Portland State University

PDXScholar

Dissertations and Theses

Dissertations and Theses

6-22-1995

Student Attitudes Toward Word Processing and Writing in the English as a Second or Other Language Classroom

Greg Lynn Buchan
Portland State University

Follow this and additional works at: https://pdxscholar.library.pdx.edu/open_access_etds

Part of the [Bilingual, Multilingual, and Multicultural Education Commons](#)

Let us know how access to this document benefits you.

Recommended Citation

Buchan, Greg Lynn, "Student Attitudes Toward Word Processing and Writing in the English as a Second or Other Language Classroom" (1995). *Dissertations and Theses*. Paper 4873.

<https://doi.org/10.15760/etd.6749>

This Thesis is brought to you for free and open access. It has been accepted for inclusion in Dissertations and Theses by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.

THESIS APPROVAL

The abstract of the thesis of Greg Lynn Buchan for the Master of Arts in Teaching English To Speakers of Other Languages were presented June 22, 1995 and accepted by the thesis committee and the department.

COMMITTEE APPROVALS:

[REDACTED]
Kimberley Brown, Chair

[REDACTED]
Suzanne Griffin

[REDACTED]
Beatrice Oshika

[REDACTED]
Gina Greco
Representative of the Office of Graduate Studies

DEPARTMENT APPROVAL:

[REDACTED]
Beatrice Oshika, Chair
Department of Applied Linguistics

ACCEPTED FOR PORTLAND STATE UNIVERSITY BY THE LIBRARY

by [REDACTED] on 21 Sept. 1995

ABSTRACT

An abstract of the thesis of Greg Lynn Buchan for the Master of Arts in Teaching English To Speakers of Other Languages presented June 22, 1994.

Title: Student Attitudes Toward Word Processing and Writing in the English as a Second or Other Language Classroom.

This study examined the attitudes of English as a second or other language (ESOL) students who used computers/word processors to develop skills in writing English. Two primary questions were investigated: what are students' attitudes toward using computers to write English and what are students' attitudes toward learning computer and word processing skills?

The subjects were 40 ESOL students enrolled at South Seattle Community College (SSCC) in technical programs and were required to complete a transitional English class that included business and technical writing. Students received 10 weeks of writing instruction on word processors. A 38-item attitude inventory created by Neu and Scarcella (1991) was used to measure students' attitudes toward Computer-Assisted Writing (CAW). An additional 13 questions helped identify subjects' native

language, computer experience, and amount of time spent studying English. Chi-Square and t-test were used to examine the data. South Seattle Community College students' responses are reported and compared to Neu and Scarcella's (1991) results.

The results of this study indicated that students' attitudes were significantly positive toward the writing process when using word processors. Foremost, students acknowledged that using a computer helped them develop confidence about their ability to write in English and they would recommend that other international students learn to use word processing for writing their papers. In addition, students' perceptions toward learning and developing personal computer (PC) skills were significantly positive. When SSCC data was compared to Neu and Scarcella's (1991) data, four statistically significant differences with respect to general attitudes towards writing emerged. Students stated that computers helped develop confidence in their ability to write (item 10), helped them pay more attention to grammar (item 3), punctuation (item 33), and spelling (item 21). There were no statistical significant difference with respect to attitudes towards PC's; although SSCC students generally felt less positive about learning PC skills than their California counterparts.

STUDENT ATTITUDES TOWARD WORD PROCESSING
AND WRITING IN THE ENGLISH AS A SECOND
OR OTHER LANGUAGE CLASSROOM

by

GREG LYNN BUCHAN

A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS
in
TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES

Portland State University
1995

TABLE OF CONTENTS

LIST OF TABLES	viii
ACKNOWLEDGMENTS	ix
CHAPTER I	1
INTRODUCTION	1
Statement of the Problem	1
Purpose of the Study	3
Need for the Study	4
Research Questions	5
Definition of Terms	7
Organization of the Study	9
CHAPTER II	10
REVIEW OF THE LITERATURE	10
Introduction	10
Current Research in Computer-Assisted Writing	11

General Findings of Attitudinal Research in	
Computer-Assisted Writing	14
Model Study of Attitudes in Computer-Assisted Writing	17
CHAPTER III	21
METHODS	21
Introduction to Research Design	21
The Instructional Setting	22
Subjects	27
Instrument	29
CHAPTER IV	33
FINDINGS	33
Introduction	33
SSCC's Student Attitudes Toward The Writing Process (Factor 1)	38
SSCC's Student Attitudes Toward Using PC's/Developing	
Computer Skills (Factor 2)	39
Differences between Neu and Scarcella's students and	
South Seattle Community College.	41
CHAPTER V	46

DISCUSSION, IMPLICATIONS, LIMITATIONS, AND	
RECOMMENDATIONS	46
Discussion	46
Implications for Practice and Research	49
Limitations	52
Recommendations	53
REFERENCES	56
APPENDIX A	63
APPENDIX B	71
APPENDIX C	74

LIST OF TABLES

	Page
Table 4.1 NEU & SCARCELLA'S: FACTOR ANALYSIS	35
Table 4.2 FREQUENCY OF RESPONSE FOR 17 ITEMS IN FACTORS 1 AND 2	34
Table 4.3 COMPARISON OF SSCC RESPONSE RATES WITH NEU & SCARCELLA'S RESPONSE RATES FOR 17 ITEMS IN FACTOR 1 AND FACTOR 2	39

ACKNOWLEDGMENTS

I could not have successfully completed this dissertation without the help and encouragement of my thesis committee members, colleagues, friends, and family. I particularly wish to thank Dr. Kimberley Brown, thesis advisor, for her constant guidance and her invaluable moral support. In addition, I wish to thank Dr. Gina Greco, Dr. Beatrice Oshika, and Dr. Suzanne Griffin for their detailed suggestions and flexibility. I also would like to acknowledge Dr. Marsha Brown whose aid in the application of statistical procedures was essential for the completion of this project.

I am especially grateful to my friends and colleagues at South Seattle Community College. In particular, I wish to thank President Jerry Brockey, Jill Wakefield, VP of Educational Services, whose support made it possible to successfully implement this study. I am also indebted to the Preparatory and Applied Academics Division including Roger Bourret, Jessie McDonald, and Mark Palek, Assistant Dean. I am indeed grateful to readers who encouraged me and gave practical suggestions. This includes Clytis and Dr. Gerald Buchan, Dr. Harlan Conkey, and Alice Harman.

Finally, I am most grateful to my wife, Angelica Alejandre, my parents and family who supported me with loving understanding and faith that encouraged me in the completion of this masters program.

Greg Buchan

CHAPTER I

INTRODUCTION

Statement of the Problem

Many writing and composition instructors recognize that computers assist in the writing processes by making the writing tasks less laborious. Writers who use word processors admit that they use them to draft, redraft, add, delete, rearrange and edit. It is argued that the word processor eliminates copying and recopying of text so that the writer's attention can be directed toward creating and editing text (Snyder, 1993). Furthermore, greater numbers of writing or composition courses are being held in computer laboratories. This is documented by the increase of research done on computer-assisted writing (CAW) (Dunkel, 1991; Jom, Duin, 1989).

Much second language acquisition research has pointed out the importance of affective variables in second language learning (Brown, 1987). Krashen (1982) has written extensively about the role of the affective filter in second language acquisition and describes the importance of the learning environment on attitudes. Student attitudes and motivation toward language learning form part of these variables. It

becomes important then to gather consistent information about such affective variables when looking toward what has supported student development of effective CAW. It is for this reason that the documentation of such attitudes has formed the core of this thesis.

Much of the CAW research has focused on the effect of writing with computers in primary and secondary education where writing subjects speak English as a first language. Very little attitudinal research has been done on post-secondary non-native English speaking (NNES) students. Additionally, community colleges and universities are being asked to train students in emerging technologies for job and workplace preparation. This is seen in the increasing number of computer labs where English as a Second or Other Language (ESOL) instructors are being required to teach writing using word processors. For example, South Seattle Community College requires all technical students to complete two sections of writing, Applied Composition (English 105) and Technical Writing (English 106), both of which are taught in computer labs. Most NNES technical students must complete an ESOL developmental course called Transitional English (English 103) which is also taught in a computer classroom. Although English 103 is designed to prepare NNES students for writing in the two required classes, little is known about these students' attitudes toward writing on computers and the use of the computer.

Some researchers have argued that ESOL students are being asked to assimilate computer skills at the expense of language learning (Pollack, 1985). Consequently, instructors with little word-processing experience may dismiss the use of computers for writing since pen and paper, readily available resources, do not require special training and are an easier medium in which to work. These arguments must be addressed in order to justify the use of computers in writing.

Purpose of the Study

The purpose of this research is to investigate attitudes of ESOL students who use word processors in their writing classes. The literature on the use of word processing in the native-English-speaking (NES) writing classroom reveals substantial support for its continued use and research, but relatively little is known about the effect of, or students' attitudes toward word processing in the ESOL writing classroom. Therefore, this study will explore some of the findings about NES student use of word processors and how the research applies to NNES students. Furthermore, this replication will use the same questionnaire to elicit students' attitudes while focusing on a different ESOL population. The results will thus contribute to strengthen ESOL literature in CAW and assist in validating the research instrument.

Need for the Study

As more universities and colleges promote computer writing labs and word-processing activities for their students, the research must determine how the ESOL students perceive themselves while learning and using word processors. Researchers and practitioners in the 1980's focused their energies on trying to measure improvements in students' writing using computers, often without directly asking students their opinions about the new technology. This is understandable in that educational institutions in the 1980's needed to demonstrate positive benefits from writing with computers, so that funds and resources would continue for the new technology (Dunkel, 1991). Furthermore, researchers explored the learning processes coinciding with CAW, often neglecting the affective elements. These include attitudes toward learning with computers, anxieties toward writing and PC skills, motivational factors, and learning awareness.

Often the researchers did not question the subjects about the affective values of the use of computers in a writing class, but focused on the writing processes that naturally came out of CAW course curricula. Practitioners counted editing and re-editing activities and focused on final products to measure improvement. These studies are important in understanding computer-assisted writing and are explored

further in Chapter 2, but often they left out the students' attitudes toward their learning with the computer.

As CAW moves to the next generation of evaluation, writing instructors are aware that CAW is not diminishing in use or at bay in funding. Not only are institutions requiring computer and word-processing skills, but industry is demanding technical and community colleges to instruct students with computers. Instructors and researchers must continue to investigate the needs of the students to make the CAW labs a more conducive environment for learning with computers. Moreover, the research must evaluate students' attitudes toward the writing activity and the computer on which they write.

Research Questions

Many questions have been raised about the effectiveness of word processors in the ESOL writing classroom by ESOL instructors and administrators who do not have experience teaching with word processors. As studies continue to investigate the learning effectiveness of computers, it is imperative that ESOL students be directly asked and be allowed to disclose how they feel about learning on word processors. The specific research questions addressed are:

1. What are students' attitudes toward the writing process when using word processors?

- a. Do students perceive the use of computers as helping them develop writing confidence and enhance their chances for academic success?
 - b. Do students feel they get better grades and more individual attention from writing instructors when using word processors?
 - c. Do students sense that using PC's will help them pay more attention to grammar, word usage, and spelling?
 - d. Do students perceive they pay more attention to organization, punctuation, and transitions when writing with computers?
2. What are students' attitudes toward using PC's and developing computer skills?
- a. Do students feel they want to continue using computers and would they recommend others to use computers for their writing?
 - b. Do students sense they use word processors more than they use paper and pencil?
 - c. Do students feel nervous about using the computer or worry about damaging it?
 - d. Do students perceive that they have difficulties learning to use the computer, or that they would take longer than other students to learn to use the computer?

These answers to these questions will give insight into student perspectives of writing performance with computers, motivational factors that encourage or discourage students from writing, and writing anxiety of the ESOL student.

Definition of Terms

The terminology employed in computer-assisted instruction changes as fast as new products are introduced to the classroom and is brimming with jargon. The definitions used here reflect a movement involving theories and methods pertaining to Computer-Assisted Writing and English as a Second Language.

English as a Second or Other Language (ESOL) is used to describe the field of study that focuses on learning and teaching English to non-native English speaking students. Coursework skills include listening, speaking, reading, and writing components. This research will focus on writing skills.

Native-English Speaking (NES) refers to students who speak English as their only language or their primary language at home, social events, school, and work.

Non-Native-English Speaking (NNES) generally refers to students whose first language is not English and who reside in a country that uses English for intra-country purposes.

Personal Computer (PC) refers to various types of machines that run software applications and are sometimes referred to as desktop computers, microcomputers, and laptops. It does not refer to mainframe units. This report

will use PC to refer to the "computer hardware" or physical electrical components.

Software Application usually refers to computer programs that enable a user to perform specific tasks on computers. The word processor is one of the most common types of software applications. WordPerfect® and MS-Word® are popular word processing applications. Students are not required to know codes or programming, yet they need to know the commands to operate desired functions, i.e., underline, bold, center etc.

Word Processors are types of applications that allow users to enter text into a PC in order to store, recall, edit and print. Writers may revise, spell-check, grammar-check, or use a thesaurus built into the application. The most common commercial word processors are Wordperfect®, MS-Word® and Ami Pro®.

Computer Assisted Instruction (CAI) generally refers to the use of computers and software in education at large.

Computer Assisted Language Learning (CALL) became the general catch-all term that describes the use of computers and software in second or foreign language education. Currently, each language skill area (i.e., listening, speaking, reading, and writing) is divided into more specific terms to reflect methodologies and theories.

Computer Assisted Writing (CAW) describes curricula and software used on PC's that nurture writing skills. These include word processors, editing tools, grammar checkers, and outliners.

Organization of the Study

Chapter 2 contains a review of the literature and research related to this study. Chapter 3 includes a description of the research design and methods, instructional setting, subjects, and the instrument used in this study. Chapter 4 presents findings and a discussion about the statistical data. Chapter 5 includes the implications of this study and provides recommendations for future studies.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The following review of the literature is divided into two major sections. The first section provides a brief overview of current research in CAW that affects word-processing activities in the classroom. Also discussed are recent changes in research design and writing-instruction theory. The second section will address attitudinal research in computer-assisted writing with a focus on attitudes toward word processors. This section addresses attitudinal variables in the CAW literature that relate to this study.

There is precedent to report findings on native-English speaking and NNES subjects together in the review of the literature. The published empirical evidence describing the use of word processing in post-secondary NES classes is often cited by the ESOL researchers (Dunkel, 1991; Neu & Scarcella, 1991; Phinney, 1991). Unfortunately, research related to CAW is relatively new, having emerged within the

last two decades. The literature on CAW is growing and becoming more complex, yet the research presented here is neither comprehensive nor extensive enough to warrant definitive conclusions on benefits or drawbacks of CAW.

Current Research in Computer-Assisted Writing

The appearance of microcomputers or personal computers (PC's) in 1977 gave rise to computer-assisted instruction (CAI) research. Drill-and-practice materials appeared first; later materials moved to the use of word processing to write and edit in computer laboratories (Sadler, 1987). The Chronicle of Higher Education (1987, April) surveyed NES students and professors and reported that 42% of faculty and 40% of the students had bought, and were subsequently using their PC's primarily for word processing. Furthermore, Montague (1990) reported that teachers of English recognized the value of computers as a vehicle to teaching writing in the early 1980s. Concurrently, dramatic shifts in writing theory and instructional practice developed. The most noteworthy of these changes included the shift in emphasis from product to process (Freedman & Pringle, 1980; Hairston, 1982). Murray (1984) categorized the writing process into three parts: prewriting, writing, and rewriting, and concluded that computer technology could assist students to overcome many of the difficulties associated with the writing process.

Throughout the CAW literature, parallels occur between the computer-assisted writing literature and process writing theories. Snyder (1993) recognized that CAW research in the early to mid-1980's concentrated primarily on the relationship between the new writing pedagogy and word processing. Many studies explored relationships between word processing and revision, or they focused on the impact of word processors on writing quality (Andrews, 1985; Brown, 1985; Collier, 1983; Ross, 1985). Several of these studies also examined the effect of word processors on aspects of writing behavior other than revision strategies. Daiute (1986) and Sommers' (1985a) studies conducted in school and college settings concluded that change or lack of change in writers' behavior or texts cannot be attributed to computers alone; the writing instruction was also seen as important in shaping the influence of computers in writing. A range of results, sometimes contradictory, has emerged. Despite the claims of anecdotal reports that word processing facilitates revision, Daiute's (1986) study suggests that while surface-level changes occur, meaning-related and higher-order revision do not increase.

The studies which have explored the impact of word processors on writing quality are more equivocal. The expectation that use of the word processor will improve the effectiveness of the writing appears reasonable. It would appear logical that by eliminating the need for tedious recopying of drafts and by making revision easier, the writer is freed to attend to higher-order issues. That is to say, student writers would have more time for thinking and reflection on the writing. Yet results

indicate that the effect on quality ranges from no improvement in quality (Duling, 1985; Miller, 1984) to statistically significant improvement (Andrews, 1985; Roblyer, Castine, and King, 1985; Thaipakdee, 1992). Harris (1983) and Collier's (1983) research suggests that inexperienced users of word processors may become entranced by the superficial, rather than performing organizational changes, resulting in less revision. These findings could create more dilemmas for the ESOL instructor wanting to use computers for writing. However, a number of studies claim that the writing of weaker students improves with use of computers (Cheever, 1987; Dalton & Watson, 1986), while Bryson, Lindsay, Joram, and Woodruff (1986) found that "talented" students in their study benefitted the most.

During the mid 1980's and early 1990's, skepticism concerning the findings of CAI research, along with the advent of more powerful computer technologies, encouraged new research designs that proceeded beyond the "technocentric" foci. Dunkel (1991) argues that much of the CAI research engendered simplistic questions as: Does CAI work? Can a set of CAI tutorials teach reading to ESOL students better than a teacher can? She contends that much of the previous research mitigates "the importance of the central components of the educational situation--the people and the classroom culture, and the contents of the educational software (p.20)." Furthermore, a trend away from "CAI versus the teacher/TV/audio-video" and toward exploring affective and cognitive characteristics in the language learner has emerged (Chapelle and Jamieson, 1986).

General Findings of Attitudinal Research in Computer-Assisted Writing

Researches make many claims regarding NES student's attitudes towards word processing and PC's. Dunkel (1991) documents that many studies report anecdotal feelings or attitudes held by students, instead of being qualitative studies. However, in the last 10 years, strongly focused research on specific attitudes toward writing anxiety, computers and student motivation, and technology has emerged. Virga (1987) stated that feelings govern attitudes, which then, in turn, determine a person's willingness to cooperate and produce. Unfortunately, little research exists on the attitudes of NNEST students toward the use of word processors, but the literature on NES subjects hints as to the computer's ability to motivate, lessen writing anxiety, and increase confidence.

The results of Andrews (1985), Roblyer, Castine and King (1985), and Sommers (1985b) research lead them to conclude that NES students using word processors revise more often, produce better papers, and have more positive attitudes towards writing than those students who do not use PC's. Positive attitudes toward the PC and the writing activity were cited as fostering better written products. In addition, Schramm (1990) in his meta-analysis dissertation study indicated that there is a significantly positive effect on the attitudes of students toward writing when using word processors as compared to students using traditional writing methods. Schramm

(1990) also found the emotional effects of word processing positive and influential in the quality of student writing. It was reported that students who spent more time on computers were more likely to have positive attitudes toward writing.

Schroeder and Boe (1990) suggest that using computers can alleviate students' anxiety about writing, thus providing a greater tendency to enjoy writing, creating better overall attitudes toward schoolwork. Johnson and Sterkel (1984) conducted a survey of business writing courses and found that students reported that using computers and computer-text analysis made them less nervous about writing. Thaipakdee (1992) suggested that students who spend more time on the computer gain more computer confidence than those who have less experience; thus higher levels of anxiety accrue to students who are less familiar with computers. Furthermore, students' anxiety toward writing may be related to their computer background, whether or not they have appropriate training on computers, and whether there is sufficient time for them to gain PC experience. Teichman & Poris (1989) suggested that levels of writing anxiety of college freshman did not differ between the experimental and control groups. However, their methodology failed to integrate CAW in the classroom and simply asked students to attend a computer lab on their own time. Their results reinforce the importance of computer training and students having time to experiment while working in an instructional setting.

Motivation is often defined as something that energizes and directs behavior (Woolfolk, 1987). Teachers know the behavior they desire from developing writers and wish to see better writing, yet the research has only hinted at motivational factors that encourage students to use word processors. Lamazares (1991) reports that by writing on word processors, the writing becomes less painful, even enjoyable. It is argued that computers reduced writing anxiety by decreasing resentment toward the writing course. Thus, students are motivated to spend more time on their papers. Hawisher & Selfe (1989) noted that due to CAW, students' attitudes toward writing appear to have changed for the better, although less evidence exists that students' writing has improved. The literature often relates positive attitudes toward computer use as motivational.

Thaipakdee (1992) suggested that attitudes toward writing may be an essential factor in the improvement of students' writing when using computers. Thaipakdee's (1992) research of 23 foreign college students enrolled in a technical writing class included three questionnaires regarding writing apprehension, revision practices, and attitudes toward learning about and working with computers. After pretests and post-tests were analyzed, overall positive significant relationships were found between ESOL students' attitudes towards writing and their writing quality. Students with positive attitudes towards writing revised more using computers; likewise students who revised more frequently or knew how to revise their writing had more positive attitudes toward writing and the use of computers. A significant positive relationship

was found between students' perception of the computer's usefulness and their writing quality. Students who felt that writing with computers was important and useful improved their writing quality. In addition, students who spent more time on computers were more likely to have more positive attitudes toward writing. Furthermore, Thaipakdee (1992) argues that even though computers may not directly improve students' writing, computers can be used as a motivational tool.

Jom and Duim (1989) investigate the evaluation process of students' attitudes toward computers and writing in relation to curriculum, collaboration, conference, and CAI. The researchers investigated three groups of writers. One group received no treatment in computer training. The second group met for 5 weeks in a computer lab, and the third group's entire 10 week course was held in a computer lab. The researchers found no significant difference in attitudes among higher-level technical writing. Of the three teaching environments, students who used word processors for an entire term felt positive toward the use of the computer, while the other groups did not show significantly positive attitudes toward CAW.

Model Study of Attitudes in Computer-Assisted Writing

This research was inspired by Neu and Scarcella (1991), who first conducted investigations into NNES students' attitudes in 1985, publishing their results in 1991. They also wished to ascertain whether or not ESOL students perceive writing benefits

from word processing. Not only did students indicate that they received better grades when using word processors, but they felt they paid more attention to mechanics of their writing. Although some students felt that they did not pay more attention to spelling and punctuation, they indicated a strong preference for computer-based writing. Other important issues that Neu and Scarcella addressed were contentions that learning to use the PC would involve unduly difficult or anxiety-producing activities, thereby generating negative attitudes toward computers and writing. In fact, students' attitudes toward word-processing and writing activities both proved significantly positive.

A closer look at Neu and Scarcella's (1991) subject group and the limitations of their study reveal unusual generalizations about the NNES students. The all Asian-American subjects seemed to hold high educational, computational, and cultural achievements which might not represent ESOL students in the community college system. Neu and Scarcella (1991) do not report exact figures but state that the majority had resided in the United States for an average of five years. Most had completed high school in the United States and were in the upper 12% of their classes. Many had received A's and B's in high school English. Not only had they studied at high schools or community colleges where English was the dominant language, the majority (68%) were preparing to study rigorous subjects in the sciences and applied sciences at four year institutions. Neu & Scarcella (1991) also noted that 85% of the

subjects knew how to type and 30% owned PC's and were regarded to be "computer savvy" before they enrolled in the writing courses.

The majority of the subjects appeared to have native-like oral skills yet lacked academic writing skills and thus were considered "non-native-English-writers." In addition, many of the students complained about the "loss" of time in the ESOL writing course since they already knew English and preferred to be in "real" classes. Representing these subjects as typical ESOL students and hoping that readers/instructors could generalize to all ESOL populations may not hold true. Neu & Scarcella's (1991) subject population of all Asian-American and long-term US-English-medium schooled students would look considerably different from typical groups in an Adult Basic Education or an Intensive English Program in the community college system. Further studies of ESOL students' attitudes in the community college system toward CAW are in order.

Although the data on student populations are sparse, The Washington State Board for Community and Technical Colleges (1995) report that in 1994, student populations included 13,836 Asian and Pacific Island students, 9,128 hispanic students and 917 students of other race. The category "White" includes people from Europe, Eastern Europe, Middle East that do not reflect Anglo-American NES students. This data is not clear and does not allow readers to decipher the NNEs Students. However,

several community college administrators noted that the student populations at SSCC were representative of western Washington community college ESOL students.

New research using different ESOL subjects is needed to verify attitudes and strengthen the literature. The research for this thesis will use Neu and Scarcella's questionnaire which has been pilot tested and is considered valid. This survey will also allow the researcher to explore ESOL students' prior computer knowledge and use, and prior English-learning experiences.

In conclusion, the research findings involving the use of computers in writing are mixed and difficult to generalize to the ESOL population. Even though computers have been used to try to improve student writing performance, students have not been allowed to voice their feelings toward the use of word processors and writing with word processors. This study is concerned with ESOL students' perceptions of computer usefulness in the context of CAW classroom.

CHAPTER III

METHODS

Introduction to Research Design

This study was designed to examine ESOL students' attitudes (1) toward the writing process on word processors, and (2) toward using PC's and developing computer skills. This chapter describes the design and setting for the research, the subjects, and the instrument used to collect data. This study is a partial replication of research by Neu and Scarcella (1991) which is a quasi-experimental research design. The same questionnaire is used to collect data, yet a different population is examined.

Because the survey elicits data specifically regarding attitudes toward CAW, it is important for the reader to understand the setting in which the questionnaire is utilized. The organization of the following sections will provide the essential background information. The overview of the instructional setting reports facts that consequently will strengthen the generalizability of this research for other educational settings.

The Instructional Setting

Each 10 week term, more than 100 NES and NNES students enroll in four sections of Transitional English (English 103) which is part of the Preparatory and Applied Academics Department at South Seattle Community College. The Applied Communication courses, part of Applied Academics, are designed to train technical students in work-related communication skills that include reading, writing and group interaction while using computers. As a prerequisite in the Applied Communications section, Transitional English (English 103) must be passed successfully to continue into Applied Composition (English 105) and Technical Writing (English 106).

Prior to program enrollment, students must complete a college requirement of a Secondary Level English Proficiency Test (SLEP) which is a norm-referenced test designed to measure ability in understanding spoken and written English. The test was designed for use with students entering grades seven through twelve whose native language is other than English. This 85-minute test provides scores then can be used for making placement decisions into SSCC. The test scores are used to place NNES students into all areas of study, or to detect student needs for further studies in ESOL. Furthermore, SLEP scores are used to determine when students should exit from the ESOL program and enter into technical and academic programs. Scores range from 20 to 67 with the mean being 44.

For students to obtain admittance to technical programs and Applied Communication courses, they need SLEP scores of 44 or above; moreover, the English 103 course is equivalent to upper level ESOL Adult Basic Education studies and thus serves similar populations. Because this study will focus on more "typical" ESOL students, a measurable range of skills is needed to be defined as "typical." After researching the General Studies Department at SSCC, it was determined that students with SLEP scores of 55 points or higher would not be accepted into ESOL courses. These students would be best served in more advanced credit programs or departments, thus this research did not investigate those students with scores of 55 or higher. Therefore, this research will report only on students with SLEP scores between 44 and 55.

All NES and NNES students in the Applied Communications section are required to take the placement test and produce several writing samples. This second evaluation process occurs at the beginning of each term to advance stronger students to English 105, who in turn get credit-by-exam for English 103. Consequently, most English 103 courses consist of NNES students. The two part placement process includes the first section of the Tests of Adult Basic Education (TABE): Work-Related Foundation Skills--Trade/Technical. Three types of writing samples are then collected.

The first section of the TABE--Trade/Technical form measures reading comprehension that applies in technical and vocational work-place activities. Real scores range from 0 to 40. Students with scores of 35 and above will automatically be considered candidates for English 105. The writing samples are weighed more significantly to determine placement of students with scores of 31-35. Scores of 30 or less place students into English 103 unless their writing samples reveal strong writing skills.

The writing samples consisted of one 15-minute writing to introduce themselves, with three paragraphs about their past, present and future. The second task required students to listen to a reading of a paragraph about a workplace conflict and then describe the problem. Finally, students were required to write five sentences from dictation that related to workplace communication. Students' work was evaluated for complete sentences, understandability, and language use. From the student's scores, they were placed into the proper courses of Applied Communications; English 103 or English 105.

SSCC Technical Programs and Applied Communication Courses

Technical Departments

Automotive

Avionics

Aviation

Applied Communications

English 103--Transitional English

English 105--Applied Composition

English 106--Technical Writing

Computers

English 108--Research Project

Hazardous Materials

Quality Assurance

English 103 is a five-credit course that meets five days a week for 50 minutes.

All Applied Communication classes meet in a computer lab and focus on skills required for vocational and technical communications. Assignments involve reading, writing, and oral effectiveness while incorporating principles of organization, drafting, and editing of business and technical communication. Students complete eleven weeks of training using computers for two main functions. First, students are introduced to WordPerfect® which they use for the majority of writing assignments. Second, Skills Bank II®, a drill-based language learning activity is incorporated into the class. This permits students to focus on recognition of proper punctuation, capitalization, and sentence structure. This software teaches writing mechanics and prepares students to do on-screen reading and editing of their writing.

Transitional English was designed as part of a series of Applied Communications courses with the following broad objectives to:

1. Develop practical skills in reading and writing
2. Develop techniques for learning and applying information
3. Develop listening and speaking skills
4. Develop self-esteem, motivation, and career goals

5. Develop critical thinking skills
6. Develop group effectiveness
7. Develop skills in effecting organizational change

Assignments in English 103 included the following activities:

- spelling activities
- sentence and grammar reviews
- oral presentation
- mechanics of Sentences

Computer-Assisted writing assignments include:

- in-class quizzes using computer
- business memo with peer-editing and revisions
- writing about a process
- writing a claim letter
- replying to a claim letter
- writing a proposal for a personal reading program

The three instructors teaching English 103 fall term of 1994 estimated that 40% of classroom time was spent using word-processors, 50% was used for instruction activities that included sentence-structure exercises, prewriting, group activities, and computer applications training. The remaining 10% of time was used for work in Skills Bank II®. Students were given lessons in WordPerfect® and its functions over

the extent of the term while they worked on memoranda, business letters, and technical process writing. Students at South Seattle Community College also had access to an open lab Monday through Saturday where a lab assistant could assist students if they had problems with the computers. It must be noted that each class had between 8 and 12 students. Because student-teacher ratio was low, more class time was available for individualized instruction.

Each instructor had been trained by the Applied Communications coordinator and thus all used similar teaching materials, course outlines, assignments, activities, and evaluational processes. Since subject data were collected from three different classrooms, the results will reflect campus wide attitudes toward computers and writing and not the attitudes of one isolated class. It can be argued that data collected from several subject groups would provide results which reflect more about students attitudes towards writing and computers and less about teaching style and teacher preference. Moreover, generalization to other ESOL subjects may be more valid because of a larger subject pool.

Subjects

Two criteria were used in choosing students for this study. First, students must have been enrolled in English 103 writing classes, which meant that students were

required to use a computer for writing assignments. Second, instructors had to require students to use a word processor for most of the writing assignments.

The 40 subjects comprised 17 different nationalities, with 15 language groups represented. Half of the subjects were Vietnamese. The other 20 subjects represented 16 nationalities and 14 languages. Eighty-eight percent of the students were male and 12% were female, with ages ranging from 19 to 58 years; the average age was 29. Many students identified the number of years they had lived in the United States as the number of years they had studied English. The average length of time that students had studied English was three years, with 65% of the students having had at least four years of study. Forty percent of the subjects had graduated from US high schools.

Eleven major areas of study were identified by the subjects as areas of specialty. One-half were enrolled in two areas: Automotive Technology and Computer Technology; 12.5% were undecided; and the remaining 37.5% were scattered among eight other technical areas.

The subjects' prior computer experience was minimal with only 15% of the students having a computer at home and only 30% of the subjects using a computer daily throughout the period of the course. Sixty percent of the students had had no computer or word processing experience before English 103; while 10% had used a

word processor in their native language. The characteristics of the SSCC sample are listed in detail in Appendix A.

Instrument

Neu and Scarcella (1991) created a tool to consistently measure attitudes toward the use of computers in the ESOL writing class (Refer to Appendix B for the questionnaire). The researcher obtained permission to use the instrument from Neu and Scarcella before any research began. Their questionnaire was constructed to explicitly elicit students' perceptions about the advantages and disadvantages of using PC's in writing, to determine whether they experienced difficulty learning to use the computer for word processing, and to gather information about their perceived writing behaviors during word processing. Moreover, the questionnaire's focus is such that it would be applicable only to subjects who write using computers and results could not be explained by alternative causes. Neu and Scarcella's (1991) pilot survey collected data to further validate the questionnaire.

In Neu and Scarcella's (1991) pilot study, statements were arranged to measure attitudes of ESOL students writing with computers. The pilot study was conducted with 40 ESOL students who could express the whole range of attitudes under study. These students were enrolled in an ESL writing class which was similar to the final research population. The results revealed significantly positive attitudes. Because

their final study revealed similar positive results about ESOL students' attitudes, the questionnaire's construct validity is solidified. In addition, Neu and Scarcella's (1991) item analysis of the pilot study assisted in eliminating ambiguous wording and increasing the number of items on the instrument. This strengthened their claim for construct validity. The questionnaire possesses face validity defined as measuring the perceptions defined in the research questions. Neu and Scarcella (1991) did not include more discussion about the internal validity but gave sufficient evidence about their design process to warrant face validity.

A search of the literature did not uncover other instruments that measured attitudes toward the use of computers in ESOL writing classes. Because of the population being investigated, it was important that the question items be clear and contextual to the ESOL environment. Because this research is using the same questionnaire as Neu and Scarcella (1991) did, it allows for comparison of findings. If a new instrument had been created, it would have been difficult to compare results to any other studies. Thus, similar findings to Neu and Scarcella (1991) will further validate the instrument and the study will contribute to the literature that investigates CAW in the ESOL classroom.

To control the reliability of the measure, the instructors whose classes were surveyed had no prior knowledge that their students were to be surveyed nor did they

know of the items on the instrument. Their students were not informed of the research until the day the survey was given.

In this present study, thirteen questions were added to measure demographics, such as students' native language, nationality, prior English studies, and PC skills and experiences (see Appendix A). The thirteen items were piloted to verify clarity. These additional questions were placed at the end of Neu and Scarcella's 38 items. The 13 questions are viewed as a valid approach to gather non-attitudinal data about the subjects. In addition, two secondary questions were asked to elicit students' perception of the instructors' competence toward computer knowledge and their helpfulness with writing assignments. The students' responses may help authenticate the instructors' role in the classroom.

The respondents replied on a 4-point Likert scale, where 1 = agree strongly, 2 = agree, 3 = disagree, and 4 = disagree strongly. When the data were analyzed, the 4-point scale was collapsed into a 2-point scale (Agree/Disagree) to make assessment and interpretation easier to quantify. This procedure follows Neu & Scarcella's (1991) research. It is assumed that they explicitly eliminated a neutral response to ensure useful results that could be simplified into agree/disagree data.

After receiving Human Subjects permission letters from SSCC and Portland State University, the researcher administered the questionnaire. To insure that data

collection followed similar procedures in each class, a script defined the step-by-step process for reviewing the Research Consent Forms, having subjects sign the form, and distributing the questionnaire. Furthermore, the questionnaire was administered to the ESOL students in the four sections of Transitional English (English 103) at South Seattle Community College on the last day of Fall term, 1994. This allowed the novelty of the PC to wear off and provided time for students to familiarize themselves with word-processing before they answered questions regarding their opinions.

CHAPTER IV

FINDINGS

Introduction

The following section compares the findings with Neu and Scarcella's (1991) study and is intended to provide further research about ESOL students and their use of computers in the writing classroom. Because Neu and Scarcella (1991) only reported results for the 17 items that loaded onto the two factor scores and did not include statistics on the remaining 21 items, this research will report comparisons for the 17 items only. The percentage responses for the remaining 21 items for the SSCC sample are reported in Appendix C.

First, the SSCC responses to the 17 items that loaded onto the 2 factors are described. The results of the t-tests that compare Neu and Scarcella's (1991) findings with SSCC are then discussed.

Eleven items loaded onto the first factor in New and Scarcella's (1991) study.

These items related to students' attitudes toward the writing process in a computer lab.

The following 11 items loaded onto the first factor called "Attitudes toward Writing".

Factor 1: Attitudes toward Writing

Item	Statement
3.	When I use word processing on the computer, I pay more attention to grammar.
10.	Using a computer has helped me to develop confidence about my ability to write in English.
13.	I pay more attention to choosing the right word when I use word processing.
14.	I would recommend that other international students learn to use word processing for writing their papers in English.
16.	I get better grades on papers I've written using word processing.
21.	I pay more attention to spelling when I use word processing on the computer.
28.	I feel I get more individual attention from the teacher in the ESL computer writing lab than I do in other, noncomputer writing classes.
29.	I pay more attention to organization when I use word processing.
33.	When I write using word processing, I pay more attention to punctuation.
34.	I find this ESL writing class in the computer lab challenging.
35.	I pay more attention to transition when I use word processing.

Six items loaded onto the second factor in New and Scarcella's (1991) study.

These items explored students' attitudes toward the PC and the development of word

processing skills and are listed below. The following six item loaded onto the second factor called "Attitudes toward PC's."

Factor 2: Attitudes toward PC's

Item	Statement
19.	I plan to continue using word processing to write my papers after this class is over.
24.	I use word processing more than any other means to write papers for my classes.
31.	I get nervous in the ESL computer lab.
36.	I had trouble understanding how to use the computer.
37.	I was worried that I might damage the computer.
38.	I was worried that it would take me longer to learn to use the computer than it would the other students

The factor loading coefficients (Table 4.1) from Neu and Scarcella's (1991) study show the 17 items that loaded onto two factor groups. Throughout the remainder of this report, findings will be organized in the order that the items loaded in the factor analysis; the items with the strongest positive relation to the factor is listed first, and the item with the least positive or most negative relations to the factor is listed last.

Table 4.1 NEU & SCARCELLA'S: FACTOR ANALYSIS

Factor 1: Attitudes toward Writing		Factor 2: Attitudes toward PC's	
Item	Coefficient	Item	Coefficient
Item 13	.837	Item 24	.601
Item 35	.829	Item 19	.600
Item 34	.715	Item 31	-.622
Item 16	.692	Item 37	-.680
Item 10	.687	Item 38	-.768
Item 3	.642	Item 36	-.888
Item 29	.629		
Item 28	.620		
Item 14	.618		
Item 33	.568		
Item 21	.557		
	9.2223	Final communality estimates	
		7.3290	

Next, Chi-square analysis was conducted on the SSCC data to determine whether or not the observed frequencies of subjects' agree/disagree responses differed to a statistically significant degree from the frequencies expected by chance (50% agree/50% disagree). For the Chi-square analysis, the level of significance was set at .01 (the same level of significance used in the Neu & Scarcella (1991) study). The Yates Correction For Continuity was used. Table 4.2 displays the frequencies of responses for Neu and Scarcella (1991) and SSCC analysis with the Chi-Square test for whether students in the two studies were significantly more likely than chance (50/50) to hold positive attitudes toward writing (Factor 1) and PC's (Factor 2)

**Table 4.2 FREQUENCY OF RESPONSE FOR 17 ITEMS
IN FACTORS 1 AND 2**

		Neu & Scarcella		SSCC	
Factors		Percent Agree	χ^2	Percent Agree	χ^2
Factor 1: Attitudes toward the writing process					
Item	Statement				
13.	I pay more attention to choosing the right word when I use word processing.	76%	14.60**	82.5%	15.62**
35.	I pay more attention to transition when I use word processing.	78%	16.45**	87.5%	21.02**
34.	I find this ESL writing class in the computer lab challenging.	69%	8.31*	82.5%	15.62**
16.	I get better grades on papers I've written using word processing.	72%	9.68*	82.5%	15.62**
10.	Using a computer has helped me to develop confidence about my ability to write in English.	70%	8.31*	92.5%	27.22**
3.	When I use word processing on the computer, I pay more attention to grammar.	73%	36.24**	90%	24.02**
29.	I pay more attention to organization when I use word processing.	78%	16.54**	87.5%	21.02**
28.	I feel I get more individual attention from the teacher in the ESL computer writing lab than I do in other, noncomputer writing classes.	67%	6.03	67.5%	4.22
14.	I would recommend that other international students learn to use word processing for writing their papers in English.	92%	36.24**	92.5%	27.22**
33.	When I write using word processing, I pay more attention to punctuation.	65%	4.41	87.5%	21.02*
21.	I pay more attention to spelling when I use word processing on the computer.	69%	7.71*	82.5%	15.62**
Factor 2: Attitudes toward using PC's/developing computer skills					
Item #	Statement				
24.	I use word processing more than any other means to write papers for my classes.	88%	28.88	85%	18.22**
19.	I plan to continue using word processing to write my papers after this class is over.	90%	32.97**	95%	30.62**
31.	I get nervous in the ESL computer lab.	10%	33.95**	20%	13.22**
37.	I was worried that I might damage the computer.	20%	18.85**	25%	9.02*
38.	I was worried that it would take me longer to learn to use the computer than it would the other students.	22%	18.85**	35%	3.02
36.	I had trouble understanding how to use the computer.	22%	16.45**	35%	3.02

**p < .001

*p < .01.

SSCC's Student Attitudes Toward The Writing Process (Factor 1)

The first factor examined ESOL students' attitudes toward the use of writing on computers. In general, attitudes toward writing with PC's were positive. Only item 28 did not have a statistically significant positive response. All percentage results are based on the subject pool of 40 students.

Most students (82.5%) agreed that they paid more attention to choosing the right word when using a word processor ($\chi^2 = 15.62, p < .001$). Paying more attention to transition on the word processor was affirmed by 87.5% of the students ($\chi^2 = 48.05, p < .001$). In addition, 82.5% of the students found these ESOL writing classes challenging ($\chi^2 = 21.02, p < .001$). Furthermore, most students felt that using the computer for writing enhanced their chances for academic success and 82.5% perceived that they received better grades on papers as a result of using a word processor ($\chi^2 = 15.62, p < .001$). Almost all students (92.5%) felt that using the computer helped them develop confidence about their ability to write in English ($\chi^2 = 15.62, p < .001$). Ninety percent said they paid more attention to grammar when word-processing ($\chi^2 = 27.22, p < .001$). Most students (87.5%) also felt that they paid more attention to organization on the word processor was affirmed by 87.5% of the students ($\chi^2 = 24.02, p < .001$).

Students were asked if they felt they received more individual attention from the teacher in the ESOL computer writing classes versus non-computer writing classes; 67.5% agreed that they received more individual attention while 32.5% felt that they did not ($\chi^2 = 4.22$, n.s.d). Only in this response was there no statistically significant difference between the agreement and disagreement of students.

Fully 92% of the subjects indicated they would recommend that other international students learn to use word processors for writing their papers in English ($\chi^2 = 27.22$, $p < .001$). Paying more attention to punctuation on the word processor was affirmed by 87.5% of the students ($\chi^2 = 21.02$, $p < .001$). Altogether 82.5% of the students said that they paid more attention to spelling when using a word processor ($\chi^2 = 15.62$, $p < .001$). These questions focused on student attitudes and behavior during the writing process and revealed that students paid more attention to writing and the details with a word processor than they did with pen and paper.

SSCC's Student Attitudes Toward Using PC's/Developing

Computer Skills (Factor 2)

The second factor explores student attitudes toward the computer and the development of computer skills. The analysis of the second factor results reveal mixed feelings toward learning word-processing skills in the ESOL writing class.

Fully 85% indicated that they used word processing more than any other means to write papers for classes ($\chi^2 = 18.22, p < .001$). When students were asked whether they planned to continue using word processors to write their papers after completing the course, 95% affirmed they would ($\chi^2 = 30.62, p < .001$). Only 20% of the students ($\chi^2 = 13.22, p < .001$) felt nervous in the ESOL computer lab while 80% did not feel nervous when in the computer lab.

While the majority (75%) of students were not worried about damaging the PC's, 25% worried that they might damage the computer ($\chi^2 = 9.02, p < .01$). There was no statistically significant difference between two items in factor 2. Sixty-five percent of the students did not worry that it would take them longer to learn computer skills than it would take other students ($\chi^2 = 3.02, p < .001$). Finally, the majority of students (65%) did not experience difficulty understanding the PC ($\chi^2 = 3.02, n.s.d.$), apparently some students did (35%).

In the second part of the survey which explored students' educational, language and computer experiences, two questions were used to elicit students' perceptions of their teachers' knowledge and helpfulness in the CAW classroom. This helped eliminate the instructor as a significant cause of negative attitudes toward the use of computers in the classroom. Fully 97.5% felt that the instructors were knowledgeable and helpful to the students concerning writing and computer use. These results may

indicate that the teachers contributed positively to the learning of computers and writing.

Differences between Neu and Scarcella's students and
South Seattle Community College.

Next, a t-test was used to compare differences between Neu and Scarcella (1991) and South Seattle Community College response in the percent of agreement with the 17 items that loaded onto two factors measuring attitudes toward writing and attitudes toward PC's. Table 4.3 lists the results of the t-test and marks the 4 items that shows statistically significant differences between the Neu and Scarcella (1991) NNES population and the SSCC NNES population.

Table 4.3 COMPARISON OF SSCC RESPONSE RATES WITH NEU & SCARCELLA'S RESPONSE RATES FOR 17 ITEMS IN FACTOR 1 AND FACTOR 2

Factor 1: Attitudes Toward Writing				Factor 2: Attitudes Toward PC's			
Item	N&S	SSCC	t	Item	N&S	SSCC	t
Item 13	76%	82.5%	0.777	Item 24	88%	85%	-.418
Item 35	78%	87.5%	1.235	Item 19	90%	95%	0.935
Item 34	69%	82.5%	1.551	Item 31	10%	20%	1.328
Item 16	72%	82.5%	1.225	Item 37	20%	25%	0.571
Item 10	70%	92.5%	3.000**	Item 38	22%	35%	1.380
Item 3	73%	90%	2.213*	Item 36	22%	35%	1.380
Item 29	78%	87.5%	1.235				
Item 28	67%	67.5%	0.051				
Item 14	92%	92.5%	0.089				
Item 33	65%	87.5%	2.669**				
Item 21	69%	82.5%	2.507*				

* $t_{.05} = 1.986$

** $t_{.01} = 2.631$

*** $t_{.001} = 3.402$

Of the 11 items in Factor 1-Attitudes toward Writing, SSCC students reported more positive attitudes on 10 of the items. For four of the items, the differences were statistically significant between SSCC students and Neu and Scarcella's (1991) students. On one item relating to Factor 1, the two groups had the same percentage of responses. The 6 items in Factor 2-Attitudes toward PC's, were all non-significant. It is interesting to note that for five of the six items related to attitudes toward PC's the SSCC subjects responded less favorable.

The four items that were statistically significant were found in the first factor which measures attitudes toward writing. No significant differences were found for the items in the second factor measuring attitudes toward PC's. The four items reveal

statistically more positive attitudes toward writing on the word processor than Neu and Scarcella (1991) found.

On Item ten, 92.5% of the students at SSCC compared to 70% of the students in Neu and Scarcella's (1991) research felt that using the computer had helped them to develop confidence in their ability to write in English. Likewise, 90% of the students at SSCC compared to 78% of Neu and Scarcella's (1991) students thought that using the word processor on the computer helped them to pay more attention to grammar (item 3). In addition, 87.% of SSCC students compared to 65% of Neu and Scarcella's (1991) subjects said they paid more attention to punctuation when writing on a computer in English (item 33). Finally, 82.5% of the subjects at SSCC compared to 69% of New and Scarcella's (1991) students said that they paid more attention to spelling when they used word processing on the computer (item 21). These comparisons indicate that the word processor was an esteemed tool that helped SSCC students experience improvement in their writing.

No significant differences were found between the two groups on the items in Factor 2. Students at SSCC expressed slightly more anxiety toward the use of computers and word processors than reported by New and Scarcella's (1991) students. Comparably, SSCC students reported 85% that they use word processing less than any other means to write papers for their classes while New and Scarcella's (1991) students reported 88% agreement on item 24. More students at SSCC agreed (20%) that they

experienced nervousness in the ESOL computer lab compared to 10% of the Neu and Scarcella (1991) subjects (item 31). On item 37, 25% of the SSCC students compared to 20% of Neu and Scarcella's (1991) students worried that they might damage the computer. Additionally, 35% of students at SSCC compared to 22% of Neu and Scarcella's (1991) subjects worried that it would take them longer to learn to use the computer than it would the other students (item 38). Finally, on item 36, SSCC students reported more trouble (35%) understanding how to use the computer than was reported in Neu and Scarcella's (1991) findings (22%).

In conclusion, the t-test revealed that students at SSCC were significantly more likely to report that writing on computers helped them pay more attention to grammar, punctuation, and spelling while developing their confidence in writing of English. Students at SSCC were also as likely or more likely than the students in Neu and Scarcella's (1991) sample to agree with all statements related to attitudes toward writing and less likely to agree with (5 of 6) statements related to positive attitudes toward PC's.

These negative findings are not statistically significant but are important as a group of concerns voiced by students. Students reported more nervousness in computer labs or had more troubles understanding how to use the computer than the subjects in Neu and Scarcella's (1991) study. In addition, SSCC students worried

more about the time it took to learn computer skills as well as dealing with fears of damaging the PC's.

CHAPTER V

DISCUSSION, IMPLICATIONS, LIMITATIONS, AND RECOMMENDATIONS

This chapter presents discussion, implications, and limitations based on the analysis of the data collected from the ESOL classroom. Recommendations for further study are also suggested.

This study set out to investigate ESOL students' attitudes toward PC's and toward writing on word processors. Questionnaires were distributed the last day of the term to all students in the Transitional English courses. A statistical analysis using Chi-Square and t-tests to measure ESOL students' attitudes toward writing and the PC were conducted. Findings were compared to Neu and Scarcella's (1991) study.

Discussion

The analysis of the data showed that ESOL students in general believed that word-processing helped their writing performance by concentrating their attention on certain writing aspects, such as grammar, word choice, organization, and transitions. Students also felt that they wanted to continue learning on the computer while they

felt some anxiety about understanding how the word processor worked or the length of time it would take to learn computer skills. Overall, the students were not nervous in the ESOL writing lab and they felt they would continue to use the computer in the future.

Because much of the literature has focused on measuring improvements in ESOL students' writing quality (Dunkel, 1991, Phinny, 1991, Snyder, 1993), it has become critical that we attempt to ascertain, directly from ESOL students, whether or not they perceive benefits from the use of word processors. In addition, it is essential to understand ESOL students' perceptions of whether or not the computer laboratory is a challenging and a valued environment in which to learn writing with the tools of modern technology.

The results of this study suggest that ESOL students sensed the value of writing on word processors because they felt they received better grades on word-processed assignments. Although some students felt worried about learning and understanding the computer, and students thought that the writing class in the computer lab was challenging, the majority would recommend that other international students learn to use word processing for writing their papers in English.

It is interesting that the students were emphatic that the use of the word processor helped them pay more attention to the mechanics and grammar in their

writing, yet they did not perceive that they received more individual attention from the teacher in the ESOL computer writing class than they did in non-computer writing classes. This finding may suggest that students took more initiative to proof-read and edit their own writing as they wrote, not relying on the instructor to do the revisions. Neu and Scarcella (1991) state that "these positive attitudes toward writing on the computer should contribute to improving their writing abilities by increasing their willingness to write and revise, and to write and share their writing with others (p.181)."

Although some of the NNES subjects experienced difficulty and anxiety learning computer skills, most students recognized that learning computer skills was important to their writing development. Simultaneously, they felt more aware of their developing skills in English writing. These results might be confirmed or explained by Smith's (1992) findings: students' perceptions of the computers' usefulness in writing fosters more positive attitudes toward writing and the writing skills needed to succeed.

Furthermore, students admitted that they used word-processing more than any other means to write papers for their classes. Inasmuch as 60% of the students had never used a computer before, and only 15% had a computer at home, they experienced few problems relating computer skills to writing tasks. The SSCC sample is considered representative of the ESOL population in community college technical

programs. By examining students with SLEP scores below 55 but above 44, this research focused on NNES subjects. The NNES population that attends community colleges will continue to encounter more demands to use computer technology in their technical fields and written communications. However, the difficulty students may have learning word processing and other educational software will continue to diminish as familiarity with computers grows.

Implications for Practice and Research

In recent years, computers have played an increasing role in human learning. Many educators have found advantages in the use of computers as instructional tools. However, the role of the computer as a writing tool continues to expand in all aspects of teaching writing. Research involving computers and ESOL writing is quite sparse compared to other kinds of educational research. Although research findings involving the use of word processors have indicated mixed results, researchers and teachers continue to explore better and more effective ways to use computers in the writing classroom.

The results of this study indicate that ESOL students have strong preferences for using word-processing in their writing courses. This attitude could be attributed to students' perception that the word processor is useful to their future studies and work, and not just another academic exercise. It is implied that because computers make

writing more efficient for students, the word processor can be used as a motivational tool to encourage students to improve their writing quality and their attitudes toward writing. If a positive attitude toward writing is an indicator of the degree students will improve their writing quality (Thaipakdee, 1992), then teachers will be encouraged to use computers to inspire such positive attitudes.

Contrary to Pollack (1985) who suggested that learning word-processing skills interfered with learning writing strategies, the students indicated that more attention is given to mechanics, word choice and grammar. In addition, students felt that other ESOL students could learn writing skills even when participants are inexperienced with keyboarding and with computer skills.

Instructors expect ESOL students to learn to read from computer monitors, to learn to use word processor function keys, to manipulate documents, and to learn to keyboard in a foreign language while trying to develop linguistic competence in their English writing. Not only do ESOL instructors expect this learning to occur in the classroom, but industry and labor (SCANS Report) is pressuring community colleges to prepare students with work-place skills that include computer technology and writing communication. The students in this research also understood the importance of studying computer technology that is inundating vocational training and they were positive about PC's use even under difficulties. Few of the subjects felt they typed

well, yet they would encourage other students to use computers in their writing courses.

It is important to understand that students attitudes toward the use of computers in the writing classroom may be related to students perception of how well the teacher knows the PC and curriculum. Teachers exhibit skills and attitudes about PC's and curriculum while teaching and thus communicate a sense competence or skill. If classroom settings are to be a positive environment for CAW, it is imperative that writing instructors who use computers be trained in software and curriculum. Furthermore, a trained ESOL writing instructor is irreplaceable in writing courses, regardless of the tools being used. These computational and pedagogical skills allow teachers to anticipate difficulties so they may demonstrate appropriate computer functions, document formats, or paragraph structure. In addition, teachers are an important variable in effecting the anxiety levels and expectations of writing students (Thaipakdee, 1992).

Appropriate teacher training will not only enable teachers to prepare students with necessary computer and writing skills, yet will prepare teachers to work along side students as they develop computer and writing skills. Students in this study perceived the writing and computer instructors as knowledgeable and helpful in the writing class. As Sommers (1985b) has said, "microcomputers are not a panacea, and most of our important work in the writing classroom will always be done by writers

and teachers" (P.3). Placing ESOL students in computer labs requires administrators and teachers to re-evaluate curriculum and teacher preparedness for new materials and tools. Greater flexibility of materials, for example textbooks, will be needed since students will spend more time in class using computers and less time on teacher-centered or textbook-centered activities. The CAW Classroom focus will be on students working at their own pace while exploring new tools for writing. As this research suggests, students may feel uncomfortable at first, but they will finally generate positive attitudes toward writing processes on PC's.

Limitations

These results can be generalized to NNES students who are using word-processing in developmental or ESOL writing classes in a community college setting. Although the sample size of 40 is small, the subjects provide a broad view of issues regarding ESOL students' attitudes toward CAW. Because the survey was given only once at the end of the term, the data could not show how students developed their attitudes toward writing on the computer. In addition, the causes of their attitudes could not be explored due to the many variables in the classroom that can not be measured by a questionnaire.

Without having clear documentation of the relationship of students attitudes and their achievements, it is not possible to make stronger claims about the impact of

CAW on community college students success. The survey data gathered here is an important piece of the puzzle that describes how students learn. By gathering actual achievement of students from the CAW lab, it would have provide a more complete picture on which to make claims.

Twenty-one items from Neu and Scarcella's (1991) questionnaire were not related to the two factors measuring attitudes toward writing and attitudes toward PC's so were not included in this report.

This study did not examine differences among sub-groups of the NNES sample such as gender, age, and native language. However, English language studies background and computer experience are reported and the results may be generalized to institutional setting similar to this educational environment at South Seattle Community College.

Recommendations

Based on the findings of this study, the following are suggestions for potential avenues for further research on the attitudes of ESOL writing students who use word processors in their writing classes.

1. Because 95% of the students reported that they planned to continue using word processors to write their papers after completing the course, longitudinal studies

are needed to explore students' attitudes toward writing and how they change over time. Some have suggested that the "halo effect" from the new technology may wear off as students become more familiar with word processing. As students develop advanced word processing skills, do they remain positive and focused on writing skills? Little is known about the long term changes in attitudes toward computer and writing in general.

2. Further study is needed to investigate computer training skills that included word processing activities to lessen students' worries about damaging or using the computer. In this study, 35% of the students reported having trouble understanding how to use the computer. Research to explore classroom instruction and curriculum in conjunction with student computer training must be explored to lessen anxiety toward computer use.

3. Although investigation of gender or subgroups was not a part of the design of this study, the literature indicates that further study should compare differences between male and female attitudes toward computer use and CAW. In addition, specific studies of language and/or country origin and attitudes are needed.

4. As Thaipakdee (1992) suggested, attitudes toward writing may be an essential factor in the improvement of students' writing when using computers. Further research designed to measure student initial attitudes toward writing are

needed. This would include exploring the affects of curriculum that fosters positive attitudes and student confidence towards writing.

5. The literature and writer's personal observations indicate the need for longitudinal studies that map attitudes toward writing on computers and cooperative learning activities.

REFERENCES

Andrews, D. C. (1985). Writer's slump and revision schemes: Effects of computers on the composing process. Collegiate Microcomputer, 3, 313-316.

Brown, H. D. (1987). Principles of language learning and teaching (2nd ed.). NJ: Prentice-Hall.

Brown, J. (1985). Emphasizing revision with word processing in freshman English classes. East Lansing, MI: National Center for Research on Teacher Learning. (ERIC Document Reproduction Service No. ED 258 279).

Chapelle, C., & Jamieson, J. (1986). Computer-assisted language learning as a predictor of success in acquiring English as a Second language. TESOL Quarterly, 20, 27-46.

Cheever, F. (1987). The effects of using a word processor on the acquisition of composition skills by the elementary student (Doctoral dissertation, Northwestern University). Dissertation Abstracts International, 48, 43A.

Collier, R. M. (1983). The word processor and revision strategies. College Composition and Communication, 34(2), 149-155.

Dalton, D. W. & Watson, J. F. (1986). Word processing and the writing process: Enhancement or distraction? Paper presented at the Annual Convention of the Association for Educational Communications and Technology, Los Vegas, January 1986. (ERIC Reproduction Service No. 267 763)

Daiute, C. (1986). Physical and cognitive factors in revision: Insights from studies with computers. Research in the Teaching of English, 20(2), 141-159.

Duling, R. A. (1985). Word processors and student writing: A study of their impact on revision, fluency and quality of writing (Doctoral dissertation, Michigan State University). Dissertation Abstract International, 46, 1823A.

Dunkel, P. (1991). The effective research on computer-assisted instruction and computer-assisted language learning. In P. Dunkel (Ed.), Computer-Assisted Language Learning and Testing, NY: Newbury House.

Freedman, A. & Pringle, I. (Eds.). (1980). Reinventing the rhetorical tradition (Canadian Council of Teachers of English), Toronto: L & S Books in association with the National Association for the Teaching of English. (ERIC Reproduction Service No. 214 162).

Hairston, M. (1982). The winds of change: Thomas Kuhn and the revolution in the teaching of writing. College Composition and Communication, 33(1), 76-88.

Harris, J. (1983). Student writers and word processing: A preliminary evaluation. College Composition and Communication, 36(3), 323-330.

Hawisher, G. E. & Selfe C. (Eds.). (1989). Critical perspectives on computers and composition instruction. NY: Teachers College Press.

Johnson, M. I. & Sterkel, K. (1984, February). Writing with the computer brings positive results. College Composition and Communication, 41(2), 201-214.

Jom, L. & Duin, A. H. (1989) Implementing computer-assisted-instruction in the technical writing course: Effects on students's attitudes. St. Paul: University of Minnesota.

Krashen, S. (1981). Second language acquisition and second language learning. Oxford: Pergamon Press.

Lamazares, I. M. (1991). The effect of computer-assisted instruction on the writing performance and writing anxiety of community college developmental students (Doctoral dissertation, University of Miami). Dissertation Abstracts International, Order number 9214829.

Miller, S. K. (1984). Plugging your pencil into the wall: An investigation of word processing and writing skills at the middle school level (Doctoral dissertation, University of Oregon). Dissertation Abstracts International, 45, A.

Montague, M. (1990). Computers, cognition and writing instruction. NY: State University of New York Press.

Murrey, D. (1984). Teaching writing as a process not a product. In R. L. Graves (Ed.), Rhetoric and composition: A sourcebook for teachers and writers (pp. 89-92). Upper Montclair, NJ: Boynton/Cook.

Neu, J. & Scarcella, R. (1991). Word processing in the ESL writing classroom: A survey of student attitudes. In P. Dunkel (ED.), Computer Assisted Language Learning and Testing: Research Issues and Practice (pp. 169-188). NY: Newbury House.

Phinny, M. (1991). Computer-assisted writing and writing apprehension in ESL students. In P. Dunkel (Ed.), Computer Assisted Language Learning and Testing: Research Issues and Practice (pp. 189-204). NY: Newbury House.

Pollack, S. N. (1985). Exploratory study of the use of the computer for revision to improve student writing (Doctoral dissertation, University of Southern California). Dissertation Abstracts International, 46, 2547A.

Roblyer, M. D., Castine W. H., & King, F. J. (Eds.). (1985). Assessing the impact of computer-based instruction: A review of recent research. NY: Haworth Press.

Ross, D. (1985). Realities of computer analysis of compositions. In J. L. Collins and E. A. Sommers (Eds.), Writing on-line: Using computers in the teaching of writing (pp. 105-113).

Sadler, L. V. (1987, Fall). The computers-and-effective-writing movement: computer-assisted composition. ADE Bulletin, p.28-33.

Secretary's Commission on Achieving Necessary Skills (SCANS). (1992). What work requires of school: A SCANS report for America 2000. Washington, DC: Government Printing office.

Schrodeder, E. J., & Boe, J. (1990). Minimalism populism, and attitudes transformation: Approaches to teaching writing in computer classrooms. In C. Handa (Ed.), Computer and community: Teaching Composition in the twenty-first century. (pp. 28-46). Portsmouth: Boynton/Cook.

Schramm, R. M. (1990). The effects of using word-processing equipment in writing instruction: A meta-analysis. (Doctoral dissertation, Northern Illinois University, 1989). Dissertation Abstracts International, 50, 2463A.

Sommers, E. A. (1985a). The effects of word processing and writing instruction on writing processes and products of college writers. (Eric Reproduction Service No. 269 762).

Sommers, E. A. (1985b). Integrating composing and computing. In J. L. Collins and E. A. Sommers (Eds.), Writing on-line: Using computers in the teaching of writing (pp. 3-10). Upper Montclair, NJ: Boynton/Cook.

Snyder, L. (1993). The impact of computers on students' writing: A comparative study of the effects of pens and word processors on writing context, process and product. Australian Journal of Education, 37(1), p5-25.

Teichman, M. & Poris, M. (1989). Initial effects of word processing on writing quality and writing anxiety of freshmen writers. Computers and the Humanities, 23, 93-103.

Thaipakdee, S. (1992). Relationships among writing quality, attitudes toward writing, and attitudes toward computers in a computer-mediated technical writing class for English as a foreign language students (Doctoral dissertation, University of North Texas). Dissertation Abstract International, 46, 1823A.

Turner, J. A. (1987, April 29). Microcomputers found more available-and more often required-at selective colleges. Chronicle of Higher Education pp. 13, 17.

Virga, P. H. (1987). The NMA handbook for managers. NJ: Prentice-Hall.

Washington State Board for Community and Technical Colleges: Education Division. (1995). Second annual progress report on system goals for people of color participation and diversity in Washington community and technical colleges. (Research Report No. 95-1). Olympia, WA.

Woolfolk, A. E. (1987). Educational Psychology (3rd ed.). NJ: Prentice-Hall.

APPENDIX A

FREQUENCY DISTRIBUTION ON PART TWO OF THE QUESTIONNAIRE

ITEM 1: WHAT IS YOUR NATIVE COUNTRY?

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VIETNAM	1.00	20	50.0	50.0	50.0
GUATEMALA	2.00	1	2.5	2.5	52.5
COLOMBIA	3.00	1	2.5	2.5	55.0
PHILIPPINES	4.00	2	5.0	5.0	60.0
SOMALIA	5.00	1	2.5	2.5	62.5
UGANDA	6.00	1	2.5	2.5	65.0
CAMBODIA	7.00	2	5.0	5.0	70.0
THAILAND	8.00	2	5.0	5.0	75.0
ERITREA	9.00	1	2.5	2.5	77.5
RUSSIA	10.00	2	5.0	5.0	82.5
HONG KONG	11.00	1	2.5	2.5	85.0
ESTONIA	12.00	1	2.5	2.5	87.5
HAWAII	13.00	1	2.5	2.5	90.0
KOREA	14.00	1	2.5	2.5	92.5
UKRAINE	15.00	1	2.5	2.5	95.0
ECUADOR	16.00	1	2.5	2.5	97.5
LAOS	17.00	1	2.5	2.5	100.0
		Total	40	100.0	100.0

ITEM 2: WHAT IS YOUR NATIVE LANGUAGE?

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
VIETNAMESE	1.00	20	50.0	50.0	50.0	
SPANISH	2.00	3	7.5	7.5	57.5	
TAGALOG	3.00	1	2.5	2.5	60.0	
SOMALI	4.00	1	2.5	2.5	62.5	
UGANDA	5.00	1	2.5	2.5	65.0	
CAMBODIAN	6.00	2	5.0	5.0	70.0	
FILIPINO	7.00	1	2.5	2.5	72.5	
THAI	8.00	2	5.0	5.0	77.5	
TIGHNGU	9.00	1	2.5	2.5	80.0	
RUSSIAN	10.00	3	7.5	7.5	87.5	
CANTONESE	11.00	1	2.5	2.5	90.0	
KOREAN	13.00	2	5.0	5.0	95.0	
UKRAINIAN	14.00	1	2.5	2.5	97.5	
LAOTIAN	15.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 3: WHAT IS YOUR MAJOR FIELD OF STUDY?

Value Label	Value	Frequency	Percent	Percent	Valid Percent
DRAFTING	1.00	3	7.5	7.5	7.5
AUTO TECHNOLOGY	2.00	11	27.5	27.5	35.0
INDUSTRIAL MAINTENAN	3.00	3	7.5	7.5	42.5
COMPUTER TECHNOLOGY	4.00	9	22.5	22.5	65.0
UNKNOWN	5.00	5	12.5	12.5	77.5
DIESEL TECHNOLOGY	6.00	1	2.5	2.5	80.0
QUALITY ASSURANCE	7.00	1	2.5	2.5	82.5
AVIONICS	8.00	1	2.5	2.5	85.0
AUTO BODY	9.00	2	5.0	5.0	90.0
ROBOTIC TECHNOLOGY	10.00	1	2.5	2.5	92.5
WELDING FABRICATION	11.00	2	5.0	5.0	97.5
ACCOUNTING	12.00	1	2.5	2.5	100.0
Total		40	100.0		

ITEM 4: WHAT IS YOUR GENDER?

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
MALE	1.00	35	87.5	87.5	87.5	
FEMALE	2.00	5	<u>12.5</u>	<u>12.5</u>	100.0	
Total		40	100.0	100.0		

ITEM 5: HOW OLD ARE YOU?

Value Label	Age Value	Frequency	Percent	Percent	Valid Percent	Cum
	19.00	2	5.0	5.0	5.0	
	20.00	2	5.0	5.0	10.0	
	21.00	2	5.0	5.0	15.0	
	22.00	4	10.0	10.0	25.0	
	23.00	1	2.5	2.5	27.5	
	24.00	1	2.5	2.5	30.0	
	25.00	2	5.0	5.0	35.0	
	26.00	1	2.5	2.5	37.5	
	25.00	2	5.0	5.0	42.5	
	29.00	1	2.5	2.5	45.0	
	30.00	2	5.0	5.0	50.0	
	32.00	2	5.0	5.0	55.0	
	33.00	2	5.0	5.0	60.0	
	34.00	1	2.5	2.5	62.5	
	35.00	1	2.5	2.5	65.0	
	36.00	2	5.0	5.0	70.0	
	37.00	1	2.5	2.5	72.5	
	38.00	2	5.0	5.0	77.5	
	39.00	1	2.5	2.5	80.0	
	40.00	1	2.5	2.5	82.5	
	41.00	1	2.5	2.5	85.0	
	42.00	2	5.0	5.0	90.0	
	45.00	1	2.5	2.5	92.5	
	50.00	1	2.5	2.5	95.0	
	58.00	2	5.0	5.0	100.0	
Total		40	100.0	100.0		

ITEM 6: HOW LONG HAVE YOU STUDIED ENGLISH?

Value Label	Months	Frequency	Percent	Valid		Cum
	Value			Percent	Percent	
	2.00	2	5.0	5.0	5.0	
	3.00	2	5.0	5.0	10.0	
	8.00	1	2.5	2.5	12.5	
	12.00	3	7.5	7.5	20.0	
	24.00	7	17.5	17.5	37.5	
	30.00	1	2.5	2.5	40.0	
	36.00	3	7.5	7.5	47.5	
	39.00	1	2.5	2.5	50.0	
	40.00	1	2.5	2.5	52.5	
	42.00	1	2.5	2.5	55.0	
	48.00	4	10.0	10.0	65.0	
	60.00	3	7.5	7.5	72.5	
	70.00	1	2.5	2.5	75.0	
	72.00	1	2.5	2.5	77.5	
	98.00	1	2.5	2.5	80.0	
	114.00	1	2.5	2.5	82.5	
	120.00	1	2.5	2.5	85.0	
	132.00	1	2.5	2.5	87.5	
	140.00	1	2.5	2.5	90.0	
	168.00	3	7.5	7.5	97.5	
	600.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 7: HOW LONG HAVE YOU LIVED IN THE U.S.?

Value Label	Months	Frequency	Percent	Valid		Cum
	Value			Percent	Percent	
	9.00	1	2.5	2.5	2.5	
	12.00	1	2.5	2.5	5.0	
	18.00	1	2.5	2.5	7.5	
	24.00	4	10.0	10.0	17.5	
	28.00	2	5.0	5.0	22.5	
	30.00	1	2.5	2.5	25.0	
	36.00	2	5.0	5.0	30.0	
	37.00	1	2.5	2.5	32.5	
	40.00	1	2.5	2.5	35.0	
	48.00	7	17.5	17.5	52.5	
	60.00	3	7.5	7.5	60.0	
	68.00	1	2.5	2.5	62.5	
	70.00	1	2.5	2.5	65.0	
	72.00	2	5.0	5.0	70.0	
	77.00	1	2.5	2.5	72.5	
	96.00	1	2.5	2.5	75.0	
	109.00	1	2.5	2.5	77.5	
	118.00	1	2.5	2.5	80.0	
	124.00	1	2.5	2.5	82.5	
	132.00	1	2.5	2.5	85.0	
	140.00	1	2.5	2.5	87.5	
	156.00	1	2.5	2.5	90.0	
	162.00	2	5.0	5.0	95.0	
	196.00	1	2.5	2.5	97.5	
	600.00	1	2.5	2.5	100.0	
<hr/>						
	Total	40	100.0	100.0		

ITEM 8: DID YOU GRADUATE FROM AN AMERICAN H.S.?

Value Label	Value	Frequency	Percent	Valid		Cum
				Percent	Percent	
YES	1.00	16	40.0	40.0	40.0	
NO	2.00	24	60.0	60.0	100.0	
<hr/>						
	Total	40	100.0	100.0		

ITEM 9: DO YOU USE A COMPUTER DAILY?

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
YES	1.00	12	30.0	30.0	30.0	
NO	2.00	28	70.0	70.0	100.0	
Total		40	100.0	100.0		

ITEM 10: DO YOU HAVE A COMPUTER AT HOME - WRITING

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
YES	1.00	6	15.0	15.0	15.0	
NO	2.00	33	82.5	82.5	97.5	
	3.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 11: HOW LONG HAVE YOU USED THE COMPUTER WP?

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
	.00	1	2.5	2.5	2.5	
	1.00	3	7.5	7.5	10.0	
	2.00	2	5.0	5.0	15.0	
	3.00	17	42.5	42.5	57.5	
	4.00	2	5.0	5.0	62.5	
	5.00	2	5.0	5.0	67.5	
	6.00	2	5.0	5.0	72.5	
	7.00	2	5.0	5.0	77.5	
	9.00	1	2.5	2.5	80.0	
	10.00	2	5.0	5.0	85.0	
	12.00	4	10.0	10.0	95.0	
	15.00	1	2.5	2.5	97.5	
	72.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 12: HOW OFTEN USE COMPUTER IN OWN LANGUAGE?

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
NEVER	1.00	33	82.5	82.5	82.5	
ONCE A WEEK	2.00	3	7.5	7.5	90.0	
2-3 TIMES A WEEK	3.00	3	7.5	7.5	97.5	
6-7 TIMES A WEEK	5.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

item 13: MY TYPING SKILLS ARE?

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
POOR	1.00	11	27.5	27.5	27.5	
FAIR	2.00	9	22.5	22.5	50.0	
AVERAGE	3.00	14	35.0	35.0	85.0	
GOOD	4.00	5	12.5	12.5	97.5	
VERY GOOD	5.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 14: WHEN POSSIBLE, I HAVE OTHER PERSON TYPE

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
NEVER	1.00	34	85.0	85.0	85.0	
ONCE IN A WHILE	2.00	2	5.0	5.0	90.0	
SOMETIMES	3.00	3	7.5	7.5	97.5	
OFTEN	4.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 15: MY INSTRUCTOR IS KNOWLEDGEABLE COMPUTER

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
YES	1.00	39	97.5	97.5	97.5	
NO	2.00	1	2.5	2.5	100.0	
Total		40	100.0	100.0		

ITEM 16: MY INSTRUCTOR ASSISTS ME WHEN I WRITE

Value Label	Value	Frequency	Percent	Percent	Valid Percent	Cum
YES	1.00	38	95.0	95.0	95.0	
NO	2.00	2	5.0	5.0	100.0	
Total		40	100.0	100.0		

APPENDIX B

QUESTIONNAIRE: COMPUTERS IN WRITING (Based on Neu and Scarcella, 1991)

SS# _____ SLEP _____

This questionnaire will only be used for research regarding ESL students' attitudes towards the use of the computer. No part of this questionnaire will be used for academic evaluation of the student.

Part I: Attitudes towards writing with the computer (word processing).

Directions: Please circle one number to the right that corresponds to how you feel about each statement.

1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
1. The computer lab helped me get better grades on my papers.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
2. I spend more time working on my papers when I use the computer than when I write with other means.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
3. When I use word processing on the computer, I pay more attention to grammar.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
4. I generate more ideas for papers when I use word processing.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
5. I prefer using word processing than other means to write my papers.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
6. Generally speaking, I like to write in my own language.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
7. Generally speaking, I like to write in English.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
8. I consider myself a good writer in my own language.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
9. When I use word processing on the computer, I pay more attention to the content of the paper.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
10. Using a computer has helped me to develop confidence about my ability to write in English.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
11. I feel I've learned more about writing in English from this class than I have from other English classes I've taken in which the computer was not used.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
12. I prefer using word processing on the computer to write my papers than writing them by other means.	1 2 3 4

	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	
13. I pay more attention to choosing the right word when I use word processing.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
14. I would recommend that other international students learn to use word processing for writing their papers in English.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
15. I would take another ESL writing course if it were held in a computer lab.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
16. I get better grades on papers I've written using word processing.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
17. It was difficult to learn how to use the computer.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
18. I revise my papers more often when I use word processing than when I write with other means.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
19. I plan to continue using word processing to write my papers after this class is over.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
20. I feel that I learn better when I get individual attention from the teacher.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
21. I pay more attention to spelling when I use word processing on the computer.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
22. The atmosphere in the computer lab is friendly.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
23. Using word processing makes me less anxious about writing since I know I can make changes easily.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
24. I use word processing more than any other means to write papers for my classes.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
25. I think I write longer papers using word processing.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
26. I feel frustrated when I can't figure out what to do when I am trying to write my paper on the computer.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
27. I don't hesitate to make changes when I use word processing.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
28. I feel I get more individual attention from the teacher in the ESL computer writing lab than I do in other, noncomputer writing classes.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
29. I pay more attention to organization when I use word processing.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
30. I am more pleased with papers I write using word processing on the computer.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4
31. I get nervous in the ESL computer lab.	1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly →	1 2 3 4

32. Other students helped me use the computer lab or write using the computer.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
33. When I write using word processing, I pay more attention to punctuation.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
34. I find this ESL writing class in the computer lab challenging.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
35. I pay more attention to transition when I use word processing.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
36. I had trouble understanding how to use the computer.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
37. I was worried that I might damage the computer.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
38. I was worried that it would take me longer to learn to use the computer than it would the other students.
1=Agree Strongly, 2= Agree, 3= Disagree, 4= Disagree Strongly → 1 2 3 4
- 1 2 3 4

PART II. STUDENT INFORMATION

WRITE IN THE BEST ANSWER OR CIRCLE THE CORRECT RESPONSE.

1. What is your native country: _____ 2. What is your native language: _____
3. What is your major field of study: _____ 4. Your Gender (Circle one) 1: Male 2: Female
5. How old are you? _____ 6. How long have you studied English? Months _____ or Years _____
7. How long have you lived in the United States? Months _____ or Years _____
8. Did you graduate from an American High School 1. Yes 2. No 9. Do you use a computer daily? 1. Yes 2. No
10. Do you have a computer at home that you use for writing? 1. Yes 2. No
11. How long have you used the computer for word processing? _____ Months
12. How often do you use a word processor in your own language? (Circle one number)
1. Never 2. Once a week 3. Two or three times a week 4. Four or five times a week 5. Six or seven times a week
13. My typing skills are ... (circle a number) 1. poor 2. fair 3. average 4. good 5. very good
14. When possible, I have another person type my assignments for my classes. (Circle one letter)
↓ ↓ ↓ ↓ ↓
1. Never 2. Once in a while 3. Sometimes 4. Often 5. Usually
15. My computer/writing instructor is knowledgeable about computer use. 1. Yes 2. No
16. My computer instructor assists me with when I write assignments on the computer? 1. Yes 2. No

APPENDIX C

SOUTH SEATTLE COMMUNITY COLLEGE STUDENTS' RESPONSES TO THE TWENTY-ONE ITEMS THAT DID NOT LOAD INTO FACTOR ANALYSIS

Item #	Statements	Agreement
1.	The computer lab helped me get better grades on my papers.	97.5%
2.	I spend more time working on my papers when I use the computer than when I write with other means.	75%
4.	I generate more ideas for papers when I use word processing.	92.5%
5.	I prefer using word processing than other means to write my papers.	97.5%
6.	Generally speaking, I like to write in my own language.	30%
7.	Generally speaking, I like to write in English.	95%
8.	I consider myself a good writer in my own language.	67.5%
9.	When I use word processing on the computer, I pay more attention to the content of the paper.	77.5%
11.	I feel I've learned more about writing in English from this class than I have from other English classes I've taken in which the computer was not used.	80%
12.	I prefer using word processing on the computer to write my papers than writing them by other means.	92.5%
15.	I would take another ESL writing course if it were held in a computer lab.	90%
17.	It was difficult to learn how to use the computer.	40%

18.	I revise my papers more often when I use word processing than when I write with other means.	75%
20.	I feel that I learn better when I get individual attention from the teacher.	77.5%
22.	The atmosphere in the computer lab is friendly.	95%
23.	Using word processing makes me less anxious about writing since I know I can make changes easily.	90%
25.	I think I write longer papers using word processing.	76.5%
26.	I feel frustrated when I can't figure out what to do when I am trying to write my paper on the computer.	65%
27.	I don't hesitate to make changes when I use word processing.	85%
30.	I am more pleased with papers I write using word processing on the computer.	92.5%
32.	Other students helped me use the computer lab or write using the computer.	77.5%