by the whole hand, and indeed the whole arm, to perform the minute and highly varied movements required to form characters in moving strings across and down, or down and across a page. In contrast, writing by typing on a computer keyboard involves simple, uniform pressing actions by the fingers of both hands functioning mainly individually and sequentially. Typing on a key board is thus a more active or energetic form of writing which, as a result of the repetitive motions involved, may be more easily automatized and thus subject to less conscious control than writing with pen and paper.
>
> (1996, p. 94)

2. Improves students attitude toward revising

The revision stage in this thesis means the stage where the writer checks whether s/he has said what was desired and also whether s/he has said it in a clear and appropriate way. It does not mean just a matter of checking spelling, punctuation and grammar. It involves arranging, changing, adding and leaving out words. This view was shared by Brown and Hood (1989). As Raimes (1985, cited in Lam and Pennington, 1995, p. 229-230) describes it, "... writing, whether in first language or second language, is recursive, a cyclical process during which writers move back and forth in a continuous process of discovering, analyzing, and synthesizing ideas". Professional writers such as Buckley (cited in Holstein, 1987) and Muray (cited in Robinson & Modrey, 1986) agree with Raimes that reaching a satisfactory final draft requires writing several drafts which student writers regard as a burden. Muray, a professional writer and teacher of writing, states that unlike students, most professional writers share the feeling that the first draft, and all of those which follow, are opportunities to discover what they have to say and how best that can say it. Buckley and Muray both note that the computer encourages revising since it enables a person to revise the text in a short time with ease.

Much of the research conducted on the use of computer-based writing aids has focused on the amount and kinds of revision encouraged by word-processing. A number of educators have commented on the advantages of using the computer to revise in one's native language and in a foreign/second language (Bickel (cited in Collins & Sommers, 1985 , p. 44); Cohen (1986 cited in Bernhardt, Edward & Wojahn (1989); Collier (1983, cited in Sommers, 1985); Collier (cited in Holstein 1987); Daiute (1983, cited in Schwartz 1984); Harris (1985 cited in Pennington 1995); Honig (1986); Holstein (1987); Kelley & Raleigh (1990); Kepner (1986, p. 67); Kozma (1991, cited in Pennington 1996); Kurth & (1984 in Rodrigues & Rodrigues); Lutz (cited in Pennington, 1995); Peterson (1993); Reid et al. (cited in

Pennington 1995); Phinney (1989, cited in Pennington, 1995); Rodrigues & Rodrigues (1986); Rodrigues & Rodrigues (1986); Schwartz (1984, cited in Sommers 1985); Shostak (1982 cited in Collins & Sommers 1985); Sommers (1985); Sorenson (1990); Womble (cited in Collins & Sommers, 1985)).

In sum, they all agree that good writing requires multiple levels of revision and microcomputers equipped with a word-processing program help writers a great deal with revising since it makes revision easier and quicker. The researchers listed above support this view due to the following reasons:

- Word-processing has opened up a new world of communication by freeing students from the energy- draining mechanics of erasing, rewriting, and copying and by allowing them to concentrate their efforts on the real assignment. Writers that are freed from the burden of writing and rewriting draft after draft by hand become more willing to give revision a try with the computer. Many student writers reject revising past one or two drafts when they have to hand-write or type. When students revised their first drafts on the computer, first they concentrated on minor changes, second they began to make more significant changes like reorganizing sentences and paragraphs. With the computer, they seem to be more willing to reconsider the organization of their writing.

- The highly readable display of text on a computer monitor may also encourage more reading of one's own text and so more in-depth revision and/or surface level editing. Problems with hand writing and intelligibility are not obstacles when word processing.

- Word processors alter the cognitive processes by which writers compose and revise.

- The word processor help students develop more positive attitudes toward revising. Word-processing students became much less defensive about criticism and also more objective about their need to revise.

- There is an obvious increase in the number of revisions when students word process.

3. Enables easier proofreading and editing

The final stage in the writing process is editing -- that is correcting how you write something (e. g. editing for grammar, punctuation, spelling, capitalization, and so forth). Robinson and Modrey (1986, p. 99) assert that "both one's paper's content and appearance are important to making a favorable impression on one's audience". Higgins (1988, p. 89) believes that given the chance of editing, students can become much better at writing. "The fact that structural matters of local editing and formatting are easily taken care of with the computer may encourage attention to content development" (Pennington, 1991, p. 36). Selfe (1985) insists that the advantage of writing with the computer for the students at Michigan Technological University is the machine's ability to facilitate proofreading and editing. Selfe says that in the research she conducted, the students in the computer group mentioned that they spent much less time engaged in editing when they used a computer and also mentioned what the students in Womble's (cited in Collins & Sommers, 1985) research mentioned, that composing with pen and paper tools is a slow, laborious, tedious and boring task.

When they are asked to edit their work, most students tend to dedicate their time to editing for minor errors like spelling. One of the possibilities a word processor offers is its spelling checking function. Hull and Smith (cited in Collins & Sommers, 1985, p. 89) say that "the computer identifies errors through pattern-matching programs that look for and flag each occurrence of a particular string of characters or words that it has in memory or each occurrence of a particular string of characters or words that it does not have in memory. And the most common use of this kind of pattern- matching is the spelling checker". Hull and Smith (cited in

Collins & Sommers, 1985, pp. 93-94) explain that "each word in a student's essay is matched against a dictionary of misspellings and correct spellings; if any word appears in the misspelled list or does not occur in the dictionary of correct spellings, it is flagged"(p. 94). Thus, word processing students do not need to worry about their spelling.

Gail and Mutter (1991) note that in a project carried out at five high schools of St. James- Assiniboia School division (USA), the students reported that the spell checker was a gift that freed them to concentrate on content and construction instead of mechanics. This is a breakthrough to higher-order thinking processes for most students. When the writer writes with a pen or a pencil, the quality of the handwriting and the number of deletions and insertions are other factors which influence the appearance of the completed task and the readers judgment of it.

Kaliski (1994) suggests that the final product of writing can be demotivating if it is full of assorted mistakes and checkmarks. She points out that using the computer can solve this problem while helping to develop various skills such as putting a text together or self-editing one's works. Womble (cited in Collins & Sommers, 1985) says that "word-processing students do not encounter processing handwriting problems and illegibility is no longer an obstacle". (p. 63). Lam and Pennington (1995) and Hiebert (1989) conducted studies to determine the effects of computers on students editing skills. They both state that students maintained a level of enthusiasm, comfort, and persistence seldom seen when they have to edit their writing by hand. Furthermore, the result indicated that the computer fosters peer editing since students were much more willing to edit their friends' work when they had legible, computer-produced text on their screens and on the printed page.

Moreover, findings from the research studies by Brady, 1990; Eastman, 1989; Etchison, 1989; Friedlander & Markel, 1990; Green, 1991; Greenleaf, 1994; Kitchin,

1991; Robinson-Stavely & Cooper, 1990; Williamson & Pence 1989 (cited in Pennington, 1996) reveal that word-processing students are better editors.

4. Improves overall class management

Piper (1987 cited in Lam & Pennington, 1995) suggests that word processors focus students' attention on what they write and consequently decreases certain behavior problems among students and helps improve overall class management. Kurth and Stromberg (1984 cited in Rodrigues & Rodrigues, 1986), after working with middle school and junior high school remedial writers, agree with Lindemann and Willert (cited in Collins & Sommers, 1985) that the computer screen facilitates the student discussion about their writing and focuses students' attention on their writing. They add that since making revisions and corrections are not problems while using a word processor students pay more attention to the teacher's comments. In addition to the positive effects of writing on computers, a number of studies suggest that word processing may lead to more classroom experimentation and a more flexible approach to writing (e.g. Cochran-Smith, Paris & Kahn, 1991; Greenleaf, 1994; Johnson, 1986; Poulsen, 1991; Schwartz, 1984; Sommers, 1985 cited in Pennington, 1996).

Spitzer (cited in Holstein & Selfe, 1990) acknowledges that in the classroom where the computer is used, there is a significant change in the relationship between teacher and students since the teacher comments on texts as they are being composed rather than after they have been written. Thus, the teacher role of being a judge shifts to the role of a coach or an editor, someone who make suggestions, asks for clarification, and gives encouragement. Selfe (1986) asserts that process- based composition instruction increases the work load of the writing teacher dramatically. The computer in the writing class provides a partial solution to this problem since it promises to simplify the teacher's work of refining drafts of a paper and offering

comprehensive feedback for each draft. Since the computer encourages self-editing and peer-editing and since it has editing functions such as a spelling checker, a piece of writing comes to the teacher without spelling errors and with fewer minor errors in such areas as punctuation, and capitalization.

5. Enriches the quantity and the quality of writing

"In the area of written products, the most consistent effect documented for word processing involves quantity of writing, particularly, the production of compositions with a greater number of words" (Pennington, 1996, p. 93). This notion is supported by several research studies conducted by Brady, 1990; Etchison, 1989; Friedlander & Markel, 1990; Green, 1991; Greenleaf, 1994; Kitchin, 1991; Robinson-Staveley & Cooper, 1990; Williamson & Pence, 1989 (cited in Penington, 1996). The findings of these studies meet at one conclusion: students wrote longer essays on the computer, added significantly more words when revising on the computer, and this effect was stable over all members of the class.

Furthermore, Pennington (1996) maintains that a number of other studies have found favorable qualitative effects in word processed compositions according to holistic measures (e.g., Baggarley, 1991; Bello, 1991; Bruce & Rubin, 1993; Cirello, 1986; Dalton & Hannafin, 1987; Kitchin, 1991; Kuechle, 1991; Owston, Murphy & Wideman, 1992; Philips, 1992; Pivarnik, 1985; Robinson-Staveley & Cooper, 1990; Sommers, 1985; Williamson & Pence, 1989 (cited in Pennington, 1996); Allen & Thompson (1994); Keetley, 1995). Findings from these studies which aimed to determine the effectiveness of using a word processor as compared to the traditional paper-and-pencil method for writing suggest similar results:

- the word processor has qualitative effect in terms of measures of writing, such as content, organization, and language.

- students who use the computer and word processing software for writing score higher than the students who use pen and paper.

- there is a more complete coverage of the areas of content in a given topic by word processing students than pen students.

Pennington concludes that writing on the computer can not be equivalent to writing with pen and paper because computer- assisted writing not only helps to automate the process of expressing ideas in a physical form, but also adds capabilities to the writing process which generate new experience and new skills which can change and improve writing process and products.

The Disadvantages and Limitations of Using Word Processing in Teaching Writing

Word processing has received support from numerous teachers and students, since it contributes to teaching writing by making revision and editing easier and by promoting motivation. Yet, research conducted to date has not consistently yielded positive results. A number of studies carried out on native and non-native student writers failed to find positive effects in some aspects of the writing process or in composition quality when word-processing was employed (see, for example, Benesch, 1987; Collier, 1983; Coulter, 1986; Daiute, 1985a; Daiute, 1986; Deming, 1987; Dunn and Reay (1989, cited in Pennington, 1996); Gerrard, 1989; Haas, 1989a; Harris, 1985(cited in Pennington, 1996); Hawisher, 1987 (cited in Pennington, 1996); Posey, 1986). In these studies where the outcomes for word-processing are not positive, the following negative potentials and limitations of the word processor may account for the results.

1. While the computer helps both the writer and the teacher in some ways, it also put a burden on the teacher. In a word-processing classroom the teacher has two roles: first, a writing teacher who presents and discusses a range of rhetorical considerations (not only a trusted reader but also a collaborator, consultant), and

second a technical consultant who can demonstrate how the computer can be used as a writing tool in achieving rhetorical goals.

2. To obtain a good result, the student should have previous keyboarding experience, otherwise their production rate will be rather slow. For example, Bickel (cited in Collins & Sommers, 1985) indicates that in her classroom students struggle with mastering the word-processing program from time to time, and they sometimes feel frustrated by lacking control over what happens on the screen. Also, Pennington (1991 cited in Lam & Pennington, 1995, p. 27), who used the computer in her writing classes, indicates that "especially unskilled writers may focus on local rather than global revision, on structure at the expense of content, on quantity at the expense of quality, and on superficial synthesis rather than on depth of analysis". Rodrigues and Rodrigues (1986) also concede that the word processor facilitates writing as long as students have mastered word-processing. They indicate that there should be a pedagogical difference between how students are taught to write with and without a word processor.

3. Losing files and suffering mechanical breakdowns are extremely annoying drawbacks.

4. The computer can not understand the content, analyze logical structures or comment on paragraph development of even fairly short text.

5. Higgins (1988) agrees that while the computer can process the information, it does not have the capacity to understand the questions it asks. Also it can not know the reasons for the learners' right or wrong answers.

6. The computer can not modify its responses according to students' mood, personal interest or motivation.

7. Computers are limited by the imagination of the people who code and write software.

8. Another disadvantage Daiute (1984 in Rodrigues & Rodrigues, 1986) notes is that word-processing students tend to produce garbage in their first drafts since they know that revision will not be difficult. Holstein (1987, p. 8) states that "working at a computer does not absolve you of responsibility for careful proofreading, revision, correction; if anything, it enhances that responsibility".

Rodrigues and Rodrigues (1986) mention that although teachers and schools believe the computer to be worth while, the computer still serves originally as a supplement to what is being done in the classroom rather than as a tool that enhances student learning or alters the teaching environment. Rodrigues and Rodrigues also put forward several reasons for this lack of use: First, they say that publishers are afraid to compromise their main money maker, the textbook, with an unknown product, the computer disk; second, the quality of these computer programs which are mechanical drill and practice programs disappointed many teachers who expected more powerful and recursive programs.

Cautions Concerning Using Word Processing in Teaching Writing

Any potentially beneficial properties of the computer can also have potential drawbacks, therefore, the degree of use of the computer in writing class in an ESL setting will be determined by the nature of the users and the circumstances of use, rather than directly by the attributes of the computer (Pennington, 1991). In order to be able to make good use of the medium, it is necessary to understand the factors that influence success or lack of success under different circumstances.

Researchers suggest that preliminary research studies indicate that writers are likely to benefit from using microcomputers if the following five important points are born in mind.

1. The microcomputer serves as an aid, it is not an alternative to the teacher. So the writing teacher plays a role as collaborator and audience, as facilitator and as assignment-maker (Sommers, 1985).
2. The teacher should be aware that writers learn to write holistically so microcomputers should be used to enhance this holistic sense of discourse (Sommers, 1985).
3. "Software which concentrates exclusively upon sub skills or isolates them prematurely, which neglects or fragments the holistic processes involved in writing and which teaches grammar prescriptively while purporting to teach writing is unacceptable because it does not teach writers how to write" (Sommers, 1985, p. 8).
4. Rodrigues and Rodrigues (1986) emphasize that writing teachers should be comfortable with the computer to avoid presenting it to students as a fancy typewriter. They also note that familiarity with the word processor allows teachers to maintain the focus on writing rather than on the skills of word-processing, and to anticipate some of the changes that word-processing will make in classroom activities.
5. Piper (1987 cited in Pennington 1991, p. 81) concludes that "the effectiveness of computer-based writing aids may depend on the particular use to which the computer is put, the circumstances of use, and the type of student working at the computer". Phinney (1989 cited in Pennington & Brock 1991) agrees with Pennington that without proper instruction in using the computer to facilitate the writing process, from prewriting to revision, the computer alone can not change writing behavior in naive writers.

As Edwards (1987) states "the flexibility of the word processor can be good or bad news, since it can sometimes multiply the choices a writer faces indefinitely, temporarily freezing the process in its tracks" (p. 13). However, he agrees that the benefits of composing with a word processor far overweigh the potential hazards. In

sum, the physical ease of writing on computers, including typing facility, text manipulation functions, and information storage and retrieval features, combined with psychological attributes engendered in the user, produce a potentially more engaging and ultimately more effective writing process (Pennington, 1996).

CHAPTER 3 METHODOLOGY

Introduction

The assumption that the computer can promote the efficiency of writing courses by enriching the quality of teaching and learning was the impetus for this research study. This study focused on word-processing capabilities of the computer as an aid to writing instruction, in particular for revising and editing skills. The idea of focusing on writing skills derives from the importance given to writing in academic studies. As another focus, the study investigated if using the computer in writing class makes any changes in students' attitude -positive or negative response- toward writing, revising, and editing. The study attempted to find the answers to the following research questions.

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop revision skills?

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop editing skills?

- Do students' attitudes toward writing improve as a result of learning and using word-processing?

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop a positive attitude towards revising?

- Does using the word-processing capabilities of the computer as an aid in writing classes help students develop a positive attitude towards editing?

Subjects

A secondary school second year class of twenty-two students took part in this study. The subjects were all Turkish students learning English as a foreign language at Özel Bilkent Lisesi (ÖBL). ÖBL is a private English medium secondary school on the campus of Bilkent University covering pre-graduation years of prep grade, grade one, grade two and grade three. The students had been attending ÖBL for three years at the time of the study. Their ages varied from twelve to fifteen years old. Eleven randomly selected students from the group were the subjects in the experimental group (word processing group) who worked on the computer in their writing classes for the purpose of this study. The other eleven students were the subjects in the control group (pen and paper group) who used pen and paper in their writing classes as they had previously. All of the subjects were of similar competence and performance in English as determined by their school. They had achieved an intermediate level of academic proficiency in English at the time of the study. All of them were proficient in word processing at the beginning of the study, though one of them reported his typing to be slow.

Instruments

For this research two types of instruments were used; questionnaires and writing tests -- pre- and post tests. Prior to the study, all twenty-two subjects were given the first attitudinal questionnaire (Appendix A) and a pre test as a basis for the study. Following the study another questionnaire was administered to the word processing

students. Furthermore, a post test which was parallel to the pre test was given to all twenty-two students.

Questionnaires

The first questionnaire (see Appendix A) consisted of nine items that were directly relevant to students' experience and highlighted the following four aspects:

1. students' attitudes toward writing
2. students' attitudes toward editing
3. students' attitudes toward revising
4. students' attitudes toward using the computer

The second questionnaire (see Appendix C) was parallel to the first questionnaire but aimed at exploring possible changes in the word processing students' attitudes toward writing, revising, and editing based on using the computer in writing classes. In the questionnaires (see Appendices A and C), there were five types of questions: ranking type of questions, multiple choice questions, Yes/No questions and one open-ended question. The topics of the questions can be listed as follows: Language skills in order of difficulty of learning, language skills in order of usefulness, language skills in order of enjoyment, attitudes toward writing class, hardest and easiest things about writing, attitudes toward the computer class, experience in typing, and problems in using the computer in writing classes.

Pre and Post Tests

The pre test, which was in pen and paper form for both control and experimental groups, consisted of two sections. In the first section students were required to edit a given text titled "Wild and Beautiful" (see Appendix E) for grammar, spelling, punctuation, and capitalization. The text contained four deliberate mistakes in each category. In the second section, students wrote a pen and paper essay on "Cloning". They wrote a rough draft of the essay and then revised it. At the end of the 16-hour-treatment, both the computer and the pen and paper students were given a post test which was parallel to the pre test. The post test, which was in pen and paper for the control group and on the word processor for the experimental group, consisted of two sections: the first part required students to edit a text titled "Nobody believed it was possible" (see Appendix F) for grammar, spelling, punctuation, capitalization. As in the pre-editing test the text contained four mistakes of each type. In the second part of the post test, students wrote an essay about "Using Animals in Experiments". They wrote a rough draft of the essay and then revised it. The pen and paper post test responses were put onto the computer so that the post tests of both groups were word-processed and similar in appearance prior to judging.

Software Used in the Experiment

The experimental subjects all used Macintosh Word 5.1 software during the investigation. The reason for selecting this software was that it was the word processing program most readily available at ÖBL, and also is a program noted for its simplicity

and ease of use. It has numerous features such as a spell checker, thesaurus, cut and paste, insert, delete, recopy, find, replace, block move, and delete commands which it was felt are likely to encourage students to write freely, revise more, and experiment with their ideas in the target language on the screen and ultimately in hard-copy versions of their writing.

Procedure

The study was a mix of descriptive and quasi-experimental research designs. Data were collected through two questionnaires and pre- and post tests. The class of twenty-two students was randomly divided into two groups. This was done using the numbered attendance list. The eleven odd-numbered students were assigned to the word processing group, and the eleven even-numbered students were assigned to the pen and paper group.

Administration of the First Questionnaire

The first questionnaire was administered to all twenty-two subjects to assess students' attitudes toward writing, editing, revising, and the computer. Before the actual administration, the questionnaire was piloted on five students from another second year class from the same school who were said to be of similar competence both in English and in using the computer. It was tested for ambiguous questions, unclear instruction, repetitiveness, questions leading to bias and timing. After the piloting, necessary changes were made or items replaced. Timing was adjusted accordingly. The

questionnaire was translated into Turkish in order not to lead to misunderstandings which could effect the result of the study (see Appendix B for a copy of the first questionnaire in Turkish). Hughes (1988) justified giving a questionnaire in the students' native language after his experience in an English medium university in Turkey. He states that for the purpose of his study a questionnaire was given in English because it was thought that it would be inappropriate to give it in Turkish. However, he points out that the questionnaire was largely incomprehensible to the students for whom it was intended. Hughes' experience led the researcher to give the questionnaire in Turkish. The respondents were given ample time to reflect on each question before they answered the questions. Students were told that their answers on the questionnaire would not be shared with their instructors or effect their grades.

Orientation Session

The word processing subjects all received a two-hour orientation and training session on Word 5.1 which covered the basic features of the program that would be useful for writing compositions, such as deleting text, inserting text, moving text, using the thesaurus and spell checker, and saving completed work. Since the students already had a computer class, and thus were used to typing, they did not need more than two hours of orientation. At the conclusion of this two hour session, they expressed confidence in their ability to use the program.

Administration of the Pre Test

As a second step students, both the experimental and control group, were given a pen and paper writing pre test. In the pre test they were required to accomplish two tasks. The first one was editing a text. Students were given a text called "Wild and Beautiful" (see Appendix E) and were asked to edit the text for grammar, punctuation, capitalization, and spelling. There were four mistakes to be corrected from each category, however, students were not informed about the number of the mistakes. However, they were informed about the types of mistakes they needed to look for. The students were to find the mistakes and correct them. The text was chosen according to the students' interest and level of proficiency in English. It was pilot tested on five students from another class who were of similar competence and performance in English. The time given to the students for editing the text (15 minutes) was suggested by the teacher, and pilot testing proved it to be sufficient. The second part of the pre test required students to write a rough draft of an essay on "Cloning", discussing its pros and cons. The topic was suggested by one of the students and was chosen as the title of the essay after voting. Before students started writing, they brainstormed as a whole class and came up with the following ideas that were written on the board:

copy people/animals/plants

helpful for scientists

clone animals for experiments

could lead cures for diseases

could help farmers

against God

against law of nature

could help endangered animals

copy important people

It was expected that all students could write an essay on the topic since brainstorming gave them enough ideas to write about. At the end of the first period of the two- hour- session, students' first drafts were collected and photocopied by the researcher, who then returned the photocopies with instructions to the students to revise their composition in class in the second period. Students were informed that the second draft of their works would be reported and counted as part of their grades. When students were finished with the revised drafts, they were collected to be marked.

The twenty-two compositions on the same topic written by students of the two groups were collected and mixed. Three raters, one native and two non-native speakers of English, marked the essays. The native speaker was the English teacher of the subjects. Non-native speaker raters were instructors from Çukurova University, YADIM.

Training Session on the Use of the Scoring Scale

The pre- and post tests were scored by two non-native and one native speakers. The raters did not get any training on scoring the editing tests since it was a test which required objective marking. The raters were provided with answer keys. For scoring

the essays, a training session was conducted before the essays were evaluated to insure a high rater reliability. In the training session raters were given sample essays -- students' previous essays-- and were asked to score them using the analytical scale prepared and used by Çukurova, YADIM. The marking scale (see Appendix G) consisted of four components: grammar, content and style, coherence and organization and vocabulary. The raters gave individual marks for each component. The scale for each component was 0 to 4. The scores given to essays independently by the three raters were then compared with each other and a discussion was done on the expected criteria. Finally, ten essays written previously by students were used to let the three raters practice the use of the marking scheme. Samples were read by each rater and assigned a score. Following that, the evaluations were discussed by the raters. The samples were used to test inter-rater reliability between the three raters.

The Experiment

During the experiment, the experimental group (word processing group) took writing classes in the computer lab, whereas, the control group (the pen and paper group) worked in their usual class-room. The students' regular writing teacher and the researcher were the writing teachers of the control group and experimental group, respectively. The instructor of the experimental group taught the students in this group in the computer lab for two hours of each week, on Friday, for eight weeks of a sixteen-week semester. In the regular computer class, prior to the first computer assisted writing class session, students were oriented concerning the use of the word-processing

functions of the computer such as the spell checker, cut and paste, insert, delete, recopy, find, replace and delete features.

Both the experimental and the control group were taught using the same writing philosophy and lessons. The process approach was the teaching method (see Appendix H for an example of the steps of the writing process that the class teacher required the students to follow). Each week, students concentrated on a different topic of interest to write about. The topics were chosen in group discussion by all twenty two subjects. The complete list of these topics is included as Appendix I. Each composition was completed as two sequential drafts over a two-hour session. When they had a promising piece, they had a conference with a friend using a conference response sheet. They then revised their writing using the conference sheet their friend had completed (see Appendix J for a copy of conference sheet). When they revised their writings and thought their essays were clear to the reader, they handed the essays to a friend to have them edited for grammar, word choice, and mechanics. After they had their writings edited by a friend, they made the final changes and gave them to the teacher. If the teacher thought an essay was not fully ready, she gave it back to the student and asked him or her to revise the piece on their own time and bring it back. The students did not get any training on using the conference or editing sheets since they had been using them for some time before this experiment.

Administration of the Post Test

At the end of the 16-hour treatment, students were given a post test which again required the students to edit a text and to write an essay. The experimental group students had the test on the computer whereas the control group students used pen and paper. The text for editing (see Appendix F) was again chosen on the basis of the students' proficiency level and interest and was pilot tested on five students from another second year class who were at similar proficiency level as the subjects in this study. The topic of the editing text was "Nobody had believed it was possible". Students were asked to edit the text for grammar, punctuation, capitalization, and spelling. Again there were four errors of each kind. They were to find the mistakes and correct them. They were given fifteen minutes to finish editing. For the second part of the test, students wrote a rough draft of an essay on "Using animals in experiments" discussing pros and cons. The topic was suggested by one of the students and was chosen as the title of the essay after voting. It was thought to be proper topic for the post test since it was somewhat parallel to the pre test. A two-hour-session was dedicated to the post test (one period for the first draft, one period for the second draft). After the students had finished their first drafts, the drafts of the pen and paper group were collected and photocopied and then were returned to the students to write the second drafts. The word processing students printed out their first drafts and handed in the hard copies. Then all students revised their pieces before handing them to the instructors. The compositions (both first and second drafts) of the pen and paper group were typed onto the computer by the researcher with no editing or other changes made. All the compositions to be

marked by the raters (compositions of both experimental and control group) were randomly arranged with no indication of groups in order to avoid bias in assessment. The first drafts and the second drafts of the two groups were marked by the raters of the pre test according to the same scale used in the pre test. Ratings were compared to determine which group had superior performance in editing and revising in the two different writing environments.

Administration of the Second Questionnaire

After the treatment, the word processing subjects were given the second questionnaire (see Appendix C) which was parallel to the first questionnaire. The first part of the second questionnaire was the same as the first part of the first questionnaire. The second part contained some additional questions directly related to the experience of using the computer in the writing class and which aimed to explore possible differences in the computer students' attitude toward writing, editing, and revising based on using the computer in the writing class. Like the first questionnaire, the second questionnaire was administered in Turkish. The second questionnaire is included as Appendix C and its Turkish version is included as Appendix D.

Data Analysis

This study was both descriptive and experimental. Data for the study were gathered through two types of instruments: questionnaire and pre- and post test. The questionnaires were designed to investigate students' attitudes toward writing, editing,

revising, and using the computer before and after the experiment. Data gathered through questionnaires were analyzed employing the descriptive statistics of mean scores, standard deviations, frequencies and percentages. These statistics formed the baseline data for the comparison of the control and the experimental groups.

To determine if there were statistically significant differences in the pre tests and post tests of the two groups, first the scores of the students on pre- and post tests were found and means computed. Then differences between the mean scores of the two groups were analyzed using t-tests. In the following chapter, data analysis is presented in detail.

CHAPTER 4 RESULTS OF THE STUDY

Overview of the Study

This study aimed to test the effectiveness of utilization of the computer in writing classes to enhance revising and editing skills. Furthermore, the study sought to determine if using the computer in writing classes makes any changes in students' attitudes --negative or positive response-- towards writing in general, and revising and editing in particular. Twenty-two second year secondary school students were involved in this study. Eleven randomly selected students were the subjects in the experimental group (the word processing group) who worked on the computer in their writing classes for sixteen hours over two months for the purpose of this study. There were also eleven students in the control group (the pen and paper group) who during the same two month period used pen and paper in their writing classes as they had previously. The study employed two different types of data collection instruments: (a) pre-and-post-tests and (b) questionnaires.

For this period both groups of students wrote about a selected set of topics during each two-hour session (see Appendix I for the list of the topics). In each session, they first wrote rough drafts on a given topic, had a conference with a peer using a conference sheet (see Appendix J for a copy of the conference sheet), wrote a second draft considering the conference sheet, asked a friend to edit their writing and handed the final draft to the teachers (the class teacher and the researcher). Subjects were given a pre-test which required them to edit a text for grammar, punctuation, spelling, and capitalization, and also which required them to write a first and a second draft of an

essay on "Cloning". After the treatment all subjects were given a post-test which was parallel to the pre-test. They were given a text which had mistakes in it and were asked to edit it for grammar, punctuation, capitalization and spelling. They were then asked to write a first and a second draft of an essay on "Using Animals in Experiments". The pre- and post-test mean scores of each of the two groups were compared and the gain scores for each group were calculated.

To determine the effects of the computer writing classes on students' attitudes towards writing, revising, and editing, two questionnaires were given to the subjects. The first questionnaire was designed to determine subjects existing attitudes towards writing, revising, and editing. It was administered to all the twenty-two subjects, both pen and paper and word processing groups, prior to the experiment. There were two principal parts in the questionnaire. The first part of the questionnaire gathered information about students' attitudes towards writing, revising, and editing whereas the second part dealt with students' attitudes towards using computers.

The second questionnaire was administered only to the word processing group following the experiment. It was designed to determine possible change in students' attitudes towards writing, revising, and editing based on using the computer in the writing class. The first part of this questionnaire was the same as the first questionnaire which dealt with students' attitudes toward writing, revising, and editing. The second part was directly related to students' experience in using the computer in writing classes.

Overview of the Analytical Procedures

As previously explained, the subjects were administered pre-tests and post-tests involving editing tasks as well as essay (revising) tasks on two different but similar topics. The editing test was graded objectively and the essays were graded analytically by one native and two non-native teachers of writing. The effects of the word processor on student revising and editing skills were determined through a series of t-test analyses of the pre- and post-test mean scores of the two groups.

In the questionnaires (see Appendices A and C), there were five types of questions. The question types and their corresponding numbers in both first and second questionnaires are as follows:

Table 3

Categories of questions

Categories	FQ	SQ
Ranking type of questions	1,2,3	1,2,3,7,8
Multiple choice questions	4,5,6,7,9	4,5,6,9
Yes/No questions	8a	
Open-ended questions	8b	10

Note. FQ= First questionnaire SQ= Second questionnaire

As seen in Table 3, in the first questionnaire, there were three ranking type of questions, five multiple choice questions, one Yes/No question and one open-ended question. In the second questionnaire, there were five ranking type of questions, four multiple choice questions, and one open-ended question. For ranking type questions, the

subjects ranked the language skills in order of importance, level of difficulty, usefulness, and enjoyment and problematic usage. Most of the data collected through questionnaires were analyzed quantitatively and presented in tables. For ranking questions, responses were given 1 to 4 (from the most difficult-the least difficult; the most useful for school-the least useful for school; the most enjoyable-the least enjoyable). The responses to ranking type questions were analyzed by calculating mean scores and standard deviations, to provide a general idea of overall response. The multiple choice and Yes/No questions were analyzed by calculating the frequencies and percentages of responses to each response alternative. The results were then displayed in tables to enable comparison of the data from the two different questionnaires. Questions five and six both in the first and the second questionnaires were treated as multiple choice questions. In these questions, students reported what adjective(s) best described their writing class (question 5), and what they considered the hardest and easiest things about writing (question 6). More than one response was possible for both these questions. The responses to these questions were analyzed both in terms of response means and frequencies.

Analysis of the Data

In this section of the chapter, the results obtained through the analysis of data from all the instruments are reported. The organization of the discussion is in the following order: (a) the results of pre and post editing tests; (b) the results of the pre and post revision tests; (c) the results from the two questionnaires. This final section

includes the results from the first questionnaire that was given to both groups and a comparison of the results from the word processing group's responses to the first and the second questionnaire.

Analysis of Pre and Post Editing Tests

It was hypothesized that using the computer in writing classes would increase student success in editing. To determine whether there was any difference caused by using the word processor during the eight-week, sixteen-hour treatment period, the pre- and post-test mean scores in editing for each of the two groups were computed and compared (Table 4).

Table 4

Pre and Post Editing Test Mean Scores and Standard Deviations

	Pre-test		Post-test	
Group[a]	M	SD	M	SD
PPG	6.45	3.5	9.00	4.58
WG	6.63	2.37	12.09	4.03

Note. PPG = The pen and paper group, WG = The word processing group, [a]n = 11 for each group, Possible score = 16

As seen in Table 4, in the pre-test the two groups were similar in proficiency in editing (PPG M= 6.45 SD= 3.5, WG M= 6.63 SD= 2.37). An application of the t-test revealed no significant difference between the word processing and the pen and paper

group in the pre-test (t= 0.12; df=21; p= ns). This means that the two groups were evenly matched prior to the treatment. The mean scores in the editing section of the post-test showed that the subjects who used the word processor for editing scored higher than the ones who used pen and paper (WG M= 12.09 vs PPG M= 9). However, the t-test results comparing post-test means were not significant (t= 1.95; p< 0.10).

A t-test was run to see whether the two groups' increase between the pre- and post-tests was significant. It was found that there was no significant increase between pre- and post-tests of the pen and paper group (pre-test M = 6.45, post-test Mean = 9; t = 1.11 p< .10). On the other hand, t-test results of the word processing group showed that there was a significant increase between pre- and post-tests of the word processing group (pre-test M = 6.63, post-test M = 12.09; t = 4.06 p< .001).

Analysis of Pre and Post Revision Tests

Essays can be analyzed for organizational features, control of grammatical structures, range of vocabulary use and many other characteristics through holistic evaluation. Larsen-Freeman (1978) suggests that analytic scoring is the best to get objective and reliable results. Thus, in order to enhance objectivity and reliability, in this study the scoring of essays was done using an analytic scoring method used by Çukurova University, YADIM (see Appendix G for scoring scale). The essays were evaluated by three writing teachers, one native and two non-native English speakers. Before scoring the essays, a training session was held to increase reliability.

The inter-rater reliability level between raters was tested for each of the following pre-test the pen and paper group first draft, pre-test the word processing group first draft, pre-test the pen and paper group second draft, pre-test word processing second draft, post-test the pen and paper group first draft, post-test the word processing group first draft, post-test the pen and paper group second draft, and post-test the word processing group second draft.

A Pearson Product Moment correlation was determined for each pair of the two raters (A/B, A/C, B/C). Inter-rater reliability of the three raters in the pre-test and post-test of the word processing and the pen and paper group is shown in Table 5 below.

Table 5

Inter-rater Reliability Results Between Three Raters in the Pre and Post Revision Tests

	PRE-TEST				POST-TEST			
	FIRST DRAFT		SECOND DRAFT		FIRST DRAFT		SECOND DRAFT	
	PPG	WG	PPG	WG	PPG	WG	PPG	WG
r	.90	.92	.92	.93	.92	.90	.92	.91

Note. PPG = the pen and paper group, WG = the word processing group, r= average reliability

The reliability among the three raters in the pre-test first draft was r= .90 for the pen and paper group, r= .92 for the word processing group. In the pre-test second draft it was r= .92 for the pen and paper group and r= .93 for the word processing group. The reliability among the three raters in the post-test first draft was r= .92 for the pen and paper group, r= .90 for the word processing group. In the post- test second draft it was

r= .92 for the pen and paper group r= .91 for the word processing group. Thus, inter-rater reliability was high throughout.

A t-test was conducted to determine whether there was a significant difference between the means of the word processing students' and the pen and paper students' in revising skills. The t-test between the two groups pre-test means showed no significant difference between the experimental and the control groups before the treatment. This indicates that both groups were equivalent in revising skills before treatments (see Table 6).

Table 6

Means and standard deviations in the revision pre-test

	PRE-TEST					
Group[a]	First draft			Second draft		
	M	SD	T-value	M	SD	T-value
PPG	10.05	3.85	.53	10.96	3.52	.10
WG	10.87	3.35		11.17	3.12	

PPG = the pen and paper group, WG = the word processing group, Possible score = 20
n[a] = 11 for each group

T-test results of the revision pre-test revealed that the two groups were evenly matched prior to the treatment (first draft: t = .53; df = 21; p = ns; second draft: t = .10; df = 21; p= ns). Post-test means and standard deviations for both treatment groups are shown in Table 7.

Table 7

Means and Standard Deviations in the Revision Post Test

	POST-TEST					
Group[a]	First draft			Second draft		
	M	SD	T-value	M	SD	T-value
PPG	11.6	3.26	1.25*	12.84	2.76	2.86*
WG	13.27	3		16.59	3.25	

PPG = the pen and paper group, WG = the word processing group, Possible score = 20

[a]n = 11 for each group, *p< .01.

As seen in the Table 7, the word processing students scored higher in the post-test first draft (the pen and paper group M= 11.6 SD= 3.26, the word processing group M= 13.27 SD= 3) but t-test analysis showed no significant difference between the word processing students and the pen and paper students (t= 1.25; df= 21; p=ns). However, results showed that there was a significant difference in mean scores on the second draft between the word processing and the pen and paper group (the word processing group M = 16.59 SD = 3.25; the pen and paper group M = 12.84 SD = 2.76). T-test analyses of the second drafts confirmed that there was a significant difference between the two groups in the second draft after the treatment (t= 2.86, df= 21, p< .01).

Questionnaire Analysis

To analyze the data in the questionnaires, first the questions were categorized according to their topic. Thus, the following categories (Table 8) were generated:

Table 8

Categories of questions

Categories	FQ	SQ
Language skills in order of difficulty of learning	1	1
Language skills in order of usefulness	2	2
Language skills in order of enjoyment	3	3
Attitudes toward writing class	4,5	4,5
Hardest and easiest things about writing	6	6
Attitudes toward the computer class	7	-
Experience in typing	8,9	-
Benefits of word processing to the written product	-	7
Problems in using the computer in writing classes	-	8
Attitudes toward using the computer in writing class	-	9,10

Note. FQ = First questionnaire SQ = Second questionnaire

Data gathered through questionnaires were analyzed according to these categories.

Category 1: Language skills in order of difficulty of learning

This section first presents the data concerning all 22 subjects' beliefs relevant to the difficulty level of language skills according to responses to the first questionnaire (Table 9). Secondly, it presents the data concerning the experimental group's (the word

processing group -WG) beliefs relevant to the difficulty level of language skills comparing responses to both the first and the second questionnaire, that is to say, before and after the experiment (Table 10). Table 9 deals with question 1 in the first questionnaire of the pen and paper group (PPG) students and the word processing group (WG) in which the students were asked to rank the four language skills in order of difficulty of learning. Mean scores (M) and their standard deviations (SD) are shown below.

Table 9

Word Processing and Pen and Paper Students' Ranking of Language Skills in order of Difficulty: First Questionnaire

	Group[a]			
Language skills	WGSs		PPGSs	
	M	SD	M	SD
Listening	3.00	1.09	3.00	1.09
Speaking	3.18	0.98	2.27	1.00
Reading	2.54	0.82	2.36	0.67
Writing	1.27	0.47	1.45	0.68

Note. PPGSs = the pen and paper group students,

WGSs = the word processing group students, [a]n = 11 for each group,

Rank Means= The subjects ranked the items from 1 (the most difficult) to 4 (the least difficult)

As can be seen in Table 9, both PPG and WG students think writing is the most difficult skill (PPG M= 1.45, WG M=1.27). The standard deviation of the responses

from PPG is .68 and from WG is .46 indicating that both PPG and WG students are homogeneous in their answers. In Table 10, WG students' responses to question 1 in the first questionnaire and question 1 in the second questionnaire are compared.

Table 10

Word Processing Students' Ranking of Language Skills in order of Difficulty: First and Second Questionnaires

	Questionnaire			
Language skills	First (N= 11)		Second (N= 11)	
	M	SD	M	SD
Listening	3.00	1.09	3.00	1.00
Speaking	2.27	1.00	2.27	0.90
Reading	2.36	0.67	2.72	1.19
Writing	1.45	0.68	2.45	1.36

Note. Rank Means= The subjects ranked the items from 1 (the most difficult) to 4 (the least difficult)

As presented in Table 10, in the first questionnaire the word processing subjects thought that the writing skill is the most difficult skill, whereas, in response to the second questionnaire administered after the experimental treatment, writing (M= 2.45, SD= 1.36) is seen as comparable in difficulty to the other language skills and, in fact, is seen as easier than speaking (M= 2.27).

Category 2: Language skills in order of usefulness

In this category, the researcher aimed to find out the subjects' opinion about the language skills in terms of usefulness for school. In Table 11, the two groups' responses to question 2 in the first questionnaire which asked the students to rank the four language skills in order from the skill they think the most useful to the skill they think least useful for school are presented.

Table 11

Word Processing and Pen and Paper Students' Ranking of the Language Skills in order of Usefulness for School: First Questionnaire

	Group[a]			
	PPGSs (N= 11)		WGSs (N= 11)	
Language skills	M	SD	M	SD
Listening	3.09	1.04	2.90	1.04
Speaking	3.09	0.94	3.27	0.90
Reading	1.90	0.83	1.81	0.87
Writing	2.54	0.82	2.63	0.67

Note. PPGSs = the pen and paper group students, WGSs= word processing group students, [a]n = 11 for each group, Rank Means= The subjects ranked the items from 1 (the most useful) to 4 (the least useful)

As seen in Table 11, both groups agreed that reading was the most important school skill (PPG M= 1.90 SD= 0.83 ; WG M= 1.81 SD= 0.87) and that writing was the

second most important school skill (PPG M= 2.54 SD= 0.82 ; WG M= 2.63 SD= 0.67). In Table 12, the responses of WG students to the second question in both the first and the second questionnaire are presented.

Table 12

Word Processing Students' Ranking of Language Skills

in order of Usefulness for School: First and Second questionnaires

	Questionnaire			
Language skills	First (N= 11)		Second (N= 11)	
	M	SD	M	SD
Listening	2.9	1.04	3.18	0.75
Speaking	3.27	0.9	3.45	0.82
Reading	1.81	0.87	1.63	0.8
Writing	2.63	0.67	2.27	0.64

Note. Rank Means= The subjects ranked the items from 1 (the most useful) to 4 (the least useful)

As presented in Table 12, the word processing group's answer to the second question in the first and in the second questionnaires are consistent. In the second questionnaire they consider reading to be the most useful (M= 1.63 SD= 0.8) and writing to be the second most useful skill for school (M= 2.27 SD= 0.64).

Category 3: Language skills in order of enjoyment

The third question in both the first and the second questionnaire asked the subjects to rank the language skills from the most enjoyable to the least enjoyable. Table 13 displays responses of both PPG and WG students to question three in the first questionnaire. Table 14 displays responses of WG students to question three in the first and in the second questionnaire.

Table 13

Word Processing and Pen and Paper Students'

Ranking of Language Skills in order of Enjoyment:

First questionnaire

	Groups[a]			
Language skills	PPGSs		WGSs	
	M	SD	M	SD
Listening	2.09	1.13	2.45	0.93
Speaking	1.54	0.52	1.09	0.3
Reading	2.9	0.94	2.81	0.4
Writing	3.45	0.82	3.63	0.82

Note. PPGSs= the pen and paper group students,

WGSs = the word processing group students, [a]n = 11 for each group,

Rank Means= The subjects ranked the items from 1 (the most enjoyable) to 4 (the least enjoyable)

As can be seen in the table, both PPG and WG students agree that writing is the least enjoyable skill (PPG M=3.45; WG M= 3.63). Standard deviation of the responses is 0.82 for both PPG and WG students, this suggests that the subjects are very consistent in their answers. In Table 14, WG students' responses to question 3 in the first questionnaire and question 3 in the second questionnaire are compared.

Table 14

Word Processing Students' Ranking of Language Skills in order of Enjoyment: First and Second Questionnaires

	Questionnaire			
	First (N= 11)		Second (N= 11)	
Language skills	M	SD	M	SD
Listening	2.45	0.93	3.09	1.13
Speaking	1.09	0.3	2.18	1.07
Reading	2.81	0.4	2.36	1.36
Writing	3.63	0.82	2.45	0.82

Note. Rank Means= The subjects ranked the items from 1 (the most enjoyable) to 4 (the least enjoyable)

As shown in Table 14, the ranks that the word-processing students gave for enjoyment of skills changed. In the first questionnaire they reported writing to be least enjoyable. However, in the second questionnaire they reported it to be second least enjoyable (the least enjoyable is listening; listening rank= 3.09, writing rank= 2.45).

The rank for writing is comparable in enjoyment to reading and speaking in the second questionnaire response.

Category 4: Students' attitudes, positive or negative responses, towards writing class (Question 4,5- in first and second questionnaire)

In the first and the second questionnaire students were asked how much they liked writing classes (question 4) and also asked to specify what adjectives might go with writing classes (question 5). Question 5 provided students with six adjectives and asked them to choose two adjectives that best describe writing. Tables 15-16 and Tables 17-18 display the data gathered from question 4 and question 5, respectively. In Table 15, both PPG and WG students' responses to question 4 in the first questionnaire are displayed. In Table 16, WG students' responses to question 4 in the first and the second questionnaire are compared.

Table 15

Word Processing and Pen and Paper Students' Attitudes Towards Writing: First Questionnaire

	Group[a]	
	PPGSs	WGSs
attitudes toward writing	f (%)	f (%)
I like very much	-	-
I like somewhat	3 (27.27)	2 (18.18)
I do not like much	1 (9.09)	1 (9.09)
I do not like at all	7 (63.63)	8 (72.72)

Note. PPGSs= the pen and paper group students, WGSs= word processing group students, [a]n = 11 for each group

As seen in Table 15, the majority of the class (7 (63.63%) of PPG, 8 (72.72%) of WG) indicated that they did not like writing at all , only 3 (27.27%) of PPG and 2 (18.18%) of WG like it somewhat, and 1(9.09%) of both PPG and WG students do not like it much. The conclusion that can be drawn from these results is that most of the students, both in PPG and in WG, have a negative attitude toward writing. Table 16 compares the results gathered from WGSs' first and second questionnaires to the same question (Question 4).

Table 16

Word Processing Students' Attitudes Towards Writing:

First and Second Questionnaires

	Group[a]	
	WGFQ	WGSQ
Attitudes toward writing	f (%)	f (%)
I like very much	-	4 (36.36)
I like somewhat	2 (18.18)	5 (45.45)
I do not like much	1 (9.09)	1 (9.09)
I do not like at all	8 (72.72)	1 (9.09)

Note. WGFQ= the word processing group first questionnaire, WGSQ= the word processing group second questionnaire, [a]n = 11

As shown in Table 16, in the second questionnaire four (36.36%) of WG students reported that they liked writing very much, five (36.36%) of them reported they liked writing somewhat, one (9.09%) noted that they did not like writing very much, and one (9.09%) of them noted that they did not like writing at all.

This is a fairly dramatic reversal of the responses given to the first questionnaire. Following is the table of another question (question 5) that again asked about students' attitudes toward writing. Question 5 in both questionnaires provided students with six adjectives and asked them to choose two adjectives that best describe writing. In Table 17, both PPG and WG students' responses to question 5 in the first questionnaire are

displayed. In Table 18, WG students' responses to question 5 in the first and in the second questionnaire are compared.

Table 17

Adjectives Chosen by Word Processing and Pen and Paper Students to Describe Writing: First Questionnaire

	Group[a]			
	PPGFQ		WGFQ	
adjective	f	%	f	%
boring	7	63.63	7	63.63
fun	1	9.09	1	9.09
difficult	7	63.63	8	72.72
easy	1	9.09	3	27.27
tiring	8	72.72	8	72.72
interesting	1	9.09	1	9.09

Note. PPFQ= the word processing group first questionnaire,

WGFQ= the word processing group second questionnaire,

[a]n = 11 for each group

As seen in Table 17, the PPGSs' and WGSs' responses to question 5 are similar. Seven (63.63%) of PPG students and eight (72.72%) of WG students report writing is difficult, seven (63.63%) of both PPG and WG students think that it is boring, eight (72.72%) of both WG and PPG students think it is tiring, one (9.09%) of PPG students

and three (27.27%) of WG students think it is easy, one (9.09%) subject from each group thinks it is fun, and one (9.09%) subject from each group thinks it is interesting. To sum up, the majority of both of the groups think that writing is difficult, tiring, and boring. Table 18 presents WG students' response to the same question before and after the treatment.

Table 18

Adjectives Chosen by Word Processing Students to Describe Writing: First and Second Questionnaire

	Group[a]			
	WGFQ		WGSQ	
adjective	f	%	f	%
boring	7	63.63	2	18.18
fun	1	9.09	10	90.9
difficult	8	72.72	7	63.63
easy	3	27.27	4	36.36
tiring	8	72.72	5	45.45
interesting	1	9.09	2	18.18

Note. WGFQ= the pen and paper group students first questionnaire, WGSQ= the word processing group students second question, [a]n = 11 for each group

As presented in Table 18, WG subjects attitudes toward writing class changed during the treatment. In the second questionnaire, seven (63.63%) of WG subjects reported that writing was difficult, four (36.36%) of them reported that it was easy, five (45.45%) noted that it was tiring, two (18.18%) noted that it was interesting, two (18.18%) noted that it was boring and ten (99.09%) of them noted that writing was fun. Whereas in the first questionnaire seven (63.63%) of them reported writing was boring, eight (72.72%) of them reported it was tiring, eight (72.72%) of them reported it was difficult, three (27.27%) of them noted it was easy, one (0.09%) of them noted it was fun and one (0.09%) of them noted it was interesting. In sum, after the treatment WG students feel that writing is still difficult but fun.

Category 5: Hard and easy things about writing

In this category, the students are asked to report what they think are the hard and easy things about writing (question 6 in the first and the second questionnaires). Students were asked to indicate two hard and two easy things from a given list of writing sub-skills. Table 19 summarizes the results obtained from both the PPG and WG students. In Table 20, WG students' response to question 6 in the first and the second questionnaires are compared.

Table 19

Hardest and Easiest Things about Writing for Pen and Paper and Word Processing Students: First Questionnaire

	Easy	Hard
PPGSs	f (%)	f (%)
Re-writing	-	9 (81.81)
Editing	3 (27.27)	5 (45.45)
Thinking of ideas	4 (36.36)	2 (18.18)
Vocabulary choice	2 (18.18)	1 (9.09)
Punctuation	6 (54.54)	-
Grammar	5 (45.45)	1 (9.09)
Putting ideas in order	2 (18.18)	4 (36.36)
WGSs		
Re-writing	2 (18.18)	6 (54.54)
Editing	1 (9.09)	6 (54.54)
Thinking of ideas	3 (27.27)	4 (36.36)
Vocabulary choice	4 (36.36)	1 (9.09)
Punctuation	6 (54.54)	-
Grammar	5 (45.45)	1 (9.09)
Putting ideas in order	1 (9.09)	4 (36.36)

Note. PPGSs= the pen and paper group students,

WGSs= word processing group students, [a]n = 11 for each group

As seen in Table 19, the majority of PPG students think that re-writing is the hardest aspect of writing. WG students think that both editing and re-writing are the

hardest thing about writing. Table 20 displays the WG students response to the same question in questionnaire 1 and 2.

Table 20

Hardest and Easiest Things about Writing for Word Processing Students: First and Second Questionnaires

	Easy	Hard
Group	f (%)	f (%)
WGFQ		
Re-writing	2 (18.18)	6 (54.54)
Editing	1 (9.09)	6 (54.54)
Thinking of ideas	3 (27.27)	4 (36.36)
Vocabulary choice	4 (36.36)	1 (9.09)
Punctuation	6 (54.54)	-
Grammar	5 (45.45)	1 (9.09)
Putting ideas in order	1 (9.09)	4 (36.36)
WGSQ		
Re-writing	6 (54.54)	1 (9.09)
Editing	3 (27.27)	4 (36.36)
Thinking of ideas	3 (27.27)	3 (27.27)
Vocabulary choice	-	6 (54.54)
Punctuation	7 (63.63)	-
Grammar	3 (27.27)	2 (18.18)
Putting ideas in order	-	6 (54.54)

Note. WGFQ= the word processing group first questionnaire, WGSQ= the word processing group second questionnaire [a]n = 11

As presented in Table 20, at the beginning of the study six of the WG students reported editing as one of the hardest thing about writing, however, after the sixteen-hour treatment, only four of them reported that it was the hardest thing about writing. Also, prior to the study six of WG students reported that revising is one of the hard things about writing, whereas, at the end of the study only one of them had this opinion. It is interesting to note that vocabulary choice and putting ideas in order are now in greater focus as indicated by the difficulty scores. This suggests that as re-writing and editing become more automatic, writers can focus their attention on other priorities.

Category 6: Attitudes toward the computer

In this category, all 22 students' attitudes toward the computer are indicated. The question was a multiple choice question. Below is the table that displays the students' responses to the question.

Table 21

Attitudes of Word Processing and Pen and Paper Students Toward the Computer: First Questionnaire

	Groups[a]	
	PPGSs	WGSs
Attitudes toward the computer	f (%)	f (%)
I like very much	6 (54.54)	6 (54.54)
I like somewhat	3 (27.27)	4 (36.36)
I do not like much	1 (9.09)	1 (9.09)
I do not like at all	-	-

Note. PPGSs = the pen and paper group students,

WGSs= the word processing group students, [a]n = 11 for each group

As Table 21 displays, six of PPG and six of WG students like the computer very much, three of PPG and four of WG students like it somewhat and one of PPG and one of WG students do not like it very much. One of the PPG students did not answer this question.

Category 7: Experience in typing

Here, the researcher aimed to determine if the subjects had used a computer before they started to use one at school (First questionnaire, question 8, item a). A follow-up question determined each student's length of experience with computers prior to their school experience (item 6). The results are displayed below in Tables 22 and 23.

Table 22

Students who used the computer previously

	Groups	
	PPGSs	WGSs
	f (%)	f (%)
Yes	8 (72.72)	9 (81.81)
No	3 (27.27)	2 (18.18)

Note. PPGSs= the pen and paper group students,

WGSs= the word processing group students

As Table 22 indicates, eight of PPG students and nine of WG students had used the computer before they started to use it at school. Table 23 displays how many years the students had used the computer before school.

Table 23

Students' previous experience in using a computer

	Groups[a]	
	PPGSs	WGSs
Years of experience	f (%)	f (%)
none	2 (18.18)	3 (27.27)
1 years	3 (27.27)	2 (18.18)
2 years	4 (45.45)	1 (9.09)
3 years	1 (9.09)	1 (9.09)
4 years	-	-
5 years	-	2 (2.18)
6 years	-	-
7 years	1 (9.09)	2 (18.18)

Note. PPGSs= the pen and paper group students,

WGSs= the word processing group students , [a]n = 11 for each group

As it is seen in the table, the average length of experience in using the computer of PPG students is about two years and of WG students is about three years. Below are the responses to a question from questionnaire one that is related to the students' level of proficiency in typing.

Table 24

Students' level of proficiency in typing

	Group[a]	
	PPGSs	WGSs
Level of proficiency	f (%)	f (%)
excellent	1 (9.09)	-
very good	1 (9.09)	4 (36.36)
fair	5 (45.45)	5 (45.45)
poor	4 (36.36)	2 (18.18)

Note. PPGSs= the pen and paper group students,

WGSs= the word processing group students, [a]n = 11 for each group

As Table 24 reveals, only one of the PPG students reported their typing skills are excellent. Furthermore, one of the PPG students, and four of the WG students reported their typing skills as very good, five of both the PPG and the WG students reported that their typing skills are fair, and four of the PPG students and two of the WG students reported that their typing skills are poor.

Category 8: Ranking of the benefits of word processing

The item in this category, question 7 in the second questionnaire, was designed to determine what benefits students think they got from word processing in writing classes. In this question, students were asked to rank the benefits of using the computer in writing classes from the most important (1) to the least important (5). The results are presented in Table 25.

Table 25

Benefits of word processing: Second Questionnaire

Item	M	SD
I write longer when I write on the computer	1.63	1.02
It makes editing easier	3.09	0.7
It makes revising easier	2.72	0.78
Thesaurus makes finding the right words easier	4.9	0.3
The spell checker lets me think about content instead of spelling mistakes	2.63	1.56

Note. Rank Means= Students ranked the items from 1 (most important) to 5 (the least important)

As shown in Table 25, subjects gave the lowest rank to "I write longer when I write on the computer" which means they think the most important benefit of word processing was that it made them write longer (M= 1.63 SD= 1.02). The subjects think that the second most important benefit of word processing is that the spell checker lets them think about content instead of spelling mistakes (M= 2.63 SD= 1.56). The third important benefit, according to the WG students, is that it makes revising easier (M= 2.72 SD= 0.78). The fourth benefit that the subjects reported was that the computer makes editing easier (M= 3.09 SD= 0.7). The subjects thought that the availability of a thesaurus was the least important benefit of using the computer in writing classes (M= 4.9 SD= 0.3).

Category 9: Problems in using the computer in writing classes

The item in this category, question 8 in the second questionnaire, sought to determine the problems subjects had while using the word processor in writing classes. Subjects were asked to rank the five problems from the most important (1) to the least important (5). The results are presented in Table 26.

Table 26

Problems Word Processing Subjects had while Using the Word Processor in Writing Classes: Second Questionnaire

Item	M	SD
Learning to type is difficult	3.09	1.22
Writing should be personal, the computer is too mechanical	2.90	1.37
Computer commands are confusing	3.27	1.55
I do not like technology	4.63	0.67
Losing files and suffering breakdowns are annoying	2.54	0.93

Note. Rank Means= Students ranked the items from 1(the most important) to 5 (the least important)

As can be interpreted from the table, subjects do not think there is a serious problem with the word processor. The most important problem was "losing files and mechanical breakdowns" with M= 2.54 SD= 0.93 (the most important problem= 1). The second lowest rank was given to "writing is personal, the computer is too mechanical", and it received a rank of M= 2.90 SD= 1.37. According to the subjects, the third problem is "learning to type is difficult" (M= 3.09 SD= 1.22). The fourth

problem is "computer commands are difficult" (M= 3.27 SD= 1.55). The problem the subjects consider to be the least important is "I do not like technology" (M= 4.63 SD= 0.67).

Category 10: Attitudes toward using the computer in writing classes

Question 9 in the second questionnaire was designed to determine the subjects' preference for writing by hand or on the computer. The question asked the subjects during what stage of writing the word processor should be used. The results are displayed in Table 27.

Table 27

Stages in Writing in which Word Processing Students Think the Computer should be Used: Second Questionnaire

Stage	WGSQ
	f (%)
For all stages	8 (72.72)
For initial stages	-
For final stages	2 (18.18)
Not at all	1 (9.09)

Note. WGSQ = the word processing group students second questionnaire

As shown in Table 27, the majority of the word processing subjects (eight out of eleven) agree that the word processor should be used for all stages of writing. Two of them think it should be used only for final drafts and only one of them thinks that it should not be used at all.

Question 10

Question 10 in the second questionnaire was an open-ended type of question. It was prepared to determine the students' impressions concerning the sixteen week experience. Nine of the eleven subjects responded to this question. The answers can be categorized as follows:

a. Writing on the computer is fun

b. I write longer when I write on the computer

c. I write quicker when I write on the computer

d. I come up with ideas quicker when I write on the computer

e. It is easy to write when I write on the computer

f. I do not like writing on the computer because I write slower when I write on the computer.

Frequencies and percentages of comments are displayed in Table 28.

Table 28

The Word Processing Students' Comments concerning Experience of Using the Computer in Writing Classes: Second Questionnaire

Categories	f	%
Writing on the computer is fun	7	63.63
I write longer when I write on the computer	3	27.27
I write quicker when I write on the computer	1	0.09
I come up with ideas quicker when I write on the computer	3	27.27
It is easy to write when I write on the computer to write	1	0.09
I do not like writing on the computer because I write slower when I write on the computer	1	0.09

Seven (63.63%) of them reported writing on the computer was fun, three (27.27%) of them wrote they wrote longer when they wrote on the computer, three (27.27%) of them noted they came up with ideas quicker when they wrote on the computer, one (0.09%) of them noted s/he wrote quicker when writing on the computer, one (0.09%) of them reported it was easy to write when s/he wrote on the computer to write. Only one of the eleven subjects (0.09%) reported that s/he wrote slower when s/he wrote on the computer since his/her typing skill was poor.

In sum, the following conclusions were reached:

- the word processing students became better at revising than the pen and paper students.

- the word processing students became better at editing than the pen and paper students

- using the word processor in writing classes helped students develop a positive attitude towards writing in general.

- using the word processor in writing classes helped students develop a positive attitude towards revising.

- using the word processor in writing classes helped students develop a positive attitude towards editing.

In the next chapter these results are discussed and implications for instruction proposed.

CHAPTER 5 CONCLUSIONS

This study has contributed to the investigation of the application of word processors to EFL composition. The study examined changes in revising and editing skills comparing two groups of students, a word processing and a pen and paper group. The study also attempted to determine the contribution of the computer to help students develop positive attitudes toward writing, revising, and editing. In this chapter, first a summary of the study is presented and then the findings derived from the study are summarized with reference to each of the research questions. Furthermore, the limitations of the study, suggestions for further studies, and pedagogical implications are discussed.

Summary of the Study

Research on the use of word processing programs in writing classes has yielded mixed results. Many researchers have argued that word processing improves writers' attitudes and increases motivation to write while facilitating revision, and editing. However, word processing has not received uniformly favorable evaluations. The initial purpose of undertaking this study was to examine specifically the effects of word processing on students' revising, and editing skills. Furthermore, the study explored whether students' attitudes toward writing, revising, and editing improve as a result of learning and using word processing.

Twenty-two secondary school second year students volunteered for the study. The subjects were randomly placed into two groups, word processing and pen and paper groups, each group contained eleven students. All students were exposed to a sixteen-hour treatment in which the word processing group used the word processor whereas the pen and paper group used traditional pen and paper instruction in their writing classes. To determine whether using the word processor would make any change in students' editing and revising skills, students were given pre- and post-tests. To increase incentive, students were told that the tests would be reported to their instructors and counted as part of their grades. Prior to the experiment, students were given a pre-test which required students first to edit a text for grammar, spelling, punctuation, and capitalization. Then, students were asked to write a first draft of an essay and then revise it. During the sixteen-hour experiment, spread over two months, students wrote about different topics during two-hour sessions every week. During each session, they first wrote a rough draft and then revised it. Following the experiment, all twenty-two subjects were given a post-test which was parallel to the pre-test. However, at this time the experimental students took the test on the computer as opposed to the control group who used pen and paper. Within group results of treatment and cross-group comparison of control and experimental group post-tests were analyzed by t-test analysis of group mean scores.

To determine whether using the word processor in writing classes would help students develop positive attitudes towards writing, editing, and revising two attitudinal questionnaires were designed. Students were told that their answers on the questionnaire

would not be shared with their instructor or affect their grades. The first questionnaire that was administered to all twenty-two subjects prior to the experiment contained two principal parts. The first part of it gathered information about students' attitudes toward writing, revising, and editing whereas the second part dealt with students' attitudes toward using word processors. The second questionnaire was administered after the experiment and was administered only to the eleven subjects in the word processing group. The first part of the second questionnaire was the same as the first questionnaire dealing with students' attitudes toward writing, revising, and editing. The second part was directly related to students' experience in using the word processor in writing classes.

In the questionnaires, there were four types of questions: ranking type of questions, multiple choice questions, Yes/No questions, open-ended questions. The questions mainly dealt with ten themes which were used to generate categories for the analysis of the data. The categories were as follows

1. Language skills in order of difficulty of learning.
2. Language skills in order of usefulness.
3. Language skills in order of enjoyment.
4. Attitudes toward writing class.
5. Hardest and easiest things about writing.
6. Attitudes toward word processor class.
7. Experience in typing.

8. Benefits of word processing to the written product

9. Problems in using the word processor in writing classes.

10. Attitudes toward using the word processor in writing classes.

Several different sets of analyses were performed on the data to answer the questions of interest in this study. The first set of analyses compared the students revising and editing skills prior to the study and after the study (analyses of pre- and post-tests). The second set of analyses -- analyses of the questionnaires-- focused on the students' attitudes toward writing, revising, and editing before and after the sixteen-hour experience of using the word-processor in writing classes. Each set of analyses was discussed in the previous chapter. In this chapter the results and conclusions will be discussed separately.

General Results Drawn from the Pre- and Post-tests

Results of Editing Tests

Findings here provide an answer to the following research question:

- Does using the word-processing abilities of the word processor as an aid in writing classes help students develop editing skills? (Research question 2)

It was hypothesized that using the word processor in writing classes would help students develop editing skills. As discussed in Chapter 2, there is adequate evidence to support the assertion that using the word processor to enhance editing skills of students is a valuable practice. In general, the results of this study favor the use of word processors in writing classes to enhance editing skills. The increase observed from the

simple inspection of the difference between word processing students' pre- and post-test scores suggests that there is a positive correlation between using the word processor in writing classes and students' editing skills. However, the t-test results show that there is no significant difference between word processing students' and pen and paper students' post test mean scores ($t = 1.95$: $p < .10$).

A t-test analysis was done to find out if there was any significant difference between WG students' and PPG students' pre and post editing tests. In comparing the means of the pre- and post-test editing scores of pen and word processing groups, there was no significant difference between pen subjects' pre- and post-test mean scores on editing ($t= 1.11$, $df= 21$, $p< .10$). However, there was a significant difference between WG students' pre- and post-tests mean scores ($t= 4.06$, $df= 21$, $p< .001$ $t= 4.06$, $df= 21$, $p< .001$). Based on the results, the following conclusion can be drawn: There is a significant correlation between using the word processor in writing classes and students' editing skills. Using the word processor in writing classes enhances editing skills of the students.

These results are also consistent with the study done by Eastman et al. (1989). Eastman et al. conducted a three-year study which examined the efficacy of micro-computers in the teaching of writing in the regular school classroom. In the study 289 students in six classes using word processors were compared with 231 students in nine classes using paper and pencil and 212 students in nine classes in a mixed treatment, using word processors as well as paper and pencil. The results showed that in the group

which used word processors exclusively, students demonstrated greater use of high-level editing than in the paper-and-pencil or mixed treatments groups.

Results of Revision Tests

The findings of the pre- and post revision tests provide an answer to the following research question:

- Does using the word-processing capabilities of the word processor as aid in writing classes help students develop revising skills? (Research question 1)

It was hypothesized that the experimental subjects would perform better at revising on the post-test because of using the word processor in writing classes during the treatment period. Results gathered from pre- and post-tests indicated that subjects who used word processing for writing became willing to revise, and thus, revised more. They engaged in more rephrasing, deleting, adding, replacing, and working which made their text clearer. Those who before the experiment took little time to revise and thus turned in work with many mistakes, became more careful and attentive to revising. They found it easier to make changes, and they did not mind taking the time to do so when they worked on the word processor. In sum, word processing subjects were better at revising compared to pen subjects. In comparing the revising post-test mean scores of the two groups, there was a significant difference noted ($t= 2.86$, $df=21$, at a $p<0.001$). Thus, the hypothesis of difference between two groups was confirmed, as the word processing group outperformed the pen and paper group in revising their own compositions.

This study supports the research done by Cohen (1986 cited in Bernhardt et al. 1992). Cohen conducted a research study in which all subjects were university students. He reports that students who used word processing made 34% more revisions on end-of-term essays than did the pen and paper students. Results of revision analysis revealed that, for all grade levels, there were more changes in essays written entirely by word processor than in those written by pen.

General Results Drawn from the Questionnaires

Two questionnaires were administered to assess students' attitudes toward writing, revising, and editing. The results gathered from the questionnaires provide answers to the following research questions:

- Do students' attitudes towards writing improve as a result of learning and using word processing? (Research question 3)

- Does using the word processing capabilities of the word processor as an aid in writing classes help students develop a positive attitude towards revising? (Research question 4)

- Does using the word processing capabilities of the word processor as an aid in writing classes help students develop a positive attitude towards editing? (Research question 5).

Questions 1, 2, 3 in the first and the second questionnaires (Appendix A, C) were designed to gather a general idea about how students view writing. Questions 4 and 5 in both the first and the second questionnaires were designed to obtain information about

students' attitudes, positive and negative feelings, towards writing classes. Question 6 in both questionnaires aimed at determining what the students consider the hardest and the easiest things about writing. Question 7 in the first questionnaire sought to determine students' attitudes towards computer classes. Question 7 in the second questionnaire, which was directly related to students experience, was asked to determine what benefits the word processor offered to the students. Question 8 in the first questionnaire was asked to see if students had previous experience in typing before they used the word processor at school and to determine years of experience in typing. Question 8 in the second questionnaire was to determine the problems students encounter in writing classes due to using the word processor. Question 9 in the first questionnaire was another question to determine students' typing skill. Question 9 in the second questionnaire aimed to determine at what stages of writing the subjects think the word processor should be used. The tenth question in the second questionnaire asked the students to write their ideas about the experiment in using the word processor in writing classes.

In the next section questions that are related to each other to answer specific research questions will be discussed together. Question 1, 2, 3, 4, and 5 in both questionnaires address the third research question. Question 6 in both questionnaires and question 7 in the second questionnaire address the fourth and the fifth research questions. Question 7, 8, and 9 in the first questionnaire will be dealt with separately since they were designed to provide a baseline for the research. Question 8, 9, and 10 in the second questionnaire will also be discussed separately.

Conclusions reached from questions 1, 2, 3, 4, and 5 in both questionnaires

Question 1, 2, 3 in the first and the second questionnaires sought to determine how students view writing, and questions 4 and 5 were designed to gather information about students' attitudes towards writing classes. The research question that the findings from question 1, 2, 3, 4, and 5 in the first and the second questionnaires respond to is as follows:

- Do students' attitudes towards writing improve as a result of learning and using word processing? (Research question 3)

Questions 1,2 and 3 within the questionnaires asked students to rank the language skills in order of difficulty of learning, in order of usefulness, and in order of enjoyment. The answers provided a knowledge base to reach a conclusion regarding students' attitudes toward writing.

In the first and the second questionnaires WG students consistently stated that writing was the most difficult of all four language skills, namely; listening, speaking, reading, writing. The findings from the first and the second questionnaires also revealed that students think that writing was the second most useful skill for school (the most important one was considered to be reading). Question 2 in the questionnaires asked students to put the language skills in order of enjoyment. In the first questionnaire the students, both word processing and pen subjects, thought that writing was the least enjoyable skill of all the four language skills. Subjects ranked the items from 1 (the most enjoyable) to 4 (the least enjoyable). Writing received the highest rank with M = 3.63 SD = 0.82 (word processing students); M = 3.45 SD = 0.82 (pen and paper group

students). However, in the second questionnaire that was administered after the sixteen-hour treatment, the word processing students reported that writing was the third most enjoyable skill (with speaking as the most enjoyable).

Here it can be said that at the beginning of the treatment WG students thought that the writing skill was useful for school, however, it was difficult to learn and it was not enjoyable. Findings from the second questionnaire that was given after the treatment reveals that there is a change in the way WG students view writing. Now they still consider writing to be useful for school, they agree that it is difficult but not the most difficult skill (at least easier than speaking). They also do not think that writing is the least enjoyable skill. They think it is more enjoyable than listening and comparable in enjoyment to the other skills of speaking and reading. Here it is fair to say that students started to view the writing skill more positively.

Question 4 asked students directly how they liked writing classes. In the first questionnaire no WG student reported that s/he liked writing classes. Eight of WG students reported that they did not like writing classes at all. However, at the end of the treatment four of WG students stated that they liked writing classes very much. There was only one student who still did not like writing classes at all. Here it can be noted that there is an obvious change in WG students' attitude toward writing.

When they were first asked to label the writing class by choosing adjectives that would describe their writing classes (question 5), WG students reported that writing was tiring, difficult, and boring. When examining their answers to the same question at the end of the study, it is obvious that WG students do not think writing to be tiring and

boring any more. Rather, although they still think it is difficult, they also think it is fun and interesting.

To sum up, it can be said that subjects who previously considered writing the least enjoyable skill, now responded positively to the challenge of using the word processor to write. This finding of the study supported a large number of researchers who claimed reduced writing apprehension and better attitudes towards writing as a result of word processor use in the writing process (e.g. Chadwick and Bruce, 1989; Cochran-Smith, Paris, and Kahn, 1991; Cross, 1990; Dalton and Hannafin, 1987; Etchison, 1989; Green, 1991; Hawisher, 1987; Neu and Scarcella, 1991; Pennington and Brock, 1992; Philips, 1992; Phinney, 1991; Phinney and Matris, 1990; Powell-Hart, 1992; Schwartz, 1984; Silver, 1990; Sommers, 1985; Teichman and Porris, 1989; Williamson and Pence, 1989 (cited in Pennington, 1996). Among the word processor's most valuable potential contributions are its ability to motivate and keep student interest high (Allred et al., 1987).

Question 6 within the first and the second questionnaires

Question 6 in the first and the second questionnaires was designed to determine what students think are hard and easy things about writing. This question asked students to choose two easy and two difficult things about writing from a given list that included re-writing, editing, thinking of ideas, vocabulary choice, punctuation, grammar, putting ideas in order. Results from the first questionnaire showed that the majority

(9 students, 81.81%) of PPG students think that re-writing is the hardest aspect of writing. According to five (45.45%) PPG students, editing is the second hardest thing about writing. WG students think that both re-writing and editing are equally hard things about writing. Six WG students reported that re-writing was the hardest thing about writing. Similarly six WG students reported that editing was the hardest thing about writing. In the second questionnaire only one WG students reported that re-writing was the hardest thing about writing. In the first questionnaire seven students reported that editing was the hardest thing about writing, whereas, in the second questionnaire only four students reported that editing was the hardest thing about writing.

These results suggest that using the word processor in the writing classes help students develop positive attitudes towards re-writing and editing. These findings seem to support the study done by Hiebert et al. (1989). Hiebert conducted a study to integrate the computer into the writing curriculum at Cupertino Apple Classrooms of Tomorrow (ACOT). After his study he stated that students maintained a level of enthusiasm, comfort, and persistence seldom seen when they had to write by hand to plan, draft, revise, and edit their writing. There are several investigations that also found a greater number of revisions and better quality of editing associated with use of the word processor in writing classes (e.g. Pinney & Khouri, 1993; Sommers, 1985; Womble, 1984).

The findings of this question also suggests that now that students can "revise" and "edit" with greater ease due to word processing (this is what they thought the hardest

things about writing before the experiment) they can now turn their attention to different compositional issues. For example, in the first questionnaire four of the WG students had reported that "re-writing" and "editing" are less difficult and that "putting ideas in order" was one of the hardest thing about writing. After the experiment, six of the WG students reported that "putting ideas in order" was one of the hardest things about writing. In the first questionnaire there was only one student who reported that "vocabulary choice" was one of the hardest thing about writing. On the other hand, in the second questionnaire six of the WG students now reported that "vocabulary choice" was one of the hardest thing about writing.

Question 7, 8, and 9 within the first questionnaire

Question 7, 8, and 9 within the first questionnaire sought to determine students' attitudes towards computer class, students' previous experience in typing before they used the computer at school and students' proficiency in typing respectively. In general, it can be interpreted from the answers of word processing students, that they have a positive attitude toward use of the computer. Out of eleven students six reported that they liked computer class very much, four stated that they liked it somewhat, and only one student noted s/he did not like it much. There was no student who reported that s/he did not like the computer class at all. This is an important finding of the research since positive attitude and motivation are considered to be basic elements to student success. Studies to date typically indicate that student reactions toward certain subjects, including writing have been positive as a result of computer use (Allred, 1987). Robertson (cited

in Allred, 1987) found that students who experienced frequent frustration from classroom failure responded positively to the challenge of the computer. She concluded that students involved in her study did not seem to have a sense of failure when they made an incorrect response on the computer. Rather, they reacted as if they were playing a challenging game with an opportunity to try again.

Responses to the questions 8 and 9 in the first questionnaire indicated that the average length of previous experience (experience before taking computer classes at school) of WG students in using the computer was about three years. All subjects had been taking computer class for two years at school at the time of the study. Students were also asked how they would define their proficiency in typing. Only two of them reported that their typing skills were poor. This was an important finding for the study. Piper (1987 cited in Pennington 1996) emphasizes that to get desirable results from the word processor in writing classes both instructors and students should be comfortable with the tool (if students are comfortable with the computer, their efforts will be focused on communicating their ideas rather than on typing). Moreover, the fact that the subjects in this study were comfortable with the computer and typing skills may have had an important effect on the positive outcome. If the subjects had been less confident in these tasks the results of the study might well have been less positive.

Question 7 within the second questionnaire

Question 7 within the second questionnaire provided word processing subjects with five possible benefits of using the computer in writing classes and asked them to

rank them from the most important benefit to the least important one. This question revealed unintended but still valuable results for this research on word processing. This study focused on effectiveness of the computer only for the editing and revising skills. Responses to this question indicated that student like to work on the computer since they wrote longer when word processing. The result is similar to the results of studies conducted by Brady,1990; Etchison 1989; Friedlander & Markel, 1990; Greenleaf, 1994; Kitchin, 1991; Robinson-Staveley & Cooper, 1990; Williamson & Pence, 1989 (cited in Pennington, 1996). In their studies these researchers proved that one of the best-attested effects of computer-assisted writing is the increase in written quantity (Pennington, 1996).

Question 8 in the second questionnaire

Question 8 in the second questionnaire aimed at determining the problems that the word processing students encountered in their writing classes related to word processing. Students ranked the problems from the biggest (1) to the smallest (5) problem. Results indicated that the biggest problem was losing files and suffering breakdowns, and the second biggest problem was the feeling that writing should be personal, however, the computer was mechanical. As reported in previous questions, subjects liked the computer (it equals technology in the items). Since they are used to word processing they did not think computer functions are difficult. They also did not think that learning to type was difficult. At the time of the questionnaire administration,

students reported orally that none of the problems listed for them to rank was a big problem for them.

Question 9, 10 within the second questionnaire

Question 9 was designed to determine the preference of the word processing subjects for writing by hand or on the computer. Results indicated that most of the students (eight out of eleven) thought that the computer should be used in all stages of writing. The question asked students to reflect on the sixteen-hours of experiencing word processing in writing classes. Responses gathered were almost the same as the results Mitchell (1989) obtained from the studies he conducted. Following (Table 29) are the responses from the subjects of the present study accompanied with the responses to the same question in one of the Mitchell's study.

Table 29

Post-experiment Attitudes in Respect to Computer-based Writing

The present study	Michell's study
Writing on the computer is fun.	I learnt that writing can be fun! Thanks to the computer
I write longer when I write on the computer.	When I sit at the computer, my thoughts flow out; I lose track of time.
I write quicker when I write on the computer.	I can write quicker. My hand writing is messy, but now I can see my ideas
I come up with ideas quicker when I write on the computer.	I can let my ideas fly as fast as my fingers can type.
It is easy to write when I write on the computer.	It is easier to write on the computer. I can focus my attention on being creative and writing down ideas.
I do not like writing on the computer because I write slower when I write on the computer.	-

Thus, student positive attitudes reported in this study are parallel to those of earlier studies such as those reported by Mitchell (1989).

This study attempted to indicate the effects of computer-assisted writing, in particular, word processing, to enhance revising and editing skills. The study also attempted to find out whether word processing would help students to develop a positive attitude towards writing. In sum, results of the present study favor the use of computers in teaching composition. The pre- and post-test comparisons showed that the word

processing subjects made significantly greater improvements in editing and revising than did the pen and paper students. Furthermore, students' negative attitudes towards writing changed due to the utilization of the word processor in writing classes and computer use helped in developing a positive mindset in respect to composition.

Limitations of the Study

This study had a few limitations. First, the research was originally designed to take place at Çukurova University, YADIM. However, since the CALL lab at YADIM was not fully functional, the study was conducted at Özel Bilkent lisesi (ÖBL). The level of proficiency of the secondary level students at ÖBL and YADIM are similar, but there is a significant age difference. The age of the students range from twelve to fifteen. The first and the second questionnaires were designed to see whether there would be any difference in students' attitude toward writing, revising, and editing due to using the word processing in writing classes. The result revealed that word processing students became more positive towards writing, revising, and editing. However, as Allred et al. (1987) mentions younger students are more ready to accept the computer activities since they are like playing challenging games. The same results would have to be confirmed for the older tertiary level students such as YADIM students (17-21 years old). Due to the constraint at the experimental site, the size of the control and experimental groups were small and the training was brief. Furthermore, while half the class were working on the computer, the rest were working with pen and paper. This might make the control group students feel deprived of something novel and fun. This

could effect their focus on control tasks and their dedication to doing their best on post-testing.

Suggestions for Further Studies

Brock et al. (1990) assert that the utility of the word processor in generating written language is unquestioned. Yet, they agree that many questions remain about its utility in writing classes and the ways that word processing could best be applied in a writing curriculum. The most effective and appropriate uses of word processors in the writing curriculum can be determined by studies which compare different applications of the word processor to the teaching of writing.

This research study provides support for using the word processor in writing classes to enhance students' revising and editing skills and to help students develop positive attitudes towards writing, revising, and editing. It could be used as a preliminary study for follow-up studies. Further investigation of the topic "Using the word processor in writing classes" is worth considering in a writing program. Future research should take into account the weaknesses of this study as discussed in the previous section. Future studies should involve a larger sample size in the study but could incorporate several features of this study. In this study students' revision skill was tested through the quality of their first and the second drafts. Future research might examine the issue of revision in detail. Such research might examine the length of compositions: total words can be counted on the draft copy and revised copy to see if experimental treatment using word processing makes any change in the length of

students' essays. More in-depth examination of qualitative changes in revision might also be examined.

Future research might also investigate which kinds and levels of students seem to profit most from using word processors to write. Furthermore, such research could explore if students using the word processor in writing classes transfer new writing habits to pen. Another suggestion for future research might include collection of think-aloud protocols to study students' strategies when working on the word processor. Word processing and pen and paper group of students can be compared in terms of the steps they go into while writing as described in think-aloud protocol.

Pedagogical Implications

The initial purpose of undertaking this study was to determine if using word processing in writing classes enhanced students' revising and editing skills. Moreover, the study investigated if there was any change in students' attitudes toward writing, revising, and editing due to word processing. The results tabulated from the data indicated that the word processor could facilitate students editing and revising skills. The results also revealed that word processing could help students develop more positive attitudes toward writing, revising, and editing. Based on the results of the study, it should be noted that an integration of the word processor into the writing classes would increase the quality of learning and teaching writing in a positive way.

It might be that students already familiar with the use of the word processor in math and science classes might be introduced to writing in these fields using the word

processor. This, in turn, might lead to extending writing with word processor to other fields such as creative writing. The editing task took a purposely distorted text and asked students to edit it in several dimensions. Use of such distorted texts in word-processed editing tasks might be a successful method for giving students structured practice in editing and later in revising. More elaborate practice might involve idea shifting and use of the thesaurus and grammar checking tools. Furthermore, to tap the full potential of the computer in teaching and learning writing, teachers and students should have enough access to word processors and printers to ensure that the word processor can be fully integrated into writing classes.

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Appendix A

Dear Students,

This questionnaire is part of my studies at the Bilkent University MATEFL program. The purpose of the study is to help understand writing better and to make the teaching of writing more effective. This questionnaire is designed to find out your opinions about writing courses and about using computers at Özel Bilkent Lisesi.

Any information given in this questionnaire will be kept confidential. Although cooperation is voluntary, I hope you will consider taking part in this study.

Age: .....

Sex: ..... Male ..... Female

Part 1

1. Put the following language skills in order of difficulty of learning.

(1= most difficult 4= least difficult)

..... Listening

..... Speaking

..... Reading

..... Writing

2. Put the following language skills in order from the skill you think most useful to the skill you think least useful for school.

(1= the most useful skill 4= the least useful skill)

..... Listening

..... Speaking

..... Reading

..... Writing

3. Put the following language skills in order from the most enjoyable one to the least enjoyable one.

(1= most enjoyable 4= least enjoyable)

..... Listening

..... Speaking

..... Reading

..... Writing

4. Writing class is a class that..... (circle only one)

a. I like very much.

b. I like somewhat

c. I do not like much

d. I do not like at all

5. Writing class is ..... (you may circle more than one)

a. boring

b. fun

c. difficult

d. easy

e. tiring

f. interesting

6. What do you consider the hardest and easiest things about writing? Chose two hard and two easy things from the list below. Write (H) by the ones you find hard, and (E) by the ones you find easy to deal with.

..... revising

..... Editing

..... Thinking of ideas

..... Vocabulary choice

..... Punctuation

..... Grammar

..... Putting ideas in good order

Part 2

7. Computer class is a class ..... (circle only one)

a. I like very much

b. I like somewhat

c. I do not like much

d. I do not like at all

8. Had you used the computer before you started using it at school?

a. Yes b. No

If yes,

How long had you used the computer before you started using it at school?

(please specify) .....

9. I think my typing skills are .....

a. excellent

b. very good

c. fair

d. poor

Appendix B

Sevgili Öğrenciler,

Bu anket Bilkent Üniversitesi İngiliz Dili Öğretimi Yüksek Lisans programı çerçevesinde yaptığım çalışmanın bir bölümünü oluşturmaktadır. Yapmakta olduğum çalışmanın amacı yazma becerisinin daha iyi anlaşılmasını sağlamak ve yazma derslerini daha iyiye götürmektir. Bu anketin amacı " yazma becerisi" ve "bilgisayar kullanımı" hakkındaki düşüncelerinizi ortaya çıkarmaktır.

Anket sorularına vereceğiniz bilgiler saklı tutulacaktır. Anket çalışmasına katılmak zorunda değilsiniz; ancak katılımınız çalışmama değerli bilgiler sağlayacaktır.

Yaş: .....
Cinsiyet: ..... Bay ..... Bayan

Bölüm 1

1. Aşağıdaki dil becerilerini en zordan en kolaya göre sıralayınız.
(1= en zor 4= en kolay)
..... Dinleme
..... Konuşma
..... Okuma
..... Yazma

2. Aşağıdaki dil becerilerini okul için en yararlı olanından en az yararlı olanına doğru sıralayınız.
(1= en yararlı 4= en az yararlı)
..... Dinleme
..... Konuşma
..... Okuma
..... Yazma

3. Aşağıdaki dersleri en zevkli olanından en sıkıcı olanına doğru sıralayınız.
(1= en eğlenceli 4= en sıkıcı)
..... Dinleme
..... Konuşma
..... Okuma
..... Yazma

4. Yazma dersini ..... (sadece bir seçenek işaretleyiniz)
a. çok seviyorum
b. seviyorum
c. az seviyorum
d. hiç sevmiyorum

5. Yazma dersi..... (birden çok seçeneği işaretleyebilirsiniz)
a. sıkıcı
b. zevkli
c. zor
d. kolay
e. yorucu
f. ilginç

6. Sizce yazma dersinde en zor ve en kolay olan konular nelerdir? Aşağıdaki listeden iki zor ve iki kolay konu seçiniz. Kolayların yanına (K), zorların yanına (Z) yazınız.

Yeniden yazma (revising)
..... Hataları düzeltme (editing)
Yazacak fikir üretme (thinking of ideas)
..... Uygun kelime seçimi (vocabulary choice)
..... Noktalama (punctuation)
..... Dil bilgisi (grammar)
..... Düşünceleri yazıya geçirmek (putting ideas in good order)

Bölüm 2

7. Bilgisayar dersini .....
a. çok seviyorum
b. seviyorum
c. az seviyorum
d. hiç sevmiyorum

8. Okulda bilgisayar dersi almadan önce bilgisayar kullandınız mı?
a. Evet b. Hayır

Cevabınız evet ise,

Okulda bilgisayar dersi almadan önce ne kadar süredir bilgisayar kullanıyordunuz?
(Lütfen belirtin) .....

9. Bence bilgisayarda yazma becerim .....
a. mükemmel
b. çok iyi
c. iyi
d. zayıf

Appendix C

Dear Students,

This questionnaire is part of my studies at the Bilkent University MATEFL program. The purpose of the study is to help understand writing better and to make the teaching of writing more effective. This questionnaire is designed to find out your opinions about writing courses and about using computers at Özel Bilkent Lisesi.

Any information given in this questionnaire will be kept confidential. Although cooperation is voluntary, I hope you will consider taking part in this study.

Age: .....

Sex: ..... Male ..... Female

Part 1

1. Put the following language skills in order of difficulty of learning.

(1= most difficult 4= least difficult)

..... Listening

..... Speaking

..... Reading

..... Writing

2. Put the following language skills in order from the skill you think most useful to the skill you think least useful for school.

(1= the most useful skill 4= the least useful skill)

..... Listening

..... Speaking

..... Reading

..... Writing

3. Put the following language skills in order from the most enjoyable one to the least enjoyable one.

(1= most enjoyable 4= least enjoyable)

..... Listening

..... Speaking

..... Reading

..... Writing

4. Writing class is a class that..... (circle only one)

a. I like very much.

b. I like somewhat

c. I do not like much

d. I do not like at all

5. Writing class is ..... (you may circle more than one)

a. boring

b. fun

c. difficult

d. easy

e. tiring

f. interesting

6. What do you consider the hardest and easiest things about writing? Chose two hard and two easy things from the list below. Write (H) by the ones you find hard, and (E) by the ones you find easy to deal with.

..... revising

..... Editing

..... Thinking of ideas

..... Vocabulary choice

..... Punctuation

..... Grammar

..... Putting ideas in good order

Part 2

7. Please rank the following benefits of using the computer in writing classes from the most important benefit to the least important one.

(1= most important 5= least important)

..... I write longer when I write on the computer

..... It makes editing easier

..... It makes revising easier

..... The thesaurus makes finding the right words easier

..... The spell checker lets me think about content instead of spelling mistakes

8. Please rank the following problems in using the computer in writing classes.

(1=biggest problem 5=smallest problem)

..... Learning to type is difficult

..... Writing should be personal, the computer is too mechanical

..... Computer commands are confusing

.....I do not like technology

.....Losing files and suffering breakdowns are annoying

9. Word processors should be used in writing classes ..... (Check one)

a. For all stages

b. For initial drafts only

c. For final stages only

d. Not at all

10. Write your thoughts and ideas about this experiment in using the computer in your writing class.

Appendix D

Sevgili Öğrenciler,

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Anket sorularına vereceğiniz bilgiler saklı tutulacaktır. Anket çalışmasına katılmak zorunda değilsiniz; ancak katılımınız çalışmama değerli bilgiler sağlayacaktır.

Yaş: .....

Cinsiyet: ..... Bay ..... Bayan

Bölüm I

1. Aşağıdaki dil becerilerini en zordan en kolaya göre sıralayınız.

(1= en zor 4= en kolay)

..... Dinleme

..... Konuşma

..... Okuma

..... Yazma

2. Aşağıdaki dil becerilerini en yararlı olanından en az yararlı olanına doğru sıralayınız.

(1= en yararlı 4= en az yararlı)

..... Dinleme

..... Konuşma

..... Okuma

..... Yazma

3. Aşağıdaki dersleri en zevkli olanından en sıkıcı olanına göre sıralayınız.

(1= en eğlenceli 4= en sıkıcı)

..... Dinleme

..... Konuşma

..... Okuma

..... Yazma

4. Yazma dersini ..... (sadece bir seçenek işaretleyiniz)
a. çok seviyorum
b. seviyorum
c. az seviyorum
d. hiç sevmiyorum
5. Yazma dersi..... (birden çok seçeneği işaretleyebilirsiniz)
a. sıkıcı
b. zevkli
c. zor
d. kolay
e. yorucu
f. ilginç

6. Sizce yazma dersinde en zor ve en kolay olan konular nelerdir? Aşağıdaki listeden iki zor ve iki kolay konu seçiniz. Kolayların yanına (K), zorların yanına (Z) yazınız.

Yeniden yazma (revising)
..... Hataları düzeltme (editing)
Yazacak fikir üretme (thinking of ideas)
..... Uygun kelime seçimi (vocabulary choice)
..... Noktalama (punctuation)
..... Dil bilgisi (grammar)
..... Düşünceleri iyi bir düzene koymak (putting ideas in good order)

Bölüm II

7. Yazma dersinde bilgisayar kullanımının yararlarını en yararlıdan en az yararlıya doğru sıralayınız.
(1=en yararlı 5= en az yararlı)
..... Bilgisayar ile yazdığımda daha uzun yazıyorum
..... Bilgisayarda yazdığımda hataları düzeltmek kolay (editing)
..... Bilgisayarda yazdığımda yeniden yazmak kolay (re-writing)
..... Bilgisayardaki eş anlamlılar sözlüğü doğru kelimeyi bulmayı kolaylaştırıyor
..... Bilgisayarın imla hatalarını düzeltme fonksiyonu, yazdığım yazının anlamına dikkatimin toplanmasını sağlıyor

8. Yazma dersinde bilgisayar kullanımının yarattığı problemler sizce nelerdir. En önemli problemden en az önemli probleme doğru sıralayınız.

(1=en önemli 5=en az önemli)

..... Bilgisayarda yazmayı öğrenmek zor

..... Yazma kişisel bir olaydır, bilgisayar çok mekanik

..... Bilgisayar komutları kafa karıştırıcı

..... Teknolojiden hoşlanmıyorum

..... Dosya kaybetmek ve bilgisayarla ilgili teknik problemler sinir bozucu

9. Bilgisayar yazma dersinde yazmanın ..... Boşluğa uygun olduğunu düşündüğünüz şıkkı işaretleyiniz.

a. tüm aşamalarında kullanılmalı

b. sadece ilk müsvettede kullanılmalı

c. sadece son müsvettede kullanılmalı

d. hiç bir aşamasında kullanılmamalı

10. Yazma dersinde bilgisayar kullandığınız süre içerisinde edindiğiniz izlenimleri yazınız.

Appendix E

- Edit the following text for grammar, spelling, punctuation, capitalization, and correct it.

WILD AND BEAUTIFUL

I saw my first tiger in a National park in India. It was a young male, and she was drinking at a waterwhole. he raised his head slowly and stared at us for a full minute. Then he turned his back on us and disapeared quickly into the jungle.

Twenty years ago the tiger was in trouble. In India its numbers were around 1,800. Then the Indian Government launched Project Tiger which setted up national parks all over the country. Poachers still hunt the tiger illegaly, but at least its no longer in danger to extinction.

In Africa, the most important species in danger is the elephants, the world's largest living land mamal. In 1979, there were 1.3 million elephants there Ten years later, numbers were down to fewer than 600,000 and still falling. Conservationists warned that the Species could be extinct by the end of the century.

(from Move Up by Greenall, 1995)

Appendix F

- Edit the following text for grammar, spelling, punctuation, and capitalization and correct it.

NOBODY HAD BELIEVED IT WAS POSSIBLE

In 1912 the Titanic hit an iceberk on its first time across the atlantic, and it sunk four hours later. At that time, the titanic was the most large ship that had ever travelled on the sea. It was carrying 2207 people, but it had taken on enough lifeboots for only 1178 people When the passangers tried to leave the ship, only 651 of them were able to getting into lifeboats.

The Carpathia, another ship, was 58 miles away when the Titanic called on its radio for help. It arived two hours after the great ship had gone down, and It saved 705 people. Some of the survivors had been in the icy water two hour when they were saved. Most of the passangers hadnt lived that long; 1502 people had lost their lives. Through the hole tragedy, the *Californian,* a third ship, was only ten miles away. Its officers were close enough to see the Titanic however they didn`t

understand the situation. they never received the Titanic`s call for help, and they didn`t come the rescue until too late.

(from Changing times, changing tenses, Peterson, 1988)

Appendix G

GRAMMAR (0-4)

4	Complex language (relative, conditional sentences, use of linking words, etc.) used accurately
3	Basic English used accurately
2	No errors in basic English; only minor errors in complex sentences
1	Complex or difficult constructions either not used or used totally inaccurately
0	Even basic structures used with gross inaccuracies. Almost unintelligible.

CONTENT+STYLE (0-4)

4	Interesting and appropriate response to the topic. Covering all the infos given. Style appropriate to the task.
3	Response to topic adequate. Some obvious infos left out. Limited ability to match style with topic.
2	Inadequate response. Not enough infos. Only a little evidence of appropriate style.
1	Few ideas related to the topic expresses.
0	No ideas related to the topic.

COHERENCE+ORGANIZATION (0-4)

4	Flows smoothly from one clearly stated idea to another. Ideas are arranged in the best/logical order. Every fact/detail relates to the topic. Interesting and satisfying to read.
3	Main ideas clear though not well-organized. Ideas sometimes repeated.
2	Disorganized and illogical. Main ideas not clearly stated and not connected.
1	Shows little ability to link ideas
0	Shows no ability whatsoever to think ideas.

VOCABULARY (0-4)

4	Wide range of vocabulary, appropriate to topic. Does not repeat same words. Very minor spelling errors.
3	Vocabulary appropriate but some repetitions occur. Some inappropriate words that \do not affect intelligibility. A few serious spelling errors.
2	Limited range of vocabulary. Many repetitions. Very often inappropriate.
1	Little ability to respond to question, with too many repetitions.
0	Inability to respond to the question.

Appendix H

WRITING PROCESS

1. BRAINSTORM: When you brainstorm, you come up with ideas to write about. You sometimes just think about these, but sometimes it helps to write these ideas down --no matter how crazy!

2. ROUGH DRAFT: When you write your rough draft, you're just writing to get your rough draft, you're just writing to get your ideas down. You don't need to organize it or worry about spelling or grammar --that comes later!

3. CONFERENCING: When you have a promising piece (that's something only you can determine) then you need to have a conference with someone. Make sure to fill out a Conference Sheet -- and stay on task!

4. 2nd, 3rd, 4th ... DRAFTS: After you conference, you will undoubtedly want to make revisions. The number of revisions you do is up to you and the piece you are working on.

5. EDIT: When you feel that your paper is right where you want it as far as content goes, then ask a friend to edit your paper. Fill out Editing Checklist and follow the directions on the sheet. Pass the Editing Checklist, all Conference Sheets and all Drafts into me for final editing.

6. FINAL COPY: After your friend edit your paper, go back and make all corrections directly on your paper. If you have make all corrections directly on your paper. If you have questions ask! Then do a Final Copy on white paper in pen.

7. FINAL DRAFT FOLDER: When done, staple Final Copy on to of Editing Checklist and the rest of packet and put it into Final Draft Folder.

Appendix I

LIST OF THE TOPICS THAT STUDENTS WROTE ABOUT DURING THE EXPERIMENT

1. Chose a character that you would like to be in the book Flowers for Algernon and discuss why?

2. Choose an object or an animal, give a personality to him. Put yourself in its place and discuss the advantages and disadvantages of being that object/animal.

3. Write a story beginning "It was already six o'clock and darkness was falling".

4. Write a letter to one of the characters of the book called Flowers for Algernon? Tell him/her why you like or you do not like her/him, discussing the characters weaknesses and strengths.

5. How do you feel about the celebrations after national games? Do you approve or disapprove? Discuss it in a five paragraph essay.

6. Three things that I learnt this year about life from the books I read/movies I saw.

7. What three things would you like to change with tour school? Why? These essays will be given to student council. You might want to include what you would like from the new student representative after the coming election.

8. If you could change a friend's mind about something, what would it be and why?

Appendix J

CONFERENCE SHEET

AUTHOR'S NAME: .....

CONFERENCE PARTNER: .....

TITLE OF PIECE: .....

DATE: .....

.....1. Author read piece to conference partner.

.....2. Conference partner told author what piece is about.

.....3. Author handed this Conference Sheet to partner.

** Numbers 4-7 to be filled out by Conference Partner.

..... 4. What three things did you like about the piece?

..... 5. What questions do you have for the author?

..... 6. Do you have any suggestions for the author?

..... 7. Conference Partner handed this conference sheet back to the author.

***Question number 8 to be filled out by the Author.

..... 8. What are you going to do next with this piece?

Appendix K

EDITING CHECKLIST

Name: ..... Date: .....

Title: ..... Genre: .....

Directions: List all skills from Skills List in spaces provided below. Check for each skill carefully yourself then ask a peer to check for each skill as well. Finally, staple the Editing Checklist on top of all drafts (best draft directly under this sheet) and pass in for final editing!

SKILLS TO BE CHECKED FOR	BY ME	BY PEER	TEACHER COMMENTS