

A SURVEY OF WORD PROCESSING CENTERS  
IN THE URBAN CORRIDOR OF VIRGINIA

by

Marietta Spring

Dissertation submitted to the Graduate Faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Vocational and Technical Education

(Business Education)

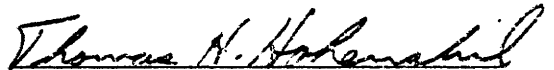
APPROVED:



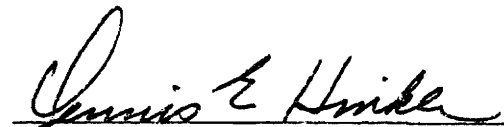
Walter L. Shell, Chairman



Donald E. Elson



Thomas H. Hohenshil



Dennis E. Hinkle



Jeffrey R. Stewart

November, 1977

Blacksburg, Virginia

LD  
5455  
V854  
1977  
568  
c. 2

## ACKNOWLEDGMENTS

Many people have assisted in the development of this study, and the writer acknowledges their contributions. Grateful appreciation is extended to my doctoral advisory committee. Each member has willingly given time and support to this study.

The writer also wishes to express appreciation to the many persons, too numerous to mention, who assisted in the collection of data needed for the study.

Sincere thanks must be given to Vivian P. Johnson for her typing assistance and to Virginia M. Starnes for her help in proofreading the final copy.

## TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	vii
LIST OF FIGURES . . . . .	x
Chapter	
1. BACKGROUND OF THE STUDY . . . . .	1
ORIGIN OF WORD PROCESSING . . . . .	2
CONCEPT OF WORD PROCESSING . . . . .	3
ORGANIZATIONAL STRUCTURE OF A WORD PROCESSING CENTER . . . . .	4
STATEMENT OF THE PROBLEM . . . . .	6
PURPOSE OF THE STUDY . . . . .	6
NEED FOR THE STUDY . . . . .	9
DELIMITATIONS OF THE STUDY . . . . .	11
DEFINITIONS OF TERMS . . . . .	11
2. REVIEW OF THE LITERATURE . . . . .	17
WORD PROCESSING . . . . .	17
Relationship of Selected Factors and Job Satisfaction . . . . .	17
Entry-Level Requirements and Attitudes . . . . .	18
Recognition of Competencies and Continuing Education Needs . . . . .	20
Importance of Subject Areas in Word Processing Preparation . . . . .	21
Comparison of Major Tasks and Critical Requirements . . . . .	22

Summary of the Literature on Word Processing . . . . .	24
JOB TASKS . . . . .	25
Early Studies of Secretarial Duties . . . . .	25
Varied Secretarial Duties According to Size of Business . . . . .	25
Time Study of Secretarial Activities . . . . .	27
Comprehensive Studies . . . . .	28
Knowledges and Skills Needed for Initial Employment . . . . .	32
Summary of the Literature Relating to Job Tasks . . . . .	34
EMPLOYMENT TESTS . . . . .	35
The Crews and the Anderson and Pullis Studies . . . . .	35
The Misko Study . . . . .	36
The Lovern Study . . . . .	37
The Manship Study . . . . .	37
The O'Brien Study . . . . .	38
The Hilton Study . . . . .	40
Summary of the Literature Relating to Employment Tests . . . . .	41
3. PROCEDURES . . . . .	42
THE POPULATION . . . . .	42
THE PARTICIPANTS . . . . .	43
DEVELOPMENT OF THE INTERVIEW GUIDE . . . . .	46
COLLECTION OF THE DATA . . . . .	49
STATISTICAL PROCEDURES . . . . .	50

	SUMMARY OF PROCEDURES . . . . .	51
4.	ANALYSIS OF THE DATA . . . . .	52
	WORD PROCESSING CENTER CHARACTERISTICS . . . . .	52
	Word Processing Employers' Hiring Requirements . . . . .	54
	Equipment Used . . . . .	63
	CONVERSION TO WORD PROCESSING . . . . .	66
	Reasons for Conversion to Word Processing . . . . .	68
	Level of Management Responsible for Decision . . . . .	68
	Techniques Employed in the Conversion Process . . . . .	68
	Problems Encountered in the Transition to Word Processing . . . . .	72
	WORD PROCESSING EMPLOYEE AND JOB CHARACTERISTICS . . . . .	72
	Employee Characteristics . . . . .	74
	Job Characteristics . . . . .	80
	JOB TASKS . . . . .	87
	Statistically Significant Job Tasks . . . . .	92
5.	SUMMARY, FINDINGS, CONCLUSIONS, AND IMPLICATIONS AND RECOMMENDATIONS . . . . .	108
	SUMMARY . . . . .	108
	FINDINGS . . . . .	110
	Findings Relating to Word Processing Center Characteristics . . . . .	111
	Findings Relating to the Conversion Process . . . . .	113

Findings Relating to Employment Tests . . . . .	114
Findings Relating to Employee and Job Characteristics . . . . .	115
Findings Relating to Job Tasks . . . . .	116
CONCLUSIONS . . . . .	119
IMPLICATIONS AND RECOMMENDATIONS . . . . .	121
Implications for Education . . . . .	121
Implications for Business . . . . .	122
Recommendations for Further Research . . . . .	123
BIBLIOGRAPHY . . . . .	124
APPENDIXES	
A. Letter Requesting Participation in the Study . . . . .	132
B. Follow-up Letter Requesting Participation . . . . .	134
C. Word Processing Interview Guide . . . . .	136
D. Jury Panelists . . . . .	151
E. Case Studies . . . . .	153
VITA . . . . .	190
ABSTRACT	

LIST OF TABLES

Table	Page
1. Comparison of the 12 Most Frequently Performed Secretarial Duties (in Rank Order) as Reported by Charters and Whiteley, and by Nichols and Wissman . . . . .	26
2. Basic Components Comprising Five Percent or More of Total Job Time Showing Frequency of Occurrence . . . . .	31
3. Compilation of Essential Skills and Knowledges Needed for Initial Employment . . . . .	33
4. Distribution of Respondents and Word Processing Center Participants by Occupational Field . . . . .	45
5. Distribution of Respondents and Word Processing Participants by Area Within the Urban Corridor . . . . .	47
6. Distribution of Word Processing/Administrative Support Employees According to Occupational Field (in Rank Order) . . . . .	53
7. Distribution of Word Processing Centers and Percent of Word Processing/Administrative Support Employees by Size . . . . .	55
8. Distribution of Word Processing Centers According to Length of Time in Operation . . . . .	56
9. Word Processing Employers' Hiring Requirements According to High School Education and Work Experience Status . . . . .	57
10. Kind of Typewriting Test Administered to Applicants for Word Processing Positions . . . . .	59
11. Kind of Clerical Test Administered to Applicants for Word Processing Positions . . . . .	61
12. Sources of Word Processing Personnel . . . . .	62



13.	Hiring Projections for Word Processing Secretaries Within a One- and Three-Year Period . . . . .	64
14.	Distribution of Automatic Typewriters Installed in Word Processing Centers . . . . .	65
15.	Distribution of Dictation Units Installed in Word Processing Centers . . . . .	67
16.	Reasons for Conversion to Word Processing . . . . .	69
17.	Decision-Making Responsibility for Conversion to Word Processing by Level of Management . . . . .	70
18.	Techniques Employed in Conversion Process of Word Processing Centers . . . . .	71
19.	Major Problems Encountered in the Transition to Word Processing . . . . .	73
20.	Distribution of Word Processing Supervisors and Secretaries According to Educational Attainment . . . . .	75
21.	Length of Employment of Word Processing Supervisors and Secretaries . . . . .	76
22.	Previous Office Work Experience of Word Processing Supervisors and Secretaries . . . . .	78
23.	Use of Selectric Typewriters and Dictation Equipment Required in Previous Jobs by Word Processing Supervisors, Correspondence Secretaries, and Administrative Secretaries . . . . .	79
24.	Sources of Word Processing Secretarial Training . . . . .	81
25.	Minimum Typewriting Speed Requirement for Word Processing Secretaries . . . . .	82
26.	Shorthand Dictation Requirement for Word Processing Secretaries . . . . .	84
27.	Difficulty of Work as Rated by Correspondence Secretaries and Administrative Secretaries . . . . .	85

28.	Overall Performance of Word Processing Secretaries as Rated by Their Supervisors . . . .	86
29.	Methods of Work Measurement for Correspondence Secretaries . . . . .	88
30.	Rank Order of Typing and Nontyping Tasks Often Performed by Supervisors in Word Processing Centers in the Urban Corridor of Virginia . . . . .	90
31.	Rank Order of Typing and Nontyping Tasks Often Performed by Correspondence Secretaries in the Urban Corridor of Virginia . . . . .	93
32.	Statistically Significant Typing and Nontyping Job Tasks Performed by Word Processing Supervisors and Correspondence Secretaries . . . . .	95

LIST OF FIGURES

Figure		Page
1.	Basic Word Processing System . . . . .	5
2.	Word Processing/Administrative Support Organizational Structure . . . . .	7

## Chapter 1

### BACKGROUND OF THE STUDY

This study was a survey of word processing centers in the Urban Corridor of Virginia.<sup>1</sup> It sought to identify the factors involved in the word processing conversion process and the typing and nontyping tasks performed and the employment tests administered in word processing centers.

Although there is no unanimity as to a concrete definition of word processing, the most useful statements of the meaning differ only slightly in wording. International Business Machines Corporation (IBM) has defined word processing as "the combination of procedures, personnel, and equipment that transforms ideas into printed pages" (Zack, 1971:15). The Word Processing Institute has offered a similar definition: "Word processing is the combination of procedures, personnel, and equipment to accomplish the transformation of ideas to printed form" (Ober, 1972b:29).

Essentially, word processing is a centralized approach to dictation and transcription activities involved in office communications. In the final analysis, word processing includes (1) input in the form of machine dictation or longhand copy; (2) draft creation on an automatic typewriter, producing

---

<sup>1</sup>The Urban Corridor of Virginia includes the Tidewater, Richmond, and Northern Virginia areas.

a typescript and a magnetic card, disc, or tape or visual display simultaneously; (3) editing and correcting, accomplished manually on a typewriter by backspacing and typing over an error or electronically on a visual screen; and (4) rapid output of an accurate hard copy or edited card, disk, or tape.

#### ORIGIN OF WORD PROCESSING

While the automatic typewriter first made its appearance in the early 1930's and was operated by means of pneumatic rollers similar to those used in player pianos, the Autotypist was the first typewriter with the ability to store, select, and replay letters and paragraphs (Anderson and Trotter, 1974:8). In 1936, the Metropolitan Life Insurance Company installed in its home office the Autotypist and pioneered a systematized plan for typing fully composed letters and individual paragraphs stored on tapes (Schultz, 1972:10).

A new image for automatic typewriters was created in 1964 when IBM introduced a new product, the Magnetic Tape Selectric Typewriter (MT/ST), which possessed information storage, retrieval, and high-speed printout capabilities in the range of 150-180 words per minute (Anderson and Trotter, 1974; Wiper, 1975). When the machine was coupled with sophisticated dictation equipment, word processing then became functional.

Some of the word processing developments introduced in the late 1960's and early 1970's include (1) the IBM Magnetic

Tape Selectric Composer (MT/SC), which justifies margins and spacing of words on printed documents intended for publication; (2) the Magnetic Card Selectric Typewriter (MC/ST), which uses a magnetic card for each page typed on the machine; (3) the Magnetic Card II typewriter, which has the capability to record "in memory," to playback, and to store information on a magnetic card; and (4) the Lexitron Videotype, which features a cathode ray tube (CRT) visual screen for displaying characters as they are typed on the keyboard and stored on tape cassettes (Anderson and Trotter, 1974; Cecil, 1976). The utilization of a computer time-sharing system also has become desirable for editing and manipulating the text of lengthy documents (Cecil, 1976).

#### CONCEPT OF WORD PROCESSING

With the advent of the MT/ST, the word processing concept was developed in the offices of IBM's Germany Division, where it was called textverarbeitung (literally, text processing); and within a year the concept was introduced in the United States (Anderson and Trotter, 1974; Laughlin, 1972; and Ober, 1972a). The theory was that by channeling all dictation to a centralized transcription department, more time would be available for other office activities.

The word originator dictates words and thoughts either into a desk-top or portable dictating machine using a magnetic

medium, which is carried physically to a word processing center or phoned into a centralized telephone dictation unit that transmits the dictated material to a remote recorder in the word processing center. The subsequent transcription of the dictation is typed by a "correspondence secretary." Using some kind of automatic typewriter with a magnetic medium, the correspondence secretary types the dictator's original input at rough draft speed, proofreads the printed copy, and makes any necessary corrections before submitting it to the word originator for review. If any changes are necessary, the word originator sends the printed copy back to the correspondence secretary for corrections. When the final copy is approved, it is ready to be mailed, hand delivered, filed, copied, duplicated, or distributed. A basic word processing system, as illustrated by Anderson and Trotter (1974:10), is shown in Figure 1.

#### ORGANIZATIONAL STRUCTURE OF A WORD PROCESSING CENTER

In the conventional office, an office manager or executive has a secretary assigned to perform a multitude of duties, such as taking and transcribing dictation, handling routine correspondence, making appointments, and answering the telephone.

Under the word processing system approach, a word processing center requires a complete division of office work. The

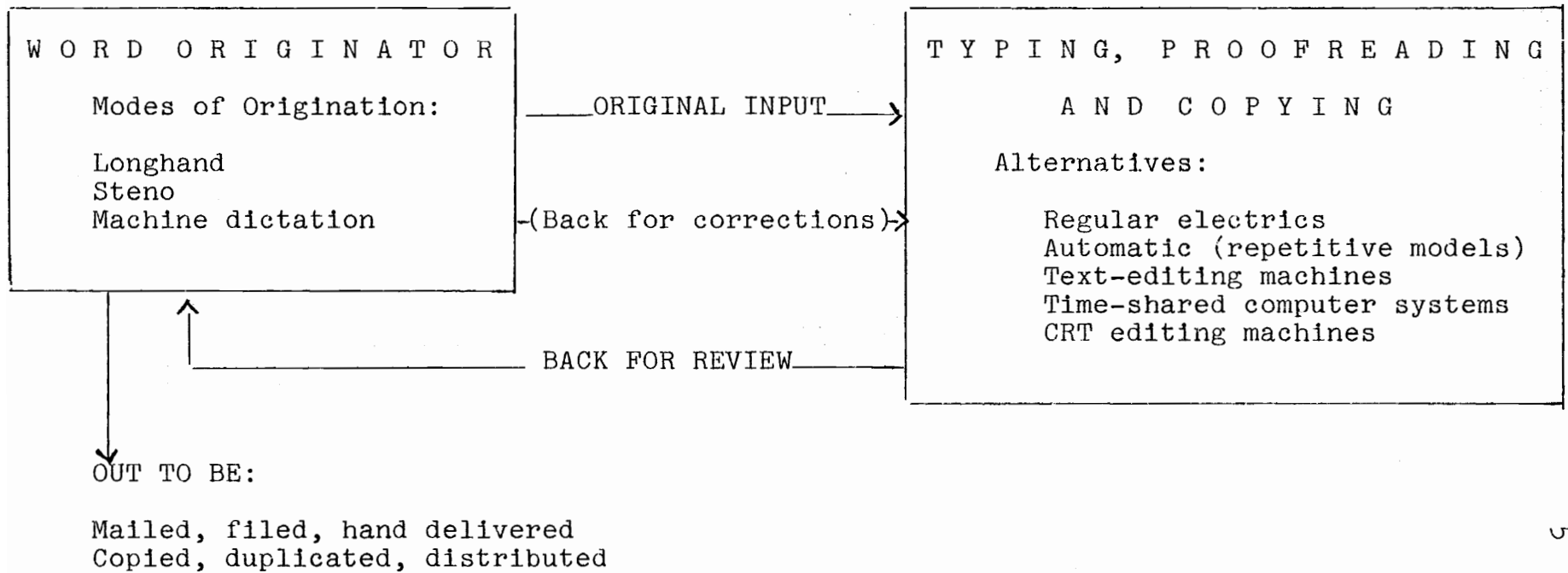


Figure 1

Basic Word Processing System<sup>2</sup>

<sup>2</sup>Thomas J. Anderson and William R. Trotter, Word Processing, (New York: AMACOM, 1974), p. 10.



tasks associated with typing, transcription, proofreading, and editing are performed by "correspondence secretaries." The routine and nontyping activities, which were formerly the responsibilities of the traditional secretaries, are performed by "administrative secretaries." The work of the correspondence and administrative secretaries is monitored and controlled by supervisors responsible for the word processing and administrative support functions. The number of correspondence and administrative secretaries will vary depending on the size of a business organization.

Figure 2, adapted from the model of Bloomfield (1973), illustrates a simplified organizational structure of a word processing center.

#### STATEMENT OF THE PROBLEM

The problem in this study focused on word processing centers in the Urban Corridor of Virginia. Explicitly, the problem was an identification of the factors in the word processing conversion process and of the typing and nontyping tasks performed and the employment tests administered in the word processing centers.

#### PURPOSE OF THE STUDY

The primary purpose of this study was to collect data to determine the status of word processing centers within

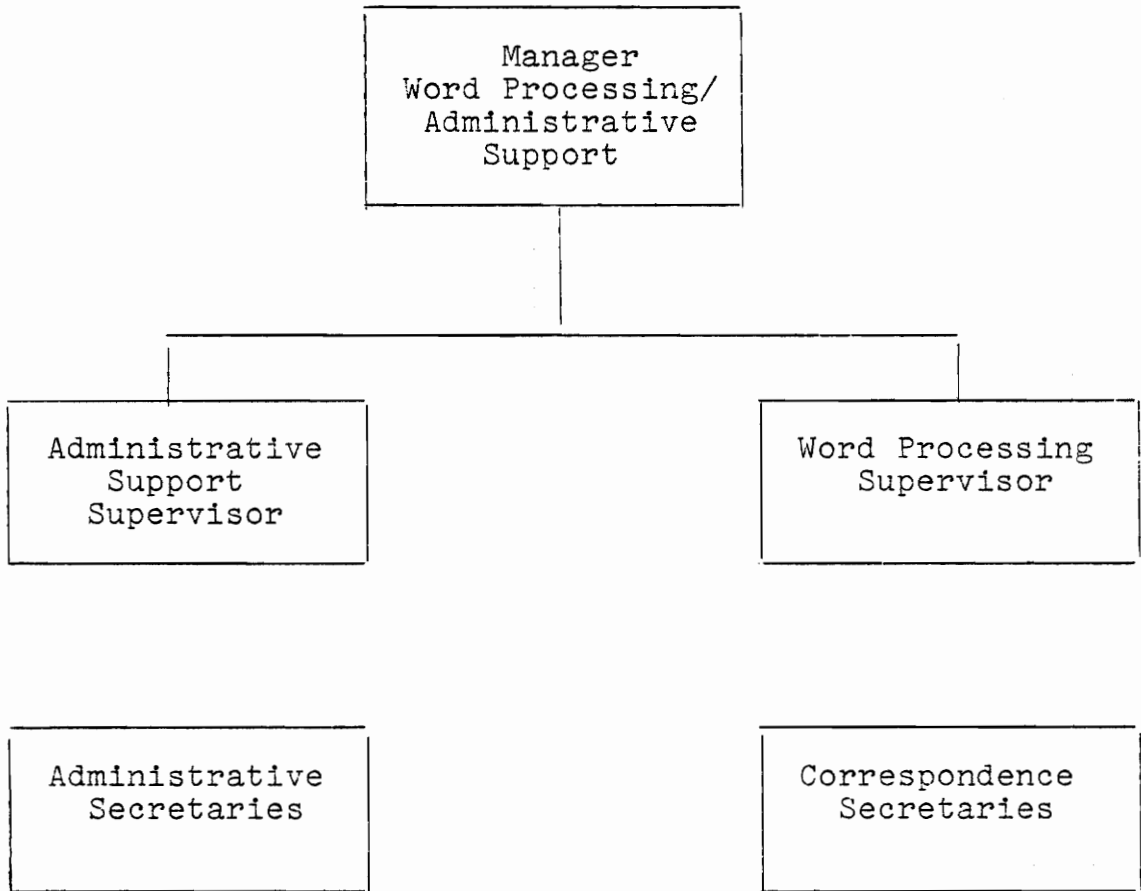


Figure 2

Word Processing/Administrative Support  
Organizational Structure<sup>3</sup>

---

<sup>3</sup>Robert M. Bloomfield, "The Changing World of the Secretary," Personnel Journal, LII (September, 1973), 796.

the Urban Corridor of Virginia. An attempt was made to answer the following specific questions:

1. What were the characteristics of the word processing centers in terms of the following factors?
  - a. Type of organization
  - b. Length of time word processing centers had been established
  - c. Number of automatic typewriters in the word processing centers
  - d. Kinds of automatic typewriters in the word processing centers
  - e. Number of dictation units in the word processing centers
  - f. Kinds of dictation units in the word processing centers
  - g. Sources of employees
2. What were the reasons for conversion to word processing?
3. What level of management made the decision to convert to word processing?
4. What techniques were employed in the conversion process?
5. What problems were encountered in making the transition to word processing?
6. What kind of typing test was administered to applicants for word processing positions?
7. What kind of clerical test was administered to applicants for word processing positions?
8. What were the employee characteristics and job characteristics of supervisors, correspondence secretaries, and administrative secretaries in terms of the following factors?

- a. Education
- b. Length of employment with organization
- c. Previous work experience
- d. Length of previous work experience
- e. Use of Selectric typewriter in previous job
- f. Use of dictation equipment in previous job
- g. Ability to take shorthand dictation
- h. Sources of word processing training
- i. Minimum typewriting speed requirement
- j. Difficulty of work as rated by secretaries
- k. Methods of measuring work
- l. Performance of secretaries as rated by their supervisors

9. What typing and nontyping tasks were performed by word processing secretaries and supervisors?

10. Did a difference exist among the typing and nontyping tasks performed by supervisors, correspondence secretaries, and administrative secretaries in the word processing centers?

#### NEED FOR THE STUDY

Although not fully understood by people in business, education, government, and social service (Wiper, 1975), the concept of word processing has grown in popularity and has had considerable impact on business executives and business educators. Numerous articles pertaining to word processing have appeared in business and professional journals. While several word processing research studies have been conducted (Bragg, 1977; Casady, 1973; Kusek, 1974; Powell, 1975; and Reiff, 1974), there have been few, if any, in-depth studies of word processing centers.

With the emergent evolution of word processing and management's continued search for more efficient operating methods, changes in the office organization structure have occurred. Many offices have been reorganized to incorporate word processing centers, and the job tasks of office workers have been reassigned.

In the past, as advances in office technology have been introduced, educators have assumed the responsibility of assessing current business education programs to make curricular changes in order to maximize student achievement and the development of marketable skills. If significant factors relating to the conversion to word processing and to specific word processing occupations, job tasks, and employment tests can be identified, the answers to the research questions for this study could reveal new information; and business educators could provide relevant classroom experiences that would enhance the preparation of students for word processing positions. Organizations, educational agencies and institutions, and word processing equipment manufacturers could use the information in communicating ideas to their personnel and in making relevant decisions. In discussing business education in the next decade, Boyer (1975) predicted that there would be increased emphasis on word processing and that schools would be forced to adopt new types of standards.

## DELIMITATIONS OF THE STUDY

The study did not consider the costs involved in the installation of word processing systems. However, it did attempt to identify whether the reduction of office costs was a reason for implementing word processing.

The study did not attempt to identify the job tasks performed by word processing managers, secretarial trainees, or messengers. The researcher sought to identify only the tasks discharged by supervisors, correspondence secretaries, and administrative secretaries employed in word processing centers.

The investigator did not attempt to gather data for general intelligence tests used as part of the pre-employment evaluation of applicants for word processing positions. An attempt was made to identify only the kinds of typing tests administered and the clerical tests used to evaluate the word processing qualifications of secretarial applicants.

## DEFINITIONS OF TERMS

Definitions of selected terms used in the study are provided below:

An administrative secretary is a person who principally performs nontranscribing and nontyping secretarial functions, such as greeting visitors, handling telephone calls, recording

information, filing, processing mail, and other supportive services for management.

Administrative support function refers to the assistance provided to word originators by an administrative support group (generally consisting of an administrative supervisor, one or more administrative secretaries, and a messenger). Depending upon the size of the organization, members of the administrative support group may function as a team or may work individually.

An automatic typewriter is an electric typewriter using various media, such as magnetic cards, magnetic tape cartridges and cassettes, magnetic disks, and video tape by means of cathode ray tubes. The typewriter records words on a medium simultaneously as it types on a sheet of paper or displays on a screen. The recorded material can be played back at high rates of speed. Other names used synonymously with automatic typewriter are magnetic, power, or repetitive typewriters.

A clerical test is a written test composed of one or more sections for evaluating skills in basic math, filing, English usage, spelling, and proofreading. The test is used by employers to determine the clerical ability of job applicants.

Copy is the typewritten or printed material produced from rough draft form or from longhand or transcribed notes.

A correspondence secretary is a person who transcribes the dictated material of the word originator(s) and performs typewriting and editing tasks on an automatic typewriter within a word processing center.

Dictation unit refers to a device designed to record the thoughts of the word originator(s) on media such as reusable magnetic disks, cartridges, cassettes, or belts. The four major categories of dictation units are (1) centralized (telephone), (2) endless-loop (tank), (3) desk size, and (4) portable units.

Editing is the revision of copy by correcting, inserting, or deleting. During typing or transcribing, the capability of the automatic typewriter via a magnetic medium allows the secretary to correct errors by backspacing and typing over the error, to key in new material, or to delete unwanted text.

Employment test refers to a measuring instrument used to determine an applicant's clerical skills (such as basic math, filing, proofreading, and spelling) or typewriting (straight-copy or production) performance.

A job task is "a specific assignment with an identifiable accomplishment, such as 'processing purchase orders' or 'preparing activity reports'" (Erickson, 1971:2).

Logging refers to a method of recording and cataloging incoming and outgoing job tasks and the time used to complete or perform the tasks.



Magnetic media are reusable materials (cards, cartridges, cassettes, disks, or tapes) on which information can be recorded and used repetitively. A new recording automatically erases what was originally or previously stored on the medium.

Memory is a special feature on some automatic typewriters that records information for replay.

Nontyping task means any assignment or activity in word processing that does not require the use of a typewriter.

Playback is the automatic typing of copy recorded on the magnetic medium of any automatic typewriter. Depending upon the brand or model of typewriter, playback speed varies from 150 to 185 words a minute.

A production test is an employment test requiring the continuous typing of one or more types of job tasks for a given period of time.

Recording is the entry of words onto a magnetic medium at the same time they are typed on paper by an automatic typewriter or displayed on a screen.

Straight-copy test refers to word-for-word copying of material without corrections under timed conditions and is administered to determine the speed and accuracy of the typist or secretary.

A supervisor is the individual responsible for coordinating and directing the activities of the word processing center.

Text editing refers to the revisions, insertions, and deletions in the original copy and to the automatic adjustment of line lengths necessitated by copy changes.

Typewriting test refers to straight-copy or production performance measuring the typing ability of a secretary. To determine straight-copy performance, the prospective employee is asked to copy new material for a length of time, generally for five or ten minutes. To determine production performance, the applicant is provided one or more tasks such as business letters, manuscripts, and tables, and asked to type them in acceptable form.

Typing task means any activity or assignment involving the use of an automatic typewriter.

A word originator is any person who submits dictated or written material to the word processing center for processing.

Word processing is a systematic approach to rapid production of the oral and written thoughts of the word originator into accurate printed copy.

A word processing center is that area of the office that combines the specialization of personnel, procedures, and equipment to transform ideas into written communications through the use of dictation units and automatic typewriters.

A word processing system is a composite of verbal ideas, written documents, and other information utilized by specially trained personnel to form an organization's total communication system.

Work measurement is a method of determining the quantity of work produced in a given amount of time.

## Chapter 2

### REVIEW OF THE LITERATURE

This study dealt with the status of word processing centers and with the job tasks performed and employment tests administered in word processing centers. Therefore, in this chapter three categories of related literature are reviewed--word processing, job tasks, and employment tests.

#### WORD PROCESSING

While there have been many articles written about word processing, only five research studies (Bragg, 1977; Casady, 1973; Kusek, 1974; Powell, 1975; and Reiff, 1974) were discovered in the literature.

#### Relationship of Selected Factors and Job Satisfaction

Casady (1973) attempted to determine the contribution of selected factors to job satisfaction of magnetic typewriter operators in word processing. A total of 474 magnetic typewriter operators in 111 Minnesota companies were surveyed. Casady randomly selected 77 operators of magnetic typewriters for her sample.

The variables investigated by Casady were (1) employee and job characteristics, (2) English and spelling skills, and (3) vocational needs. The Employee Questionnaire, the Spelling

Test, the Shortened Form of the Cooperative English Test, and the Minnesota Importance Questionnaire were the instruments used to predict job satisfaction. A package containing the questionnaire, tests, and letters of explanation was mailed to each supervisor of the 77 typewriter operators who participated in Casady's study. The supervisors were instructed to have the operator complete the materials under his or her direction, and the operator was to be given as much time as necessary to answer the tests and questionnaire. Seventy-four responses were usable for Casady's statistical analyses.

According to the results of the study, magnetic typewriter operators were satisfied with their salaries, with the quality of their final output, and with the high-speed production of a voluminous amount of work. In contrast, the operators were dissatisfied with the repetitious job tasks that caused boredom. Casady found no significant relationships between the selected variables of employee and job characteristics, English and spelling skills, or vocational needs and job satisfaction. She concluded that none of the factors identified were predictors for job satisfaction of magnetic typewriter operators.

#### Entry-Level Requirements and Attitudes

Reiff (1974) sought to determine the requirements for entry-level employment in word processing centers in New York City and the attitudes of word processors toward their jobs. Data were obtained by surveying 30 business firms in New York

City and administering two validated instruments within the sample organizations: (1) the Interview Guide to management personnel and (2) the Survey for Administrative Secretaries and the Survey for Correspondence Secretaries.

Another instrument, the Word Processing Checklist for Teachers, was completed by metropolitan New York area secondary business educators who taught skills or concepts of word processing. An analysis of this checklist revealed that the business educators surveyed were not familiar with the word processing concept. Reiff found that, of those who were familiar with the concept, few taught the skills per se.

From her analysis of the data collected from the business organizations, Reiff concluded that (1) word processors are deficient in such skills as spelling, grammar, and punctuation, but a few firms provided instruction in these skills; (2) the skills desired by management and provided through in-company training programs included the knowledge of the operation of a magnetic-media typewriter and of a transcribing machine; (3) there was no one specific pattern of word processing organization followed by the sample firms; (4) a high school education was sufficient for a majority of entry-level correspondence secretarial positions; and (5) the position of correspondence secretary existed in all organizations in the sample, but only a few companies had incorporated the concept of administrative secretary into their word processing system.

Recognition of Competencies and Continuing  
Education Needs

A study comparing word processing personnel with traditional office secretaries to determine if the importance of selected job competencies differs significantly between these two groups was conducted by Kusek (1974). In addition, Kusek sought to identify the nature of the changes in competency importance, in learning on the job, and in continuing education needs. His sample, drawn from word processing offices in the Boston-Worcester and Springfield-Hartford, Massachusetts, areas, was stratified to include four forms of office organization: (1) word processing offices with separate administrative and correspondence functions, (2) word processing offices with combined administrative and correspondence functions, (3) traditional offices without secretarial typing pool arrangements, and (4) traditional offices with secretarial or typing pool arrangements. Thirty pairs of traditional secretaries and supervisors and 28 pairs of word processing secretaries and supervisors participated in Kusek's study. A total of 116 interviews were conducted with the aid of an interview schedule containing 53 competencies and using a Likert-type response scale. Background data on all interviewees were gathered with the use of a separate form.

An analysis of the data collected by Kusek revealed that the important competencies for word processing and traditional secretarial personnel were similar. Kusek found only one

competency, developing new office procedures to improve office efficiency, to be significantly different. This competency was rated more important by the traditional group. Eleven of the 13 competencies in the upper quartile of the importance ranks were the same for both groups.

Other findings of Kusek's study showed that the continuing education needs of word processing and traditional secretarial personnel were similar. Only one learning need, listening to and following verbal instructions, differed significantly between the two groups. The word processing secretaries rated greater learning need in this area. While typewriting and shorthand were ranked of primary interest by traditional secretarial personnel, "management skills" was designated a subject area of greatest interest to word processing secretaries who might continue their education in a formal program.

#### Importance of Subject Areas in Word Processing Preparation

To evaluate the impact of automated word processing on secretarial curricula, an investigation was undertaken by Powell (1975). Of 36 business firms contacted in the metropolitan Denver area, 26 companies (72 percent) participated in the study. Word processing managers, supervisors, and secretaries were interviewed and asked to complete a questionnaire designed to evaluate 45 different subject areas for their importance in the preparation of administrative and



correspondence secretaries. Word processing managers and administrative secretaries evaluated the subject matter for its importance in the preparation of administrative secretaries. Similarly, word processing supervisors and correspondence secretaries ranked the importance of subject areas for correspondence secretaries to know. A "t" test was used to determine any difference between the two groups of respondents.

Powell reported that pre-employment training on magnetic-media typewriters was not considered critical, but the preparation for changes in office procedures and assignments was significant. Typewriting skills were more important for correspondence secretaries than for administrative secretaries. Accuracy was rated more important by supervisors and speed of greater importance by correspondence secretaries. Knowledge and understanding of subject areas--economics, business law, data processing, business organization and management, accounting, and office management--were ranked lower in importance by administrative and correspondence secretaries.

#### Comparison of Major Tasks and Critical Requirements

A study completed by Bragg (1977) compared the reported major tasks performed by word processing personnel and by traditional secretaries in the Savannah, Georgia, and Jacksonville, Florida, areas. The word processing sample consisted

of 47 managers and 47 correspondence and administrative support personnel. Twenty-seven managers and 30 members of the National Secretaries Association comprised the traditional sample. The relationships between the two samples were determined in each of ten task variables in four dimensions: (1) the most responsible, (2) the most difficult, (3) the most time-consuming, and (4) the most supervised tasks.

The study also sought to determine the relationship of tasks performed by the two sample groups to categories of critical requirements derived from reported critical incidents. Data were collected through the personal interview and questionnaire procedure. The task data and critical incidents were combined in each of the samples. Thirty-nine critical requirements grouped into seven categories were derived from 195 reported incidents.

In the statistical analysis, the Chi-square contingency test was used. Bragg found that a significant difference occurred between the word processing and traditional secretaries in (1) seven of the nine most time-consuming tasks, (2) five of the nine most difficult tasks, and (3) three of the most responsible tasks. In tasks which involved supervision of others, Bragg reported that three of the ten tasks differed significantly between the two groups. The findings of the study completed by Bragg also indicated that there was no significant relationship between the tasks of the respondents and the categories of critical requirements.

### Summary of the Literature on Word Processing

The nature and scope of the five research studies cited in the preceding paragraphs indicate diversification as well as variation in the methodology and procedures used by the investigators. Although Reiff (1974), Kusek (1974), Powell (1975), and Bragg (1977) sampled both administrative and correspondence secretaries, only Casady (1973) was concerned with one word processing occupation--magnetic typewriter operators. However, Kusek and Powell also surveyed supervisors in word processing offices. Like Reiff, Kusek, Powell, and Bragg, the researcher of this study obtained data from supervisors, correspondence secretaries, and administrative secretaries in word processing installations.

Although Reiff also investigated entry-level job qualifications, Reiff and Casady each studied a human element--attitudes and job satisfaction. Kusek identified competencies and continuing education needs, and Powell examined subject areas in word processing secretarial curricula. Bragg compared major tasks performed by two sample groups to critical requirements. The researcher of this study was concerned with the reasons for and the problems in the word processing conversion process and with the identification of job tasks performed and the employment tests administered in word processing centers. The investigator also identified word processing skills, as did Bragg, Casady, Kusek, Powell, and Reiff.

## JOB TASKS

In order to determine the extent of the relationship of the job tasks performed by secretaries and supervisors, the nontyping and typing tasks discharged by these word processing employees needed to be identified. An extensive review of the literature revealed that several research studies of job tasks have been initiated.

Early Studies of Secretarial Duties

Charters and Whiteley (1924) pioneered by investigating the duties performed by 840 secretaries. As a result of their efforts, they were able to identify 871 duties. A similar study was conducted by Nichols and Wissman (1934), who attempted to distinguish between the actual duties performed and the personal traits possessed by private secretaries from other office workers. A comparison of the 12 most frequently performed secretarial duties (in rank order) as found by Charters and Whiteley, and by Nichols and Wissman (1934:51), is shown in Table 1.

Varied Secretarial Duties According to Size of Business

Tate (1947) and Pender (1967) examined the duties and responsibilities of secretarial workers according to the size of the business in which they were employed. The 107 secretarial workers in Tate's study were employed in 11 different

Table 1

Comparison of the 12 Most Frequently Performed Secretarial Duties (in Rank Order) as Reported by Charters and Whiteley, and by Nichols and Wissman<sup>4</sup>

Charters and Whiteley Study	Nichols and Wissman Study
1. Typewriting letters	1. Take dictation
2. Answering telephone	2. Transcribe notes
3. Dictating letters	3. Handle callers
4. Transcribing letters	4. Write original letters
5. Using telephone--local	5. Answer letters
6. Addressing envelopes, packages, etc.	6. Read and sort mail
7. Inserting letters in envelopes	7. Read and release mail
8. Folding letters	8. Note information on letters
9. Ordering supplies of various kinds in the office	9. Make appointments
10. Placing telephone memorandum where employer will see it	10. Organize filing systems
11. Writing letters not dictated	11. Organize office routine
12. Sending telegrams	12. Keep personal accounts

<sup>4</sup>Adapted from F. G. Nichols and S. W. Wissman, The Personal Secretary: Differentiating Duties and Essential Personal Traits. Cambridge: Harvard University Press, 1934, p. 51.

business categories. Based on the number of office employees, the businesses were further classified as small, medium, and large. Tate (1947:61) found that only three duties were performed by 100 percent of the workers: taking dictation, transcribing letter dictation, and receiving and placing telephone calls.

To determine if the administrative and professional responsibilities of secretaries differed in relation to the size and type of company in which they were employed, Pender selected secretarial workers in three types of businesses-- manufacturing; finance, insurance, and real estate; and professional and related services. A questionnaire was sent to the subjects within the sample organizations. As the responses were received, they were initially sorted according to company size and further classified as to type of business. Pender posited that company size and type of business were related to the performance of secretarial duties. An analysis of the degree to which secretaries performed 44 representative duties was made using the Chi-square technique. The results supported Pender's hypothesis.

#### Time Study of Secretarial Activities

A study of secretarial activities conducted by Casebier (1957) sought to determine how much time was devoted to secretarial duties and whether there was a uniform pattern of work procedure according to time. Twenty-four Chicago

business firms participated in the study. Data were obtained by making a time study of the secretaries and recording the results on charts. When 50 cases had been analyzed and the stability of the data was established, the time studies were discontinued.

The results of the time studies completed by Casebier indicated that secretaries were engaged in 47 different activities, of which 10 responsibilities required 3 percent or more of the secretary's total time. Of the ten responsibilities, two new secretarial activities were identified by Casebier: conferring with the supervisor and preparing for and closing the day's work. The other eight activities were (1) typing, (2) taking dictation, (3) transcribing dictation, (4) taking breaks, (5) using the telephone, (6) handling the mail, (7) filing and retrieving, and (8) composing and typing letters.

Casebier concluded that there was no uniform pattern of work procedure according to time but that the sequency of activities during the secretary's day was determined by the nature of the particular day's work.

### Comprehensive Studies

Comprehensive studies were conducted by Perkins, Byrd, and Roley (1968); Erickson (1971); Lanham, Lanham, Herschelman, and Cook (1972); and Oliver, Lee, and King (1976). The Perkins, Byrd, and Roley study was the second phase of a project funded

by the U.S. Office of Education. The purpose of the study was to identify clusters of tasks. In order to collect the needed data, a validated questionnaire, composed of office tasks, was sent to a random sample of office workers in various sizes of offices in the 12 Standard Industrial Classifications. The respondents were classified in six broad categories: supervision, secretarial-stenographic, clerical, bookkeeping-accounting, business machine operators, and data processing. The usable questionnaires were coded by industry and by size of office, and the item responses were coded and processed by a computer. Five hundred ninety-nine tasks were identified and clustered in descending order of percentages of workers performing the tasks. An analysis of the data supported two hypotheses: (1) there are significant differences in tasks performed by office employees in the various industrial classifications and (2) there are significant differences in tasks performed by office employees in large and small companies.

As part of a larger study (NOBELS<sup>5</sup>) conducted on a nationwide basis, Erickson (1971) interviewed 300 office workers and their supervisors in the Los Angeles area for the purpose of identifying and analyzing the basic job

---

<sup>5</sup>NOBELS refers to New Office and Business Education Learnings System, a research project funded by the U.S. Office of Education.



components<sup>6</sup> of beginning to intermediate levels of office work. Ten basic components, primarily held by workers in the 16-24 age group with less than a baccalaureate degree, were identified. "Communicating with Others" was a basic component occurring in 90 percent of the jobs; "Sorting, Filing, and Retrieving," in 71 percent of the jobs. The frequency of occurrence for all other components, including typewriting, was less than 50 percent. The basic components are shown, as identified by Erickson (1971:22), in descending order of frequency in Table 2.

The final phase of the NOBELS study was completed by Lanham, Lanham, Herschelmann, and Cook (1972). The purpose of the project was the development of an inventory of 373 educational specifications in behavioral terms, which are representative of the basic tasks performed by office workers belonging to the 16 to 24 age group. The data were collected by interviewing 1,232 office employees and their supervisors from four geographic areas of the United States. The specifications were drawn from 4,564 basic tasks and 32,447 steps of task performance. Each specification was reviewed and revised, and a master list of performance task statements was developed.

---

<sup>6</sup>Erickson (1971:2) defined a component as a specific activity, such as filing or typewriting, which is essential to the performance of a job task.

Table 2

Basic Components Comprising Five Percent or More  
of Total Job Time Showing  
Frequency of Occurrence<sup>7</sup>

Basic Components of Office Work (5% or More of Total Job Time)	Percent of 300 Jobs in Which Component Occurred
1. Communicating with Others (Interpersonal Relations)	90%
2. Sorting, Filing, and Retrieving	71
3. Typewriting	49
4. Checking, Computing, and Verifying	47
5. Collecting and Distributing	21
6. Operating Business Machines (other than typewriter and ADP equipment)	18
7. Operating Automatic Data Processing Equipment (ADP)	14
8. Taking Dictation	10
9. Supervising, Planning, and Training	3
10. Analyzing Procedures and Flow Charting	3

<sup>7</sup>L. W. Erickson, Basic Components of Office Work--An Analysis of 300 Office Jobs, Monograph 123. Cincinnati: South-Western Publishing Company, 1971, p. 22.

Another major curriculum development effort was the V-TECS<sup>8</sup> project conducted in Virginia by Oliver, Lee, and King (1976). The purpose of the V-TECS study was to develop a validated catalog of performance objectives to be used in instructional programs for secretarial, stenographic, typing, and related occupations. Using a preliminary task and equipment inventory booklet, 576 secretaries, stenographers, clerk-typists, and typists were asked to indicate the task performed, the frequency of performance, and the equipment used. Usable questionnaires were completed by 506 office workers. A random sample of 58 workers and supervisors also rated the learning difficulty of each task on a seven-point scale. The data collected were statistically analyzed and used to develop performance-based materials.

#### Knowledges and Skills Needed for Initial Employment

Other researchers (Baab, 1972; Gerber, 1969; Gibbs, 1970; Scalamogna, 1969; and Zielinski, 1974) conducted studies to determine the knowledges and skills needed for initial office employment. Table 3 gives the essential skills and knowledges as compiled from the results of their work. No other skills required by employers for initial office employment were reported by the investigators.

---

<sup>8</sup>V-TECS refers to the Vocational-Technical Education Consortium of States organized for the purpose of developing and sharing performance-based materials.

Table 3

Compilation of Essential Skills and Knowledges  
Needed for Initial Employment

Essential Skills and Knowledges	Investigators				
	Baab	Gerber	Gibbs	Scalamogna	Zielinski
1. Typewriting	N	Y	Y	Y	Y
2. Transcribing shorthand notes	N	Y	N	Y	N
3. Taking dictation	N	Y	N	Y	N
4. Composing letters	N	Y	N	N	N
5. Filing and retrieving	N	Y	Y	Y	Y
6. Using the telephone	N	Y	Y	Y	Y
7. Handling the mail	N	N	N	Y	Y
8. Using a 10-key adding machine	Y	N	Y	Y	Y
9. Using a full-key adding machine	Y	N	N	N	Y
10. Operating an electronic calculator	Y	N	N	N	Y
11. Operating a printing calculator	Y	N	N	N	Y
12. Photocopying materials	N	N	Y	N	Y
13. Making bookkeeping entries	N	N	Y	N	N
14. Performing receptionist's duties	N	N	N	N	Y
15. Communicating	N	N	N	Y	N

Y = Yes; N = Not mentioned

### Summary of Literature Relating to Job Tasks

Early researchers sought to identify secretarial duties that were performed most frequently. Later studies of secretarial duties involved the factors of company size and type of business. The findings of a time study identified two new secretarial duties not previously reported and revealed no uniform pattern of work according to time.

A federally funded project conducted by Perkins, Byrd, and Roley (1968) resulted in the identification of clusters of tasks in six broad categories. In the first phase of the NOBELS study, Erickson (1971) reported ten basic job components in which office workers spend five percent or more of their time. In the final step of the NOBELS study, Lanham, Lanham, Herschelman, and Cook (1972) produced an inventory of 373 educational specifications in behavioral terms.

Through the efforts of Oliver, Lee, and King (1976), performance-based materials were developed for V-TECS. Other researchers have attempted to identify skills and knowledges needed for initial employment and the typewriting jobs performed by typists. Likewise, the investigator of this study was concerned not only with the identification of the essential skills needed and of the typing and non-typing tasks performed by word processing secretaries and supervisors, but also with the frequency of performance by the word processing employees.

## EMPLOYMENT TESTS

Another aspect of the problem of the present study dealt with the types of employment tests administered in word processing centers. Clerical tests (for example, basic math, filing, spelling, English usage, and proofreading skills) and the two methods of testing typewriting performance (straight-copy and production) were examined by the investigator of this study. An examination of the literature revealed seven research studies pertaining to employment tests.

The Crews and the Anderson and Pullis Studies

Crews (1961) surveyed 18 business firms employing approximately 3,100 office workers in Jacksonville, Florida. Specifically, Crews collected data from office employees classified in each of the following categories: secretary, stenographer, typist, clerk, bookkeeper, office machine operator, receptionist, and others unclassified. In each of the job classifications, the researcher sought to determine the skills appropriate for each job. From the data obtained in his study, Crews found that there was little uniformity in the standards for typewriting performance and in the testing materials used in measuring typewriting skills of secretaries, stenographers, typists, and receptionists.

In a study of 36 Los Angeles area business firms, Anderson and Pullis (1965) endeavored to ascertain the kinds

of typewriting employment tests administered. The findings of the results of the Anderson and Pullis study showed that only 8 percent of the firms gave production tests, while 92 percent administered straight-copy timings. The majority of the companies surveyed used five-minute tests.

### The Misko Study

In a study to determine the effectiveness of tests in predicting job performance, Misko (1962) hypothesized that the General Clerical Test (used in industrial, business, government, and education offices), a typewriting proficiency test, a shorthand proficiency test, and the non-test factors of age and education would be positively correlated with supervisors' ratings, salary increases, and current work performance based on work samples. His findings supported his hypothesis.

Misko analyzed the scores on the three tests of selected office workers at the University of Michigan and compared the data with indexes of work performance for 165 employed women secretaries. Correlation and Chi-square analyses were used in studying the interrelationships among the independent and dependent variables. Misko found that the non-test factors and employment tests had moderate predictive efficiency in the selection of secretaries in the offices of the University of Michigan. Misko concluded that typewriting proficiency tests administered by employment offices can effectively

predict on-the-job typewriting skills as measured by work sample evaluations.

#### The Lovern Study

Lovern (1967) sought to determine employment factors affecting beginning office workers in Atlanta, Georgia. Four survey questionnaires were developed and administered to 120 beginning office workers, 390 experienced office workers, management personnel in 120 firms, and business education teachers in 56 high schools. Lovern held personal interviews with management personnel in 50 firms. He found that, in 50 percent or more of the 50 firms, typical interview procedures included unlimited time depending upon the applicant, question-answer discussion between the interviewer and the interviewee, and an evaluation by more than one interviewer. His findings also revealed that no employment test was administered in 25 percent of the firms surveyed and that aptitude and general intelligence tests were administered in others.

#### The Manship Study

In an attempt to ascertain the methods used to determine the employability of applicants, the degree of skill required in typewriting and shorthand, and the value businessmen placed on certain skills and characteristics as determinants of employability, Manship (1968) mailed a questionnaire to a



random sample of 500 businesses in the Salt Lake City area. His sample consisted of 250 sales merchants, 150 services businesses, and 100 crafts and professions. The returns elicited 110 valid responses. Business firms were grouped into large and small companies based on the total number of secretarial workers employed by each firm. The Chi-square technique was used to analyze the data.

According to Manship's findings, personal interviews, references submitted by applicants, previous work experience, and pre-employment testing were the criteria used for selecting office workers. Manship found that approximately one-half of all businesses surveyed administered a pre-employment test. A proficiency test on straight-copy material for a time length of five minutes was the testing procedure used most frequently. Other findings of Manship's study were that (1) neither the size nor the kind of business had a significant effect on typewriting speed requirements for secretarial workers, (2) larger companies required higher rates of dictation speed than smaller companies, and (3) grammar, spelling, and appearance were important factors in determining employability for secretaries.

#### The O'Brien Study

O'Brien (1972) surveyed 70 banks, 70 insurance companies, and 70 manufacturing or service-rendering companies in the Chicago area to ascertain what entry requirements had

been established for beginning typists. His findings indicated that:

1. Seventy percent of the businesses surveyed gave straight-copy timings.

2. Five-minute timed writings were preferred to ten-minute timed writings.

3. The scoring procedure used for straight-copy timed writings by the majority of the firms surveyed was net words per minute.

4. The applicants were expected to reach a minimum of 40 net words per minute for a passing score on straight-copy typing tests.

5. Thirty-four percent of the respondents tested the applicants on typing tasks. Of the companies that did test the ability to type job tasks, 47 percent required the typing of a business letter in acceptable form; 17 percent, a manuscript; 13 percent, a rough draft; and 10 percent, a memorandum.

O'Brien concluded that (1) personnel managers still regard the straight-copy typing test as a reliable measure of typing ability, (2) the production test has not replaced the straight-copy timed writing, and (3) only 34 percent of the respondents tested the applicant on job-type activities in acceptable format.

The Hilton Study

A study to determine the nature of employment tests currently being used and the standards required for typists was completed by Hilton (1976), who surveyed 10 temporary and 10 permanent employment agencies in Cleveland. Hilton (1976:43) sought answers to questions concerning the types of tests (written, straight-copy, or production) administered, the accuracy required, and the kind of typewriter (manual or electric) used. Her findings are enumerated below.

1. Nineteen of the 20 agencies gave only five-minute, straight-copy speed tests. One agency gave both one-minute and five-minute speed tests.

2. Two of the agencies frequently administered production tests in addition to straight-copy speed tests.

3. In appraising the accuracy of a typist on a speed test, five agencies listed the number of errors with gross words per minute. A maximum error limit was established by two agencies. Thirteen agencies penalized for errors.

4. Seventeen agencies tested only on electric typewriters, while three agencies gave applicants a choice of electric or manual typewriters.

5. Written tests, including filing, basic math, spelling, and proofreading, were given by 12 of the 20 agencies.

Summary of the Literature Relating  
to Employment Tests

The review of the literature yielded seven research studies that have been conducted to determine the nature of employment tests used. The investigators sought to clarify the standards adopted by business firms, to determine the scoring procedures used to evaluate employment tests, and to ascertain the hiring practices employed by personnel directors. One researcher used the scores of three tests and non-test factors to determine the correlation with supervisor's ratings, salary increases, and work performance based on work samples. The most recent study was an investigation of employment agencies to determine the type of employment tests currently being administered to applicants. Similarly, the researcher of this study sought to identify the types of employment tests administered to applicants of word processing positions.

## Chapter 3

### PROCEDURES

This chapter describes (1) the population, (2) the participants, (3) the development of the interview guide, (4) the collection of data, and (5) the statistical procedures used in the study.

#### THE POPULATION

Several steps were employed to define the population of word processing centers in the Urban Corridor of Virginia. A list of business firms employing 150 or more workers was compiled from Dun and Bradstreet's Million Dollar Directory (1975 edition) and Middle Management Directory (1976 edition). The names of 157 organizations were obtained from these sources.

Anderson and Trotter (1974:20) stated that hospitals were a type of business using word processing systems. However, since no hospitals were included in the Dun and Bradstreet directories, the investigator used the yellow pages of telephone directories in the Tidewater, Richmond, and Northern Virginia regions to collect additional names and addresses. Twenty-eight names appeared in the yellow pages under the descriptor "Hospitals" and were added to the list.

Finally, from a roster of the Virginia members of the International Word Processing Association (IWP), ten additional names of organizations were used to supplement the original list. The final list contained a total of 195 names and addresses.

#### THE PARTICIPANTS

Initial contact with each organization was by mail. A letter (Appendix A) which explained the nature of the research study, defined a word processing center, and requested participation in the study was drafted. On April 1, 1976, 195 letters were mailed to organizations in the Urban Corridor of Virginia. A self-addressed, return envelope was enclosed. The addressees were requested to return the stub at the bottom of the letter by April 10, 1976, and to indicate (1) that they were willing to participate in the study or (2) that they did not have a word processing center. Seventy-seven, or 39.48 percent, of the 195 business firms responded. Nine of the 77 firms stated that they were willing to participate in the study.

As with most research which depends on responses that are returned by mail, it was necessary to develop a follow-up procedure for the nonrespondents. Two weeks after the initial letters were mailed, the 25 nonrespondents in the Tidewater area of the Urban Corridor were telephoned and

urged to respond. Each Richmond and Northern Virginia non-respondent was sent a follow-up letter (Appendix B). Ninety-three follow-up letters were mailed. One hundred twenty-two of the 195 businesses (62.6 percent) replied; 73 firms (37.4 percent) did not respond to either of the two mailings or the telephone call.

Through telephone conversations between the researcher and word processing supervisors, four additional businesses agreed to become participants. The number of respondents was thus increased from 122 to 126.

Of the 126 respondents, 24 organizations stated that they had a word processing center and were willing to participate in the research study. However, 5 of the 25 organizations were eliminated later either because they misunderstood the definition of a word processing center or because they had not converted to a word processing system but were utilizing automatic typewriters in a traditional office.

The participants consisted, then, of 19 organizations with word processing centers. The distribution of respondents and word processing center participants by occupational field is given in Table 4. Of the various fields, the one that accounted for the largest number of word processing centers (4 out of 19) was finance.

Table 4

Distribution of Respondents and Word Processing  
Center Participants by Occupational Field

Occupational Field	Number of Respondents	Number of Word Processing Center Participants
Commerce	38	0
Education	2	2
Finance	26	4
Government	2	2
Industry	35	3
Law	2	2
Medicine	16	2
Religion	1	1
Social Service	2	2
Utility	<u>2</u>	<u>1</u>
Totals	126	19



Table 5 shows the distribution of respondents and word processing center participants by area within the Urban Corridor. Most of the respondents (59 out of 126) and word processing centers (12 out of 19) were located in the Richmond area.

#### DEVELOPMENT OF THE INTERVIEW GUIDE

An instrument that would provide descriptive data about the word processing centers, identify the factors in the word processing conversion process, specify the job tasks performed by word processing secretaries and supervisors, and identify the employee and job characteristics was needed to answer the research questions. As no appropriate instrument was found in the literature, the investigator developed the Word Processing Interview Guide (Appendix C).

The Word Processing Interview Guide was divided into three main sections: (1) General Information, (2) Supervisor, Correspondence Secretary, or Administrative Secretary Data, and (3) Job Tasks. Each section is described in the paragraphs that follow.

Section I (General Information) was designed to obtain background information (mainly factual and statistical data, employers' hiring requirements, and equipment used) about each word processing center, to identify the factors in the

Table 5  
Distribution of Respondents and Word Processing  
Center Participants by Area  
Within the Urban Corridor

Area	Number of Respondents	Number of Word Processing Center Participants
Northern Virginia	21	3
Richmond	59	12
Tidewater	<u>46</u>	<u>4</u>
Totals	126	19

word processing conversion process, and to determine the kinds of typing and clerical tests administered, if any, to applicants of word processing secretarial positions in each organization.

Section II (Supervisor, Correspondence Secretary, or Administrative Secretary Data) was designed to obtain descriptive data on each supervisor, correspondence secretary, and administrative secretary who would be interviewed in order to determine what employee characteristics and what qualifications word processing employees possess.

Section III (Job Tasks) consisted of two groups of questions pertaining to typing and nontyping tasks performed by word processing supervisors and secretaries. In order to formulate the questions, a working list of secretarial tasks was compiled from previous research studies of Perkins, Boyd, and Roley (1968), Erickson (1971), Kusek (1974), and from Office and Business Occupations: Cluster Guide (1973). Those job tasks which seemed most appropriate were used in the final list. Questions were then developed from the modified list of typing and nontyping tasks.

To yield definite responses and to facilitate the coding of responses, a structured format was utilized for Section III. The questions within each section were organized into a logical arrangement and were listed in the instrument to determine the frequency of performance of the job tasks by supervisors, correspondence secretaries, and administrative secretaries.

To insure clarity and ascertain the validity of the Word Processing Interview Guide developed by the investigator, an evaluation was made by a jury panel. This panel was composed of three members of the Norfolk Chapter of the Administrative Management Society (AMS), one Certified Professional Secretary, and two business educators. The names and addresses of the six jury panelists are listed in Appendix D. Revisions were made in the interview guide according to suggestions from the jury panel.

#### COLLECTION OF THE DATA

Each of the 19 organizations was contacted by telephone to arrange an appointment for an interview with the supervisor of the word processing center, one correspondence secretary, and one administrative secretary. The supervisor was asked to choose the secretaries who would answer questions relating to their jobs. The criterion for selection was a minimum of six months' experience in the word processing center.<sup>9</sup>

The employers, supervisors, and secretaries were informed that all information would be kept confidential-- that the names of the supervisor and secretaries and the name of the organization would not appear in the results of

---

<sup>9</sup>An assumption was made that, after six months' employment in a word processing center, a secretary would be familiar with the work performed in the center.

the study. The employer was apprised that a summary of the results would be sent upon completion of the study.

As a means of providing an overall view of word processing in the organizations investigated in this study and of indicating the operational diversity existing among the word processing installations, 19 case studies were developed from the data collected. It was felt that descriptive data might provide insights that quantitative data would perhaps not reveal. The case studies are included in Appendix E.

#### STATISTICAL PROCEDURES

In the statistical procedures, the Word Processing Interview Guide was the criterion instrument. For all items in Sections I and II of the instrument, frequency distributions were derived by hand count, and totals and percentages were computed on a calculator.

Data from Section III were punched directly into cards and analyzed by a computer using a Statistical Package for the Social Sciences (SPSS). In the statistical analysis, frequency distributions and percentages of the 49 items in Section III were calculated. To determine the extent of the difference of the job tasks performed among supervisors, correspondence secretaries, and administrative secretaries, the Chi-square ( $\chi^2$ ) statistic was computed. The level of significance was set at .05.

## SUMMARY OF PROCEDURES

A total of 195 organizations were contacted by letter to determine the number of word processing centers in the Urban Corridor of Virginia. Of the organizations surveyed, 19 respondents that had word processing centers and that were willing to participate in the study were eventually identified.

In order to answer the research questions of the study, the Word Processing Interview Guide was developed by the investigator and validated by a jury panel.

A second contact was made with the 19 word processing centers for the purpose of scheduling interviews with the supervisor, one correspondence secretary, and one administrative secretary.

In the analysis of the data, the Word Processing Interview Guide was the criterion instrument. The Chi-square statistic was used in the analysis of the data.

In addition to the statistical analysis of the data, 19 case studies describing the word processing centers were developed.

## Chapter 4

### ANALYSIS OF THE DATA

The analysis of the data collected in the word processing centers within the Urban Corridor of Virginia is presented in this chapter. Factual data, employers' hiring requirements, and equipment used are presented first, followed by data pertaining to factors involved in the conversion to word processing, employee and job characteristics, and job tasks. The data collected also were used in the development of the 19 case studies in Appendix E.

#### WORD PROCESSING CENTER CHARACTERISTICS

The 19 word processing centers that provided the data for this study were classified in nine occupational fields: (1) education, (2) finance, (3) government, (4) industry, (5) law, (6) medicine, (7) religion, (8) social service, and (9) utility. The distribution of the number of word processing and administrative support (WP/AS) employees by occupational field for the participating organizations in this study is displayed in Table 6. The largest number of workers, 41 (20.5 percent), was employed in government; the smallest number, 8 (4 percent), worked in law firms.<sup>10</sup>

---

<sup>10</sup>Data for the total number of employees in each of the 19 organizations were unavailable.

Table 6

Distribution of Word Processing/Administrative Support  
Employees According to Occupational Field  
(in Rank Order)

Occupational Field	Number of WP/AS Employees	Percent
Government	41	20.5%
Finance	32	16.0
Industry	25	12.5
Religion	23	11.5
Education	22	11.0
Social Service	22	11.0
Utility	16	8.0
Medicine	11	5.5
Law	<u>8</u>	<u>4.0</u>
Totals	200	100.0%



The data revealed that, of the 19 participants in this study, only 2 organizations (10.52 percent) had incorporated the administrative support function in their word processing organizational structure.

For the purpose of analysis, the word processing centers were grouped in five categories, based on the number of employees. This information is presented in Table 7. The mean for the total number of word processing and administrative support (WP/AS) employees in the centers surveyed was 14.25; the mode was 12. Both the mean and the mode are in the 11-15 employee range.

The distribution of word processing centers according to length of time in operation is given in Table 8. More than half (52.6 percent) of the word processing centers had been in operation three or more years. Of the 52.6 percent, six centers (31.6 percent) had been in operation more than five years.

#### Word Processing Employers' Hiring Requirements

High school education and work experience. Word processing employers' hiring requirements according to high school education and work experience status are shown in Table 9. All but one of the centers required that its employees be high school graduates. The one center that did not require a high school diploma stated that its word processing center

Table 7

Distribution of Word Processing Centers and Percent  
of Word Processing/Administrative Support Employees  
by Size

Total WP/AS Employees	Number of Word Processing Centers	Percent	
		WP Centers (N = 19)	WP/AS Employees (N = 200)
1-5	5	26.32%	9.5%
6-10	5	26.32	19.5
11-15	5	26.32	31.0
16-20	2	10.52	16.5
21-25	<u>2</u>	<u>10.52</u>	<u>23.5</u>
Totals	19	100.00%	100.0%

Mean = 14.25; mode = 12

Table 8

Distribution of Word Processing Centers According  
to Length of Time in Operation  
(N = 19)

Length of Time	Number of Word Processing Centers	Percent
1-6 months	0	0.0%
7-12 months	3	15.8
13-18 months	2	10.5
2 years	4	21.1
3 years	1	5.2
4 years	3	15.8
5 years	0	0.0
More than 5 years	<u>6</u>	<u>31.6</u>
Totals	19	100.0%

Table 9

Word Processing Employers' Hiring Requirements  
According to High School Education  
and Work Experience Status

Status	Required		Not Required	
	N	%	N	%
High school graduate	18	94.7%	1	5.3%
Previous work experience	6	31.6	13	68.4

was staffed entirely by personnel from within the organization at the time of its installation and that there had been no turnover among its word processing personnel.

Previous work experience was not considered an essential qualification by 13 (68.4 percent) of the 19 word processing centers. Of the six (31.6 percent) that required work experience for word processing employment, four stated that the nature of the work was highly specialized and required a knowledge of either legal or medical terminology.

Kind of typewriting test administered. Each organization was asked to respond to the question "What kind of typing test do you administer?" As shown in Table 10, five-minute straight-copy tests, used to determine the typewriting speed and accuracy of a potential word processing secretary, were given exclusively. Twelve of the 19 centers (63.2 percent) administered this type of test. No organization gave one-minute, three-minute, or ten-minute tests. Two centers reported that they administered both straight-copy and production tests to applicants for word processing secretarial positions. Typing a simple business letter, a statistical report, a legal document, and transcribing from recorded dictation were the types of production tasks on which applicants were tested. Five organizations (26.3 percent) said they did not give either a straight-copy or a production typing test.

Table 10

Kind of Typewriting Test Administered to Applicants  
for Word Processing Positions  
(N = 19)

Typewriting Test	Frequency	Percent <sup>a</sup>
Straight Copy:		
One-minute	0	0.0%
Three-minute	0	0.0
Five-minute	12	63.2
Ten-minute	0	0.0
Production:		
Transcription from recorded dictation	2	10.5
Simple business letter	1	5.2
Statistical report	1	5.2
Two-page legal document	1	5.2
None	5	26.3

<sup>a</sup>Due to multiple responses, total exceeds 100 percent.

Kind of clerical test administered. Word processing respondents also were asked whether a clerical test was administered as part of the pre-employment evaluation of applicants. As Table 11 shows, 15 (78.9 percent) of the word processing centers in the study stated they did not test the clerical ability of job applicants. Four word processing employers evaluated the clerical skills in two or more areas.

Sources of word processing personnel. The distribution of primary sources of word processing personnel is given in Table 12. Twelve organizations (63.2 percent) relied on newspaper advertisements, word of mouth, and the company personnel office as sources of their employees. The primary employment source of seven organizations (36.8 percent) was their own present personnel; of six centers (31.6 percent), private employment agencies; and of four centers (21.1 percent), public employment offices. Several word processing centers utilized more than one personnel source.

Hiring projections. When asked to project how many word processing secretaries they expected to hire within the next year and within the next three years, the respondents were not able to anticipate their future needs accurately. Responses to the question indicated that the hiring of new personnel would depend principally upon business

Table 11  
 Kind of Clerical Test Administered to Applicants  
 for Word Processing Positions  
 (N = 19)

Clerical Test	Frequency	Percent <sup>a</sup>
English grammar	3	15.8%
Spelling	3	15.8
Filing	2	10.5
Proofreading	2	10.5
Basic math	1	5.2
None	15	78.9

<sup>a</sup>Due to multiple responses, total exceeds 100 percent.



Table 12  
Sources of Word Processing Personnel

Source	Frequency	Percent <sup>a</sup>
Four-year college or university	0	0.0%
Secondary school	1	5.2
Community college	1	5.2
Proprietary school	1	5.2
Public employment office	4	21.1
Private employment agency	6	31.6
Present staff	7	36.8
Other (newspaper ads, word of mouth, company personnel office)	12	63.2

<sup>a</sup>Due to multiple responses, total exceeds 100 percent.

expansion and work load. As shown in Table 13, 6 word processing employers were unable to predict the number of new word processing secretaries that would be hired within the next year, and 12 employers were unable to anticipate their needs for the next three-year period.

#### Equipment Used

Automatic typewriters. One of the changes in office equipment brought about by the implementation of word processing has been the replacement of standard electric typewriters with automatic typewriters. Therefore, an attempt was made to identify the number and kinds of automatic typewriters used in the word processing centers. This information is displayed in Table 14. There were a total of 163 automatic typewriters in the 19 word processing centers in the study. Of these 163 automatic typewriters, more than half (56.4 percent) were IBM Mag Card II machines (32.5 percent) and IBM Magnetic Card Selectric typewriters (23.9 percent). One fifth of the automatic typewriters (19.6 percent) were the IBM Magnetic Tape Selectric typewriter (MT/ST), an early word processor; and one tenth (9.8 percent) were IBM Memory tyepwriters.

Dictation units. Participants in the study were also asked how many and what kinds of dictation units were located in their word processing centers. The distribution

Table 13

Hiring Projections for Word Processing Secretaries  
 Within a One- and Three-Year Period

Number of Word Processing Secretaries to be Hired	Number of Word Processing Centers	
	Within One Year	Within Three Years
0	5	4
1	5	0
2	2	1
3	0	1
4	1	1
Unknown	6	12

Table 14

Distribution of Automatic Typewriters Installed  
in Word Processing Centers

Automatic Typewriter	Number	Percent
IBM Mag Card II	53	32.5%
IBM Magnetic Card Selectric (MC/ST)	39	23.9
IBM Magnetic Tape Selectric (MT/ST)	32	19.6
IBM Memory	16	9.8
IBM Selectric Terminals	6	3.6
IBM Magnetic Tape Selectric Composer	5	3.0
IBM Mag Card A	3	1.8
IBM Mag Card Executive	3	1.8
Vydec (CRT) Visual Display	3	1.8
A. B. Dick Magna I	2	1.2
IBM Electronic Composer	<u>1</u>	<u>1.0</u>
Totals	163	100.0%

of the 267 dictation units used in the participating word processing centers is shown in Table 15. The most frequently used type of dictation equipment was the IBM portable unit (42.3 percent). Of the 267 units, one fourth of the machines (25.9 percent) were the IBM Microphone Input System. The third most frequently used was the IBM 6:5 cartridge dictation system (10.5 percent). The distribution in Table 15 reveals a representation of the four major categories of dictation units--centralized (telephone), endless loop (tank), desk-size, and portable.

On-the-job instruction. Only one of the 19 participating organizations reported that it did not give new employees on-the-job instruction in the operation of word processing equipment. Of the 19 organizations that did provide training on the job, 7 reported using equipment manufacturers' self-instruction manuals.

#### CONVERSION TO WORD PROCESSING

To provide an identification of the factors in the word processing conversion process, the interview guide inquired into (1) the reasons for conversion to word processing, (2) the level of management responsible for making the decision, (3) the techniques employed in the conversion process, and (4) the problems encountered in making the transition to word processing.

Table 15  
 Distribution of Dictation Units Installed  
 in Word Processing Centers

Dictation Unit	Number	Percent
IBM Portable Recorder	113	42.3%
IBM Microphone Input	69	25.9
IBM 6:5 Cartridge System	28	10.5
Philips/Norelco 260 Automatic System	19	7.1
IBM Transcriber	17	6.4
Sony Selective Recorder Network System	6	2.2
Lanier Tel-Edisette Central System	5	1.9
Dictran Doro 702	4	1.5
Dictaphone Thought Tank System	3	1.1
Lanier Portable Cassette	<u>3</u>	<u>1.1</u>
Totals	267	100.0%

### Reasons for Conversion to Word Processing

Replies to the question "Why did your company convert to word processing?" were tallied and ranked, as shown in Table 16. "To improve quality and quantity of all correspondence," the reason given most frequently, was mentioned by 14 (73.7 percent) of the 19 organizations in the study. "To improve turnaround time in producing documents" and "To reduce office costs" were each mentioned by six (31.6 percent) of the organizations. "To improve supervision of clerical and secretarial activities" was mentioned by five organizations. Several word processing centers gave more than one reason for conversion to word processing.

### Level of Management Responsible for Decision

The decision-making responsibility for conversion to word processing by level of management is given in Table 17. In 8 (42.1 percent) of the 19 word processing centers in the study, this responsibility was assumed by the president and vice-presidents. In 7 (36.8 percent) of the 19 cases, middle management made the decision. In only two organizations (10.5 percent) was the board of directors involved in making the decision to change to a word processing system.

### Techniques Employed in the Conversion Process

Table 18 ranks the seven techniques employed in the conversion to word processing. "Procured assistance of

Table 16  
 Reasons for Conversion to Word Processing  
 (N = 19)

Reason	Frequency	Percent <sup>a</sup>
To improve quality and quantity of all correspondence	14	73.7%
To improve turnaround time in producing documents	6	31.6
To reduce office costs	6	31.6
To improve supervision of clerical and secretarial activities	5	26.3
To satisfy company's needs	1	5.2

<sup>a</sup>Due to multiple responses, total exceeds 100 percent.



Table 17

Decision-Making Responsibility for Conversion  
to Word Processing by Level of Management

Level of Management	Number of Word Processing Centers	Percent
President and Vice-Presidents	8	42.1%
Middle Management	7	36.8
Board of Directors	2	10.5
Other:		
Operating Committee	1	5.3
Medical Records Librarian	<u>1</u>	<u>5.3</u>
Totals	19	100.0%

Table 18  
Techniques Employed in Conversion Process  
of Word Processing Centers  
(N = 19)

Technique	Times Mentioned
Procured assistance of word processing equipment sales representative	14
Conducted task survey among departments within the organization	9
Assigned an individual or formed a task force to make feasibility study	6
Asked for expertise of reputable independent consulting firm	2
Logged, within each survey area, how each secretary's time was spent	1
Consulted with user of recently installed word processing system	1
Used expertise of staff member	1

word processing equipment sales representative," mentioned 14 times, was the technique used most frequently. More than one technique was used by several of the word processing centers.

#### Problems Encountered in the Transition to Word Processing

Respondents were asked to indicate the problems encountered in the transition to word processing. Table 19 shows the major problems, as perceived by the 19 organizations, in making the transition. As indicated in the table, a reluctance of personnel to accept the concept of word processing was mentioned most frequently (13 times). The second major problem (mentioned nine times) was the physical layout of a word processing center that called for remodeling or expansion of office facilities. Noise pollution caused by the word processing equipment was mentioned six times. Generally, the organizations in the study encountered more than one problem in making the transition to word processing.

#### WORD PROCESSING EMPLOYEE AND JOB CHARACTERISTICS

Data for Section II (Supervisor, Correspondence Secretary, or Administrative Secretary Data) and for Section III (Job Tasks) of the Word Processing Interview Guide were collected from 19 supervisors, 17 correspondence secretaries, and 2 administrative secretaries employed in the word

Table 19  
Major Problems Encountered in the Transition  
to Word Processing  
(N = 19)

Problem	Times Mentioned
Reluctance of personnel to accept the concept of word processing	13
Physical layout called for remodel- ing or expansion	9
Noise pollution	6
Word originator's reluctance to use dictating equipment	4
Lack of qualified word processing personnel	1
Fear of personnel of loss of jobs	1

processing centers in the Urban Corridor of Virginia.<sup>11</sup> An analysis of the data for Section II is organized under two categories: employee characteristics and job characteristics.

### Employee Characteristics

Education. Each supervisor, correspondence secretary, and administrative secretary interviewed was asked, "What is your highest educational attainment?" Their responses are given in Table 20. Of the 19 supervisors, 11 (57.9 percent) had only a high school diploma, 4 (21.1 percent) had some post-high school education, and 3 (15.8 percent) were college graduates. Of the 17 correspondence secretaries, 4 (23.5 percent) had only a high school diploma, 10 (58.8 percent) had some post-high school education, and 1 (5.9 percent) was a college graduate. One of the two administrative secretaries had a high school diploma; the other did not.

Length of employment. The length of employment of word processing supervisors and secretaries is given in Table 21. Twelve (63.2 percent) of the 19 supervisors interviewed had been with the organization more than five years, and 6 (31.6 percent) had from one to five years' service. Six (35.3 percent) of the 17 correspondence secretaries had been with the

---

<sup>11</sup>Because of existing vacancies in two small word processing centers, only 17 correspondence secretaries were interviewed.

Table 20

Distribution of Word Processing Supervisors and Secretaries  
According to Educational Attainment

Education	Supervisors		Correspondence Secretaries		Administrative Secretaries	
	N	%	N	%	N	%
High school graduate	11	57.9%	4	23.5%	1	50.0%
Post-high school	4	21.1	10	58.8	0	0.0
Baccalaureate degree	3	15.8	1	5.9	0	0.0
Business school	1	5.2	1	5.9	0	0.0
Less than high school diploma	<u>0</u>	<u>0.0</u>	<u>1</u>	<u>5.9</u>	<u>1</u>	<u>50.0</u>
Totals	19	100.0%	17	100.0%	2	100.0%

Table 21  
 Length of Employment of Word Processing Supervisors  
 and Secretaries

Length of Employment	Word Processing Positions					
	Sa		CSa		ASa	
	N	%	N	%	N	%
Less than 1 year	1	5.2%	1	5.9%		
1-5 years	6	31.6	10	58.8	1	50.0%
More than 5 years	<u>12</u>	<u>63.2</u>	<u>6</u>	<u>35.3</u>	<u>1</u>	<u>50.0</u>
Totals	19	100.0%	17	100.0%	2	100.0%

<sup>a</sup>S = Supervisor, CS = Correspondence Secretary, AS = Administrative Secretary

organization more than five years, and 10 (58.8 percent) had from one to five years' service. One of the two administrative secretaries had been with the organization more than five years; the length of employment of the other was in the 1-5 years range.

Previous office work experience. Each of the 38 interviewees was asked to indicate the length of previous office work experience. This information is presented in Table 22. Ten (52.6 percent) of the 19 supervisors and 8 (47.1 percent) of the 17 correspondence secretaries had more than five years of previous office experience. The previous office experience of the two administrative secretaries was in the 1-5 years range.

Use of Selectric typewriters and dictation equipment. The use of Selectric typewriters and dictation equipment required in previous jobs held by word processing supervisors, correspondence secretaries, and administrative secretaries is shown in Table 23. Approximately half of the supervisors (52.6 percent) and correspondence secretaries (52.9 percent) had typed on a Selectric typewriter in their previous jobs. Both of the two administrative secretaries had used the Selectric previously.

Eight (42.1 percent) of the 19 supervisors and 6 (35.3 percent) of the 17 correspondence secretaries had operated



Table 22

Previous Office Work Experience of Word Processing  
Supervisors and Secretaries

Previous Office Experience	Word Processing Positions					
	Sa		CS <sup>a</sup>		AS <sup>a</sup>	
	N	%	N	%	N	%
None	2	10.5%	2	11.8%		
Less than 1 year			3	17.6		
1-5 years	7	36.9	4	23.5	2	100.0%
More than 5 years	<u>10</u>	<u>52.6</u>	<u>8</u>	<u>47.1</u>	—	—
Totals	19	100.0%	17	100.0%	2	100.0%

<sup>a</sup>S = Supervisor, CS = Correspondence Secretary, AS = Administrative Secretary

Table 23

Use of Selectric Typewriters and Dictation Equipment Required  
in Previous Jobs by Word Processing Supervisors,  
Correspondence Secretaries, and  
Administrative Secretaries

WP Position	Selectric Typewriter				Dictation Equipment			
	Yes	%	No	%	Yes	%	No	%
Supervisor	10	52.6%	9	47.4%	8	42.1%	11	57.9%
Correspondence Secretary	9	52.9	8	47.1	6	35.3	11	64.7
Administrative Secretary	2	100.0			2	100.0		

dictation equipment in their previous jobs, as had both of the 2 administrative secretaries. It may be assumed that the 11 supervisors (57.9 percent) and 11 correspondence secretaries (64.7 percent) who were not required to operate dictation units either used a manual shorthand system or were not employed in secretarial positions.

Word processing secretarial training sources. Each supervisor, correspondence secretary, and administrative secretary was also asked, "Where did you receive your word processing secretarial training?" Table 24 identifies the sources of this training. The source cited most frequently by supervisors (63.2 percent) was an equipment manufacturer's institute or seminar. On-the-job instruction was the source cited most frequently by correspondence secretaries (70.6 percent). One administrative secretary received on-the-job instruction; the other secretary had received no formal word processing preparation.

#### Job Characteristics

Minimum typewriting speed requirement. Table 25 shows the data for the minimum typewriting speed requirement for word processing secretaries. The minimum typewriting speed requirement was 65 words a minute or more for 6 (31.6 percent) of the 19 word processing centers in the study, between 50-54

Table 24  
Sources of Word Processing Secretarial Training

Source of Training	WP Positions					
	S <sup>a</sup>		CS <sup>a</sup>		AS <sup>a</sup>	
	N	%	N	%	N	%
Community college			1	5.9%		
Four-year college or university			1 <sup>b</sup>	5.9		
Proprietary school	2	10.5%	1	5.9		
High school evening program						
Manufacturer's institute or seminar	12 <sup>c</sup>	63.2	3	17.6		
On-the-job training program	7 <sup>c</sup>	36.8	12	70.6	1	50.0%
No training					1	50.0

<sup>a</sup>S = Supervisor, CS = Correspondence Secretary, AS = Administrative Secretary

<sup>b</sup>Also was trained on the job.

<sup>c</sup>Two supervisors received training from both sources; therefore, total number exceeds 19.

Table 25  
Minimum Typewriting Speed Requirement  
for Word Processing Secretaries

Speed (in words a minute)	Number of Word Processing Centers	Percent
40-44	3	15.8%
45-49	0	
50-54	5	26.3
55-59	4	21.1
60-64	1	5.2
65 or more	6	31.6

words a minute for 5 centers (26.3 percent), and between 55-59 words a minute for 4 centers (21.1 percent).

Ability to take shorthand dictation. Table 26 gives the breakdown of the responses to the question "Is the ability to take shorthand dictation a requirement for either secretarial position?" The ability to take shorthand dictation was not a requirement for either correspondence or administrative secretaries.

Difficulty of work produced. Each correspondence and administrative secretary was asked to rate the difficulty of work produced in her word processing center. A five-point scale was used. A rating of 1 on the scale was considered "least difficult"; 5, "very difficult." Table 27 shows the difficulty of the work as rated by the two groups of word processing secretaries. A majority (9 or 52.9 percent) of the 17 correspondence secretaries rated the difficulty of the work 3 or above. Both administrative secretaries ranked the difficulty of the work as 3.

Overall secretarial performance. The supervisors were asked to rate the overall performance of the word processing secretaries. A five-point scale (1 = poor, 2 = fair, 3 = average, 4 = good, 5 = excellent) was used for the rankings. Table 28 displays the ratings of the overall performance of

Table 26  
Shorthand Dictation Requirement  
for Word Processing Secretaries

Word Processing Position	Shorthand Dictation Required?	
	Yes	No
Correspondence Secretary	0	17
Administrative Secretary	0	2

Table 27

Difficulty of Work as Rated by Correspondence Secretaries  
and Administrative Secretaries

Rating <sup>a</sup>	Word Processing Secretaries			
	Correspondence		Administrative	
	N	%	N	%
1	2	11.8%		
2	6	35.3		
3	3	17.6	2	100.0%
4	4	23.5		
5	2	11.8		

<sup>a</sup>1 = least difficult, 5 = very difficult



Table 28

Overall Performance of Word Processing Secretaries  
as Rated by Their Supervisors

Rating	Number of Supervisors	Percent
1 (poor)	0	-
2 (fair)	0	-
3 (average)	1	5.3%
4 (good)	13	68.4
5 (excellent)	<u>5</u>	<u>26.3</u>
Totals	19	100.0%

the secretaries by their supervisors. Thirteen (68.4 percent) of the 19 supervisors ranked the overall performance as "good"; 5 (26.3 percent), "excellent"; and 1 (5.3 percent), "average." None of the secretaries received a rating of "poor" or "fair."

Methods of work measurement. The methods of measuring work for the correspondence secretaries also were determined. As shown in Table 29, the most frequently used method of work measurement was number of lines typed; 13 (68.4 percent) of the 19 word processing centers surveyed used this method. Two centers (10.5 percent) measured the work on the basis of the number of cards, tapes, cassettes, or belts transcribed; and one center (5.2 percent) counted the number of pages produced. Three organizations did not measure the amount of work produced.

#### JOB TASKS

One phase of the study was an identification of the typing and nontyping job tasks performed by the supervisors, correspondence secretaries, and administrative secretaries in the participating word processing centers. In responding to the questions in Section III of the interview guide, each interviewee was asked to indicate the frequency of performance of the job tasks--never, occasionally, or often (two

Table 29

## Methods of Work Measurement for Correspondence Secretaries

Method of Work Measurement	Number of WP Centers	Percent
Number of lines counted	13	68.4%
Number of cards, tapes, cassettes, or belts transcribed	2	10.5
Number of pages produced	1	5.2
None	<u>3</u>	<u>15.8</u>
Totals	19	100.0%

or more times a week). The responses to the 34 questions pertaining to nontyping tasks and to the 15 questions relating to typing tasks were punched directly into cards and analyzed by a computer using a Statistical Package for the Social Sciences (SPSS). Frequency distributions and percentages of the 49 items in Section III were calculated.

Separate compilations of the job tasks identified as "often" performed by supervisors and correspondence secretaries were made.<sup>12</sup> First, a list of the calculated percentages of the supervisors' "often" responses for each task performed was compiled; then, from the itemized percentages, each task performed was ranked. Table 30 shows the rank order of the typing and nontyping tasks "often" performed by supervisors. Twenty-seven of the 35 job tasks listed in the table were nontyping activities; eight tasks were typing activities.<sup>13</sup> The most frequently performed job task by supervisors was "Coordinate individual work with word processing personnel." The first five job tasks listed in the table were nontyping activities and were performed by 78.9 percent or more of the supervisors.

---

<sup>12</sup>Because there were only two administrative secretaries in the participating word processing centers, a list of their typing and nontyping tasks was not compiled.

<sup>13</sup>To determine the number of typing and nontyping tasks performed, the job tasks itemized in Tables 30 and 31 and the task questions listed in Section III of the Word Processing Interview Guide were compared and a hand count made.

Table 30

Rank Order of Typing and Nontyping Tasks Often\* Performed  
by Supervisors in Word Processing Centers  
in the Urban Corridor of Virginia

Rank	Percent	Task Performed
1	89.5%	Coordinate individual work with word processing personnel
2	84.2	Handle incoming telephone calls
4	78.9	Perform receptionist duties
4	78.9	Place outgoing local calls
4	78.9	Log information, such as typing production work or work orders
6	73.7	Establish work priorities
7	63.2	Proofread prepared copy
8	52.6	Use a dictionary, thesaurus, or other reference materials
9	47.4	Make computations and verifications
10.5	42.1	Edit material
10.5	42.1	Instruct word processing personnel in office procedures
12.5	36.8	Explain or discuss dictation problems with word originator
12.5	36.8	Make routine decisions, interpretations, and judgments using an office manual or written statements of policies and procedures
14	31.6	Operate a ten-key adding machine
16	26.3	Use a photographic copier
16	26.3	Operate an electronic calculator
16	26.3	Type multipage documents
18.5	21.1	Plan placement of material to be typed
18.5	21.1	Compose correspondence to be revised
21.5	15.8	Code and file materials systematically
21.5	15.8	Open, organize, and route incoming mail
21.5	15.8	Use direct distance dialing
21.5	15.8	Transcribe from recorded dictation

\*Two or more times a week

Table 30 (continued)

Rank	Percent	Task Performed
26	10.5%	Compose and sign correspondence without approval of others
26	10.5	Read mail and mark important points for help in answering mail
26	10.5	Handle outgoing mail
26	10.5	Type one-page letters
26	10.5	Address envelopes or cards
32	5.3	Retrieve materials, information, or recorded data from files
32	5.3	Arrange for conference calls
32	5.3	Arrange conferences and executive meetings
32	5.3	Type interoffice memorandums
32	5.3	Type multipage letters
32	5.3	Type information on preprinted forms
32	5.3	Type form letters

Table 31 ranks the typing and nontyping tasks "often" performed by correspondence secretaries. The procedure for identifying the job tasks performed by correspondence secretaries was the same as that used for identifying the tasks performed by supervisors. Twelve of the 37 job tasks itemized in Table 31 were typing activities; 25 tasks were nontyping activities. The most frequently performed task by correspondence secretaries was "Proofread prepared copy." As Table 31 shows, only one of the third-ranked tasks was a typing activity--"Type one-page letters." The first five job tasks listed in the table were performed by 82.3 percent or more of the correspondence secretaries.

#### Statistically Significant Job Tasks

To determine the extent of the difference of the job tasks performed by supervisors and correspondence secretaries, Chi-square ( $\chi^2$ ) tests were computed.<sup>14</sup> The level of significance was set at .05. The values generated from the Chi-square tests were used in developing Table 32. Table 32 contains the statistically significant typing and nontyping job tasks performed by word processing supervisors and correspondence secretaries, the percent of the responses for the two groups, and the raw Chi-square values. Each

---

<sup>14</sup>Because there were only two administrative secretaries in the participating word processing centers, Chi-square tests were not computed for this group.

Table 31

Rank Order of Typing and Nontyping Tasks Often Performed  
by Correspondence Secretaries in Word Processing Centers  
in the Urban Corridor of Virginia

Rank	Percent	Task Performed
1	94.1%	Proofread prepared copy
3	88.2	Edit material during transcribing or typing
3	88.2	Type one-page letters
3	88.2	Log information (e.g., typing production work)
5	82.3	Transcribe from recorded dictation
6	76.5	Use dictionary, thesaurus or other reference materials
7	70.6	Type multipage documents
8.5	64.7	Type interoffice memorandums
8.5	64.7	Address envelopes or cards
11.5	52.9	Type multipage letters
11.5	52.9	Code and file materials systematically
11.5	52.9	Handle incoming telephone calls
11.5	52.9	Use a photographic copier
15.5	47.1	Type statistical reports requiring columnar format
15.5	47.1	Type form letters using "standard" paragraphs
15.5	47.1	Plan placement of material to be typed
15.5	47.1	Place outgoing local calls
18	41.2	Retrieve materials, information, or recorded data from files
19	35.3	Type outlines requiring indented format
21	23.5	Type information on preprinted forms (e.g., invoices, statements, legal documents)
21	23.5	Type address or file labels
21	23.5	Handle outgoing mail
24	17.6	Type minutes of executive meetings
24	17.6	Make computations and verifications



Table 31 (continued)

Rank	Percent	Task Performed
24	17.6%	Make routine decisions or interpretations using an office manual
27.5	11.8	Compose correspondence to be revised or approved by others
27.5	11.8	Update files
27.5	11.8	Perform receptionist duties
27.5	11.8	Explain or discuss dictation problems with word originator
33.5	5.9	Compose and sign correspondence without approval of others
33.5	5.9	Open, organize, and route incoming mail
33.5	5.9	Read mail and mark important points for help in answering the mail
33.5	5.9	Represent supervisor at meetings and conferences
33.5	5.9	Operate ten-key adding machine
33.5	5.9	Use electronic calculator
33.5	5.9	Operate an addressing machine
33.5	5.9	Coordinate individual work with word processing personnel

Table 32

Statistically Significant Typing and Nontyping Job Tasks Performed  
by Word Processing Supervisors and Correspondence Secretaries  
(Supervisors, N = 19; Correspondence Secretaries, N = 17)

Job Task	Respondents	Percent of Responses			x <sup>2</sup> *
		Never	Occasionally	Often	
<u>Nontyping</u>					
Do you edit material during transcription or typing?	S** CS	42.1%	15.8% 11.8	42.1% 88.2	10.25
Do you retrieve materials, information, or recorded data from the files?	S CS	63.2 35.3	31.6 23.5	5.3 41.2	6.81
Do you clean and maintain a typewriter?	S CS	100.0 70.6	29.4		6.49
Do you perform receptionist duties, such as greeting callers?	S CS	10.5 58.8	10.5 29.4	78.9 11.8	16.50
Do you use direct distance dialing?	S CS	57.9 94.1	26.3 5.9	15.8	6.50

\*Raw Chi-square value

\*\*S = Supervisors, CS = Correspondence Secretaries

Table 32 (continued)

Job Task	Respondents	Percent of Responses			X <sup>2</sup>
		Never	Occasionally	Often	
Do you make computations and verifications, such as sales commissions or billings?	S CS	10.5% 58.8	42.1% 29.4	47.4% 11.8	10.40
Do you explain or discuss dictation problems with the word originator responsible?	S CS	58.8	63.2 29.4	36.8 11.8	14.17
Do you establish work priorities?	S CS	5.3 82.4	21.1 17.6	73.7	25.38
Do you coordinate individual work with the work of word processing personnel?	S CS	82.4	10.5 11.8	89.5 5.9	28.42
Do you instruct word processing personnel in office procedures?	S CS	10.5 94.1	47.4 5.9	42.1	25.26
Do you make routine decisions, interpretations, and judgments using an office manual or written statements of policies and procedures?	S CS	5.3 58.8	57.9 23.5	36.8 17.6	12.16

Table 32 (continued)

Job Task	Respondents	Percent of Responses			X <sup>2</sup>
		Never	Occasionally	Often	
<u>Typing</u>					
Do you transcribe from recorded dictation?	S	73.7%	10.5%	15.8%	18.33
	CS	5.9	11.8	82.4	
Do you type interoffice memorandums?	S	84.2	10.5	5.3	17.37
	CS	17.6	17.6	64.7	
Do you type one-page letters?	S	68.4	21.1	10.5	21.98
	CS	5.9	5.9	88.2	
Do you type multipage letters?	S	78.9	15.8	5.3	20.20
	CS	5.9	41.2	52.9	
Do you type statistical reports requiring columnar headings?	S	78.9	21.1		16.34
	CS	17.6	35.3	47.1	
Do you type multipage documents?	S	63.2	10.5	26.3	16.11
	CS		29.4	70.6	
Do you type information on preprinted forms--invoices, statements, legal documents?	S	89.5	5.3	5.3	9.46
	CS	41.2	35.3	23.5	

Table 32 (continued)

Job Task	Respondents	Percent of Responses			$\chi^2$
		Never	Occasionally	Often	
Do you type form letters using "standard" paragraphs?	S	73.7%	21.1%	5.3%	11.03
	CS	23.5	29.4	47.1	
Do you address envelopes or cards?	S	89.5		10.5	18.98
	CS	17.6	17.6	64.7	
Do you type address or file labels?	S	94.7	5.3		14.43
	CS	35.3	41.2	23.5	
Do you type outlines requiring indented format?	S	89.5	10.5		19.35
	CS	17.6	47.1	35.3	
Do you type itineraries?	S	94.7	5.3		6.70
	CS	58.8	41.2		

statistically significant task was examined and analyzed separately to determine the differences between the two groups. These differences are discussed in the paragraphs that follow.

1. There were significant differences, at the .05 level, between the two groups concerning the frequency of performance of the task "Edit material during transcription or typing." Of the 19 supervisors, 42.1 percent responded "never"; 15.8 percent, "occasionally"; and 42.1 percent, "often." Of the 17 correspondence secretaries, 88.2 percent responded "often." Thus, correspondence secretaries were more likely to edit material during transcription and typing than supervisors.

2. There were differences between the two groups concerning the frequency of performance of the task "Retrieve materials, information, or recorded data from files." Of the 19 supervisors, 63.2 percent responded "never." Of the 17 correspondence secretaries, 35.3 percent replied "never"; 23.5 percent, "occasionally"; and 41.2 percent, "often." The response patterns indicated that the correspondence secretaries were more likely to retrieve materials or recorded data from files than supervisors.

3. There were differences between the two groups concerning the frequency of performance of the task "Clean and maintain a typewriter." Analysis revealed that all the

supervisors and 70.6 percent of the 17 correspondence secretaries "never" performed the task. Only 29.4 percent of the correspondence secretaries replied "occasionally." The response patterns showed that a few correspondence secretaries cleaned and maintained a typewriter.

4. The Chi-square test revealed differences between the two groups concerning the frequency of performing receptionist duties, such as greeting callers. Of the 19 supervisors, 78.9 percent responded "often," while 58.8 percent of the 17 correspondence secretaries provided "never" responses. As the response patterns indicated, receptionist duties usually were performed by supervisors.

5. There were differences between the two groups concerning the frequency of the use of direct distance dialing. Of the 19 supervisors, 57.9 percent responded "never"; 26.3 percent, "occasionally"; and 15.8 percent, "often." Of the 17 correspondence secretaries, 94.1 percent "never" performed the task. The analysis revealed that supervisors were more likely to use direct distance dialing than correspondence secretaries.

6. There were differences between the two groups concerning the frequency of performance of the task "Make computations and verifications, such as sales, commissions, or billings." Of the 19 supervisors, 47.4 percent responded "often" and 42.1 percent, "occasionally." Within the

correspondence secretaries group, 58.8 percent of the 17 secretaries responded "never"; 29.4 percent, "occasionally"; and 11.8 percent, "often." From the results, it seems that computations and verifications were more frequently made by supervisors than by correspondence secretaries.

7. The Chi-square test revealed that there were differences between the two groups concerning the frequency of performance of the task "Explain or discuss dictation problems with the word originator (dictator) responsible." Of the 19 supervisors, 63.2 percent responded "occasionally" and 36.8 percent, "often." Of the 17 correspondence secretaries, 58.8 percent furnished "never" responses; 29.4 percent, "occasionally"; and 11.8 percent, "often." Based on the results of the Chi-square test, supervisors were more likely to explain or discuss dictation problems with the word originator responsible than correspondence secretaries.

8. There were differences between the two groups concerning the frequency of performance of the task "Establish work priorities." Of the 19 supervisors, 73.7 percent responded "often," whereas 82.4 percent of the 17 correspondence secretaries replied "never." It appears, then, that the task "Establish work priorities" was mainly the responsibility of supervisors.

9. There were differences between the two groups concerning the frequency of performance of the task "Coordinate



individual work with the work of word processing personnel." Of the 19 supervisors, 89.5 percent responded "often," while 82.4 percent of the 17 correspondence secretaries replied "never." Coordinating individual work with the work of word processing personnel was primarily a task performed by supervisors.

10. The Chi-square test revealed that there were differences between the groups concerning the frequency of performance of the task "Instruct word processing personnel in office procedures." Of the 19 supervisors, 10.5 percent responded "never"; 47.4 percent, "occasionally"; and 42.1 percent, "often." Of the 17 correspondence secretaries, 94.1 percent responded "never." The response patterns indicated that supervisors were more likely to instruct word processing personnel in office procedures than correspondence secretaries.

11. There were differences between the two groups concerning the frequency of performance of the task "Make routine decisions, interpretations, and judgments using an office manual or written statements of policies and procedures." Only 5.3 percent of the 19 supervisors gave "never" responses; 57.9 percent, "occasionally"; and 36.8 percent, "often." Of the 17 correspondence secretaries, 58.8 percent replied "never"; 23.5 percent, "occasionally"; and 17.6 percent, "often." Based on the results of the Chi-square test,

supervisors were more likely to make routine decisions and interpretations using an office manual or written statements of policies and procedures than correspondence secretaries.

12. The Chi-square test revealed that there were differences between the two groups concerning the frequency of performance of the task "Transcribe from recorded dictation." Within the group of 19 supervisors, 73.7 percent provided "never" responses; 10.5 percent, "occasionally"; and 15.8 percent, "often." Of the 17 correspondence secretaries, 82.4 percent reported that they "often" transcribe from recorded dictation. The response patterns indicated that correspondence secretaries were more likely to transcribe from recorded dictation than supervisors.

13. There were differences between the two groups concerning the frequency of performance of the task "Type interoffice memorandums." Within the group of 19 supervisors, 84.2 percent responded "never"; 10.5 percent, "occasionally"; and 5.3 percent, "often." Within the correspondence secretaries group, 17.6 percent of the 17 secretaries gave "never" responses; 17.6 percent, "occasionally"; and 64.7 percent, "often." Correspondence secretaries were more likely to type interoffice memorandums than supervisors.

14. There were differences between the two groups concerning the frequency of performance of the task "Type one-page letters." Of the 19 supervisors, 68.4 percent responded "never," while 88.2 percent of the 17 correspondence secretaries replied "often." The task "Type one-page letters" was performed principally by correspondence secretaries.

15. There were differences between the two groups concerning the frequency of performance of the tasks "Type multipage letters" and "Type statistical reports requiring columnar format." Of the 19 supervisors, 78.9 percent "never" performed either of these tasks. Of the 17 correspondence secretaries, 52.9 percent stated that they "often" typed multipage letters; 47.1 percent "often" typed statistical reports. Correspondence secretaries, then, were more likely to type multipage letters and statistical reports than supervisors.

16. There were differences between the two groups concerning the frequency of performance of the task "Type multipage documents." Of the 19 supervisors, 63.2 percent responded "never," but 70.6 percent of the 17 correspondence secretaries replied "often." Analysis indicated that correspondence secretaries were the persons who typed multipage documents in word processing centers.

17. There were differences between the two groups concerning the frequency of performance of the task "Type information on preprinted forms." Of the 19 supervisors, 89.5 percent responded "never." Of the 17 correspondence secretaries, 41.2 percent replied "never"; 35.3 percent, "occasionally"; and 23.5 percent, "often." Correspondence secretaries, then, were more likely to type information on preprinted forms than supervisors.

18. There were differences between the two groups concerning the frequency of performance of the task "Type form letters (individually typed letters using 'standard' paragraphs)." Of the 19 supervisors, 73.7 percent responded "never." Of the 17 correspondence secretaries, 23.5 percent replied "never"; 29.4 percent, "occasionally"; and 47.1 percent, "often." The task "Type form letters using standard paragraphs" was performed more frequently by correspondence secretaries than by supervisors.

19. There were differences between the two groups concerning the frequency of performance of the task "Address envelopes or cards." Of the 19 supervisors, 89.5 percent provided "never" responses. Of the 17 correspondence secretaries, 17.6 percent responded "never"; 17.6 percent, "occasionally"; and 64.7 percent, "often." Analysis revealed that correspondence secretaries were more likely to address envelopes or cards than supervisors.

20. There were differences between the two groups concerning the frequency of performance of the task "Type address or file labels." Of the 19 supervisors, 94.7 percent furnished "never" responses. In the correspondence secretaries group, 35.3 percent of the 17 secretaries responded "never"; 41.2 percent, "occasionally"; and 23.5 percent, "often." Correspondence secretaries were more likely to type address or file labels than supervisors.

21. The Chi-square test indicated there were differences between the groups concerning the frequency of performance of the task "Type outlines requiring indented format." Of the 19 supervisors, 89.5 percent responded "never." In the correspondence secretaries group, 17.6 percent of the 17 secretaries responded "never"; 47.1 percent, "occasionally"; and 35.3 percent, "often." Based on the results of the Chi-square test, the task "Type outlines requiring indented format" was performed mainly by correspondence secretaries.

22. There were differences between the two groups concerning the frequency of performance of the task "Type itineraries." Ninety-five percent of the 19 supervisors and 58.8 percent of the 17 correspondence secretaries responded "never." However, 41.2 percent of the correspondence secretaries stated that they "occasionally" perform the task. The typing of itineraries, then, was

performed more frequently by correspondence secretaries than by supervisors.

## Chapter 5

### SUMMARY, FINDINGS, CONCLUSIONS, AND IMPLICATIONS AND RECOMMENDATIONS

This final chapter presents the summary, findings, conclusions, and implications and recommendations for this study, which was a survey of word processing centers in the Urban Corridor of Virginia.

#### SUMMARY

The study was conducted to collect data to determine the status of word processing centers within the Urban Corridor of Virginia. The problem was an identification of the factors in the word processing conversion process and of the typing and nontyping job tasks performed and the employment tests administered in the word processing centers.

The researcher sought answers to the following specific questions:

1. What were the characteristics of the word processing centers in terms of the following factors?
  - a. Type of organization
  - b. Length of time word processing centers had been established
  - c. Number of automatic typewriters in the word processing centers
  - d. Kinds of automatic typewriters in the word processing centers
  - e. Number of dictation units in the word processing centers

- f. Kinds of dictation units in the word processing centers
- g. Sources of employees

2. What were the reasons for conversion to word processing?

3. What level of management made the decision to convert to word processing?

4. What techniques were employed in the conversion process?

5. What problems were encountered in making the transition to word processing?

6. What kind of typing test was administered to applicants for word processing positions?

7. What kind of clerical test was administered to applicants for word processing positions?

8. What were the employee characteristics and job characteristics of supervisors, correspondence secretaries, and administrative secretaries in terms of the following factors?

- a. Education
- b. Length of employment with organization
- c. Previous work experience
- d. Length of previous work experience
- e. Use of Selectric typewriter in previous job
- f. Use of dictation equipment in previous job
- g. Ability to take shorthand dictation
- h. Sources of word processing training
- i. Minimum typewriting speed requirement
- j. Difficulty of work as rated by secretaries
- k. Methods of measuring work
- l. Performance of secretaries as rated by their supervisors



9. What typing and nontyping tasks were performed by word processing secretaries and supervisors?

10. Did a difference exist among the typing and nontyping tasks performed by supervisors, correspondence secretaries, and administrative secretaries in the word processing centers?

The participants in the study were 19 organizations with word processing centers. A total of 38 interviews were conducted. The interviewees included 19 supervisors, 17 correspondence secretaries, and 2 administrative secretaries, who provided the data for this study.

To answer the research questions, the Word Processing Interview Guide was developed by the investigator and validated by a jury panel. In the analysis of the data, the Chi-square ( $\chi^2$ ) statistic was used. In addition, 19 case studies were developed; they may be found in Appendix E.

## FINDINGS

Data collected from the interviews with 19 supervisors, 17 correspondence secretaries, and 2 administrative secretaries were analyzed. The findings, based upon the analysis of the data produced in the study, are organized under five sections: findings relating to word processing center characteristics, findings relating to the conversion process, findings relating to employment tests, findings relating to

employee and job characteristics, and findings relating to job tasks.

Findings Relating to Word Processing  
Center Characteristics

1. Of the nine occupational fields (education, finance, government, industry, law, medicine, religion, social service, and utility) in which the 19 word processing centers were classified, the largest number of workers, 41 (20.5 percent), were employed in government; the smallest number, 8 (4 percent), worked in law firms.

2. Only 2 (10.5 percent) of the 19 word processing centers had incorporated the administrative support function in their organizational structure.

3. The mean for the total number of word processing/administrative support employees in the centers surveyed was 14.25; the mode was 12.

4. Slightly more than half (52.6 percent) of the word processing centers had been in operation three or more years. Of the 52.6 percent, six centers (31.6 percent) had been in operation more than five years.

5. All but one of the word processing centers required that its employees be high school graduates.

6. Of the 19 word processing employers, 63.2 percent depended upon newspaper advertisements, word of mouth, and the company personnel office as means of recruiting word

processing personnel. The present staff (36.8 percent), private employment agencies (31.6 percent), and public employment offices (21.1 percent) were other primary employment sources used by the organizations.

7. Employers were unable to predict accurately the number of new word processing secretaries that would be needed within the next year and within the next three-year period. Respondents indicated that the hiring of new personnel would depend principally upon business expansion and work load.

8. Ninety-seven percent of the automatic typewriters installed in the 19 word processing centers were manufactured by IBM. Three percent were products of A. B. Dick and Vydec. The four most frequently used IBM machines were the Mag Card II (32.5 percent), Magnetic Card Selectric (23.9 percent), Magnetic Tape Selectric (19.6 percent), and Memory (9.8 percent) typewriters.

9. Over three fourths (78.7 percent) of the dictation equipment used was manufactured by IBM. The most frequently used type of dictation equipment was the IBM portable unit (42.3 percent). One fourth of the machines (25.9 percent) were the IBM Microphone Input System. The IBM 6:5 cartridge system (10.5 percent) was the third most frequently used. Other dictation systems found in use by the word

processing centers were the products of Dictaphone, Dictran, Lanier, Philips/Norelco, and Sony.

10. Only one of the 19 organizations reported that it did not give new employees on-the-job instruction in the operation of word processing equipment.

#### Findings Relating to the Conversion Process

1. "To improve the quality and quantity of all correspondence" was the reason given for conversion to word processing by approximately three fourths (73.7 percent) of the 19 organizations in the study. "To reduce office costs" and "To improve turnaround time in producing documents" were each mentioned by 31.6 percent of the organizations.

2. The decision-making responsibility for conversion to a word processing system was assumed principally either by the presidents and vice-presidents (42.1 percent) or by middle management (36.8 percent) in the organizations in the study. The board of directors were responsible for making the decisions only by 10.5 percent of the participants.

3. As a technique employed in the conversion process to word processing, 14 organizations procured the assistance of a word processing equipment vendor (mentioned 14 times). Conducting a task survey among the departments within the organization (mentioned 9 times) and assigning

an individual or forming a task force to make a feasibility study (mentioned 6 times) were the second and third most frequently employed techniques. Several word processing centers used more than one technique in the conversion process.

4. The major problem encountered in making the transition to word processing (mentioned 13 times) was a reluctance on the part of personnel to accept the concept of word processing. The physical layout of the office that called for remodeling or expansion (mentioned 9 times) and noise pollution (mentioned 6 times) were ranked as the second and third major problems. Generally, the participating organizations encountered more than one problem in making the transition to word processing.

#### Findings Relating to Employment Tests

1. Only five-minute straight-copy typewriting tests were used by the organizations in this study. Of the 19 word processing centers, 63.2 percent administered this type of test.

2. Production tests were given in 26.1 percent of the 19 word processing centers. The types of job tasks included transcribing from recorded dictation, typing a business letter, typing a statistical report, and typing a legal document.

3. Only two word processing centers reported that they administered both straight-copy and production tests to applicants for word processing secretarial positions.

4. Of the participating organizations, over one fourth (26.3 percent) did not give a typewriting test to applicants for word processing positions.

5. Slightly more than three fourths (78.9 percent) of the word processing centers did not test the clerical ability of job applicants for word processing positions. Only four word processing employers evaluated the clerical skills of applicants in two or more areas.

#### Findings Relating to Employee and Job Characteristics

1. Of the 19 supervisors, 57.9 percent had only a high school diploma, 21.1 percent had some post-high school education, and 15.8 percent were college graduates. Of the 17 correspondence secretaries, 23.5 percent had only a high school diploma, 58.8 percent had some post-high school education, and 5.9 percent were college graduates.

2. Of the 19 supervisors, 63.2 percent had been with the organization more than five years, and 31.6 percent had from one to five years' service. Of the 17 correspondence secretaries, 35.3 percent had been with the organization more than five years, while 58.8 percent had from one to five years' service.

3. Although previous office work experience was not considered an essential qualification by 68.4 percent of the word processing centers, 89.5 percent of the supervisors and 88.2 percent of the correspondence secretaries had some previous office experience.

4. Selectric typewriters had been used by 52.9 percent of the correspondence secretaries and by 52.6 percent of the supervisors in their previous jobs.

5. Of the 19 supervisors, 42.1 percent had operated dictation equipment in their previous jobs. The equivalent figure for the 17 correspondence secretaries was 35.3 percent.

6. Approximately half of the 38 interviewees (7 supervisors, 12 correspondence secretaries, and 1 administrative secretary) received their word processing preparation through an on-the-job training program. Twelve (63.2 percent) of the 19 supervisors and three (17.6 percent) of the 17 correspondence secretaries reported that they attended a manufacturer's institute or seminar.

7. The minimum typewriting speed requirement for employability in word processing centers, as indicated by 84.2 percent of the 19 organizations, was 50 words a minute or more. A rate of 65 words a minute or more was required by 31.6 percent of the organizations; 50-54 words a minute

by 26.3 percent; 55-59 words a minute by 21.1 percent; and 60-64 words a minute by 5.2 percent.

8. The ability to take shorthand dictation was not a requirement for either correspondence or administrative secretaries. The responses to this question were 100 percent in the negative.

9. On a five-point scale (1 = least difficult, 5 = very difficult), a majority of the correspondence secretaries (52.9 percent) rated the difficulty of the work 3 or above.

10. On a five-point scale (1 = poor, 2 = fair, 3 = average, 4 = good, 5 = excellent), 68.4 percent of the supervisors ranked the overall performance of the word processing secretaries as "good"; 26.3 percent, "excellent"; and 5.3 percent, "average." None of the secretaries received a rating of "poor" or "fair."

11. The most frequently used method of work measurement by the word processing centers was the number of lines produced; 68.4 percent of the centers surveyed used this method. The number of cards, tapes, cassettes, or belts transcribed was used by 10.5 percent of the centers, and the number of pages produced was employed by 5.2 percent. Work was not measured by 15.8 percent of the word processing centers.

#### Findings Relating to Job Tasks

The results of the Chi-square ( $\chi^2$ ) tests of significance at the .05 level revealed two distinct classifications:



(1) tasks performed more frequently by supervisors than by correspondence secretaries and (2) tasks performed more frequently by correspondence secretaries than by supervisors. Specific job tasks are listed under each of the two categories below.

1. The following job tasks were performed more frequently by supervisors than by correspondence secretaries:

- a. Perform receptionist duties, such as greeting callers
- b. Use direct distance dialing
- c. Make computations and verifications, such as sales, commissions, or billings
- d. Explain or discuss dictation problems with the word originator responsible
- e. Establish work priorities
- f. Coordinate individual work with the work of word processing personnel
- g. Instruct word processing personnel in office procedures
- h. Make routine decisions, interpretations, and judgments using an office manual

2. The following job tasks were performed more frequently by correspondence secretaries than by supervisors:

- a. Edit material during transcription or typing
- b. Retrieve materials or recorded data from files
- c. Clean and maintain a typewriter
- d. Transcribe from recorded dictation
- e. Type interoffice memorandums, one-page and multipage letters, statistical reports, and multipage documents
- f. Type information on preprinted forms
- g. Type form letters using standard paragraphs
- h. Address envelopes or cards
- i. Type address or file labels
- j. Type itineraries and outlines requiring indented format

## CONCLUSIONS

The following conclusions were drawn from the results of the study. Generalizations can be made only to word processing centers similar to those of the 19 organizations that participated in this study.

1. Most participating organizations converted to a word processing system because of their desire to improve the quality and quantity of correspondence in their offices.

2. In most organizations, the decision to convert to a word processing system was made by upper-level management.

3. As a technique employed in the conversion process, most organizations procured the assistance of a word processing sales representative.

4. Reluctance on the part of personnel to accept the word processing concept was the major problem encountered in making the transition to word processing.

5. Most organizations preferred the five-minute straight-copy typewriting test as a method for determining the typewriting speed for secretaries entering word processing work.

6. The minimum straight-copy typewriting rate required by most organizations was 50 words a minute.

7. Clerical skills in basic math, English grammar, filing, proofreading, and spelling were generally not part of the pre-evaluation of word processing applicants.

8. Most word processing employers did not consider previous office work experience a hiring requirement for word processing positions.

9. The ability to take shorthand dictation was not a requirement for secretarial employment in any of the participating word processing centers.

10. Previous experience in the use of a Selectric typewriter and of a dictation machine was not considered an essential qualification for word processing positions by most word processing employers.

11. Most of the automatic typewriters and dictation units installed in the participating word processing centers were manufactured by IBM.

12. On-the-job instruction in the operation of equipment was provided by most word processing employers.

13. Some method of measuring correspondence secretaries' typing tasks was used by most of the organizations. The most frequently used method of measurement was the number of lines produced.

14. There appeared to be some overlap in the nontyping job tasks performed by supervisors and correspondence secretaries. Although supervisors were responsible for most nontyping activities, correspondence secretaries also performed some nontyping tasks.

15. There appeared to be some overlap in the typing job tasks performed by supervisors and correspondence secretaries. Although correspondence secretaries principally performed typing tasks, supervisors also engaged in some typing activities.

16. The majority of word processing centers had not adopted the administrative support function in their organizational structure.

#### IMPLICATIONS AND RECOMMENDATIONS

This study has resulted in the compilation of data dealing with word processing center characteristics, conversion to word processing, employment tests given in word processing centers, employee and job characteristics, and job tasks. Based upon the findings of the study and the case studies, several implications regarding word processing are relevant.

##### Implications for Education

Word processing is a rapidly developing and expanding field in business and industry. Although it is difficult to predict the number of future graduates who will be employed in secretarial positions in word processing centers, it can be assumed that these graduates will need a knowledge of word processing regardless of the types of jobs in which they are engaged. Consequently, the implementation of word

processing as an integral part of the business education curriculum should be considered.

Business educators should carefully study ways in which word processing can be integrated into the curriculum. If separate word processing courses cannot be offered, consideration should be given to the possibility of integrating word processing into existing courses, such as production typewriting, transcription, office procedures, or office management.

If it is economically feasible, students would profit from hands-on classroom experience in the use of word processing equipment--dictation units, automatic typewriters, and text-editing devices. Emphasis should be placed upon both the typing and nontyping job tasks most frequently performed by correspondence secretaries.

#### Implications for Business

Since word processing is a relatively recent development, office personnel should be aware of advances in office technology. Personnel managers should inform their office employees as to how word processing will affect their work and should acquaint them with up-to-date procedures and equipment in word processing centers.

To overcome the resistance of word originators to using dictation machines, on-the-job instruction would

be beneficial for those persons who are not proficient in using dictation equipment. Word processing sales representatives might be invited to assist with the instruction or to serve as leaders in workshops planned for this purpose.

Seminars and workshops offered by equipment manufacturers would assist in helping personnel managers to become more knowledgeable about word processing and to become better prepared in making decisions concerning word processing.

#### Recommendations for Further Research

Based on the information obtained in this study, the following recommendations for further research are suggested.

It is recommended that a replication study, using a similar interview guide, be conducted within the next three to five years to determine the status of word processing centers at that time and to compare the results of that study with those of the present study.

It is recommended that a study be conducted to determine (1) whether any major organizational changes have been made in word processing centers since their establishment, (2) whether there has been a cost saving as a result of the conversion to word processing, and (3) whether there has been any reduction in personnel as a result of the conversion to word processing.

BIBLIOGRAPHY

## BIBLIOGRAPHY

- Anderson, Ruth I., and Joe Fullis. "Measurement and Evaluation in Typewriting," Methods of Teaching Typewriting, pp. 183-200. Thirty-eighth Yearbook of the Eastern Business Teachers Association. Somerville, N.J.: Somerset Press, 1965.
- Anderson, Thomas J., and William R. Trotter. "Creating a Word Processing Users' Manual," Administrative Management, XXXIII (October, 1972), 53-58.
- Anderson, Thomas J., and William R. Trotter. Word Processing. New York: AMACOM, 1974.
- ✓ Baab, Elizabeth A. "A Study of the Knowledge and Skills Needed for Initial Office Employment," Dissertation Abstracts International, XXXIII (1972), 6579A (Georgia State University).
- Belloto, S. "Tools of the Office," Administrative Management, XXXIII (June, 1972), 37-54.
- Berezin, Evelyn. "Word Processing Frees Secretaries," The Office, LXXV (February, 1972), 12, 14.
- Birkhold, Lianne. "Manual vs. Automatic Typing," The Office, LXXV (February, 1972), 66-69.
- Bloomfield, Robert M. "The Changing World of the Secretary," Personnel Journal, LII (September, 1973), 793-798.
- Boyer, Glen L. "The Next Decade in Business Education," Journal of Business Education, L (May, 1975), 322-323.
- Bragg, Sara M. "A Comparative Study of Major Tasks and Critical Requirements of Word Processing/Administrative Support Personnel and the Traditional Secretary," Dissertation Abstracts International, XXXVII (1977), 4799A (University of Georgia).
- ✓ Brown, Kenneth W. "What Employers Look For in Job Applicants," Business Education Forum, XXX (April, 1976), 7.
- "Buyers Plan Book--Word Processing," Modern Office Procedures, XVIII (January, 1973), 62-63.



- Casady, Mona J. "The Typewriting Specialist in Word Processing," Journal of Business Education, XLIX (December, 1973), 101-102.
- Casady, Mona Joy. "Job Satisfaction of Magnetic Typewriter Operators in Word Processing." Unpublished Doctoral dissertation, University of Minnesota, 1973.
- Casebier, Virginia Elinor. "A Time Study of Activities and Responsibilities of Secretaries with Implications for the Training of Prospective Secretaries," Dissertation Abstracts, XVII (1957), 2875 (Northwestern University).
- Cecil, Paula B. Word Processing in the Modern Office. Menlo Park, Calif.: Cummings Publishing Company, 1976.
- Charters, W. W., and I. B. Whiteley. Analysis of Secretarial Duties and Traits. Baltimore: Williams and Williams Company, 1924.
- Cochran, J. B. "Automatic Typing and Text Editing Devices," Administrative Management, XXXII (June, 1971), 44-50.
- Collins, L. M. "The Importance of Expanding the Goals of Business Education in an Age of Word Processing," Business Education Forum, XXVII (November, 1972), 6-8, 10.
- Collins, L. M. "Word Processing in Business Education," Business Education Forum, XXVII (May, 1973), 29-32.
- Commission on Occupational Education Institutions. Third Progress and Information Report of the Vocational-Technical Education Consortium of States. Atlanta: Southern Association of Colleges and Schools, 1976.
- Crews, J. W. "Standards and Qualifications for Office Employees," Business Education Forum, XV (May, 1961), 11-14.
- "CRT: A New View Raises Word Processing," Modern Office Procedures, XVIII (April, 1973), 32-33.
- "Dictation System Controls Typing Production," The Office, LXXV (February, 1972), 76.

- Dolecheck, Carolyn Crawford. "Word Processing: A Challenge to Business Education," Delta Pi Epsilon Journal, XVI (November, 1973), 13-19.
- Dun and Bradstreet's Middle Management Directory, 1976. New York: Dun and Bradstreet, Incorporated, 1975.
- Dun and Bradstreet's Million Dollar Directory, 1975. New York: Dun and Bradstreet, 1974.
- Englund, Shirley. "Word Processing," The Secretary, XXI (December, 1971), 22.
- Erickson, L. W. Basic Components of Office Work--An Analysis of 300 Office Jobs. Monograph 123. Cincinnati: South-Western Publishing Company, 1971.
- Fenwick, Mary. "How Montgomery Ward Planned Its Word Processing Center," The Office, LXXV (February, 1972), 51-55, 121.
- Filip, Ruth B. "Now! Word Processing," Journal of Business Education, XLVIII (November, 1972), 79-81.
- Gerber, Lee R. "A Study of Employment Opportunities and Job Requirements for Entry-Level Office Occupations in Freeport, Illinois, Businesses," National Business Education Quarterly, XXVIII (Fall, 1969), 13.
- Gibbs, Dennis. "A Survey of Selected Manufacturing and Processing Firms in South Dakota to Determine the Requirements for Beginning Office Workers," Business Education Forum, XXV (October, 1970), 34.
- Good, Carter V., ed. Dictionary of Education. New York: McGraw-Hill Book Company, 1973.
- Hershey, Gerald L. "Word Processing--A New Concept for Office Educators?" The Balance Sheet, LIV (November, 1972), 100-101.
- Hilton, Margaret J. "Employment Testing of Typewriter Skills," Business Education Forum, XXX (March, 1976), 30, 32.
- "How the Organization Rates Word Processing," Administrative Management, XXXIII (February, 1972), 38-39.

- Jalowsky, Toby B., and Terry M. Frame. "The Word Processing Center and Its Effect on Office Education," Business Education World, LIV (May-June, 1974), 14-15, 29.
- Johnson, Arlene. "Word Processing--Your Curriculum Is Showing!" Business Education Forum, XXX (March, 1976), 5, 7-8.
- Kleinschrod, Walter A. "How a Bank Sells WP to Its Management," Administrative Management, XXXII (February, 1972), 43.
- Kleinschrod, Walter A. "That 'Gal Friday' Is a Typing Specialist Now," Administrative Management, XXXII (June, 1971), 20-27.
- Kusek, Robert W. "An Analysis of Continuing Education Needs of Secretarial Personnel in Word Processing and Traditional Offices with Implications for Community College Program Development." Unpublished Doctoral dissertation, Boston University, 1974.
- Lanham, Frank W., Catherine P. Lanham, Kathleen M. Herschelman, and Fred S. Cook. Development of Tasks Performance Statements for a New Office and Business Education Learnings System. NOBELS Final Report. Columbus: Ohio State University, Center for Vocational and Technical Education, ERIC Document ED 068 728, September, 1972.
- Laughlin, William F. "Word Processing Can Reduce Office Costs," The Office, LXXV (February, 1972), 56-58.
- Law, M. Merle. "What's Ahead for the Secretary," Personnel Journal, XLV (June, 1966), 372.
- Lee, Delene W. "Using Task Analysis to Develop Performance Goals," Business Education Forum, XXX (January, 1976), 15-16.
- Long, R. Charles. "The Impact of Word Processing on Business Education," American Vocational Journal, XLIV (February, 1974), 59-62.
- Lovern, Henry Mark. "Factors Affecting the Employment of Beginning Office Workers in Atlanta, Georgia," Dissertation Abstracts, XXVIII (1967), 1991A (The Ohio State University).

- Manship, Darwin W. Job Entry Requirements for Typists, Stenographers, and Secretaries in the Salt Lake City Area. U.S., Educational Resources Information Center, ERIC Document ED 045 860, 1968.
- Matthews, Lynn. "Are You Aware of Word Processing?" Journal of Business Education, XLIX (November, 1973), 57-58.
- Misko, Aloysius E. "An Investigation into the Validity of Three Employment Tests of a Clerical Personnel Selection Program," Dissertation Abstracts, XXIII (1962), 3170 (University of Michigan).
- National Business Education Association. The Emerging Content and Structure of Business Education. Eighth Yearbook. Washington: National Business Education Association, 1970.
- Nichols, F. G., and S. W. Wissman. The Personal Secretary: Differentiating Duties and Essential Personal Traits. Cambridge: Harvard University Press, 1934.
- Ober, B. Scot. The Development of Word Processing and Its Implications for the Business Education Profession. U.S., Educational Resources Information Center, ERIC Document ED 068 648, 1972a.
- Ober, B. Scot. "What Business Educators Should Know About Word Processing," Delta Pi Epsilon Journal, XIV (August, 1972b), 29, 32.
- O'Brien, Michael J. "Job Entry Requirements for Beginning Typists," Journal of Business Education, XLVII (February, 1972), 201-202.
- Office and Business Occupations: Cluster Guide. Michigan State Department of Education, ERIC Document ED 091 518, 1973.
- Oliver, James Dale, Delene W. Lee, and Patricia H. King. "Development of a Catalog of Performance Objectives for Secretarial, Stenographic, Typing, and Related Occupations," Business Education Forum, XXXI (October, 1976), 54.

- Pender, Albert Robin. "A Study of the Administrative and Professional Responsibilities of Secondary School Graduates in Relation to Size and Type of Employing Company," Dissertation Abstracts, XXVIII (1967), 4543 (University of North Dakota).
- Perkins, E. A., F. R. Byrd, and D. E. Roley. Clusters of Tasks Associated with Performance of Major Types of Office Work. Pullman: Washington State University, ERIC Document ED 018 665, 1968.
- Powell, Merton. "The Modern Automated Word Processing System--Its Implications for Changes in the Curriculum for Business and Office Education." Unpublished Doctoral dissertation, University of Montana, 1975.
- Powell, Merton E. "Word Processing Implications for Secretarial Programs," Business Education Forum, XXI (October, 1976), 23-25.
- Primrose, Bette. "Coordinated WP Yields Big Savings and High Morale," Administrative Management, XXVI (November, 1977), 22-23, 58.
- Reiff, Rosanne. "Entry-Level Job Qualifications and Employee Attitudes in New York City Word Processing Centers and Implications for Secondary School Business Education Curricula in New York Metropolitan Area," Dissertation Abstracts International, XXXV (1974), 2558A (New York University).
- Reiff, Rosanne. "A New and Different Look at Word Processing," Journal of Business Education, L (May, 1975), 331-333.
- Richmond, J. "Answer to Staff Secretary Syndrome: Word Production Section: A Centralized Stenographic and Printing Operation," Community and Junior College Journal, XLV (October, 1974), 23-24.
- Schulz, James. "Automatic Repetitive Typing," The Office, LXXV (February, 1972), 10-12.
- Scalamogna, Don J. "A Survey to Determine Office Positions Available and Knowledges and Skills Needed for Initial Employment of the High School Graduate with Recommendations for Updating the Business Education Curriculum," Dissertation Abstracts, XXX (1969), 3870A (University of Houston).

- Simpson, George R. "Converting the System in 10 Steps," Administrative Management, XXXIII (March, 1972a), 12.
- Simpson, George R. "Start with a Survey," Administrative Management, XXXIII (April, 1972b), 62.
- Simpson, George R. "Administrative Support Function Just as Important as Setting Up Your Company's WP Center," Administrative Management, XXXIII (May, 1972c), 58.
- "The System Is Key to Mag Media," Administrative Management, XXXIII (August, 1972), 52-54.
- Tate, Donald Joseph. "An Outline of Topics for a Secretarial Syllabus Developed from Job Analyses," Dissertation Abstracts, XIII (1947), 61 (New York University).
- Terrone, Laura. "The Envolving World of Word Processing: Technology Tailored to Today," Today's Secretary, LXXVII (April, 1975), 5-9.
- "Typing Test Finds the Alert Secretary," Administrative Management, XXVI (October, 1965), 44-45.
- West, Leonard J. Acquisition of Typewriting Skills. New York: Pitman Publishing Corporation, 1969.
- Wiper, Robert E. "Business Education and the Changing Technology of the Office," Paper presented at the Annual Business Education Summer Conference, Roanoke, Virginia, August, 1975.
- Wood, Marion. "Skills for Word Processing," Eastern Business Teachers Association Journal, X (Spring, 1972), 55, 58-59, 64.
- Zack, Donna. "Word Processing and You," Today's Secretary, LXXIV (November, 1971), 15, 30.
- Zielinski, Sister Marie. "Survey of Businesses to Determine the Skills and Qualifications for Entry-Level Occupations," Journal of Business Education, L (October, 1974), 33.

APPENDIX A

Letter Requesting Participation in the Study

APPENDIX A



COLLEGE OF EDUCATION

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DIVISION OF VOCATIONAL & TECHNICAL EDUCATION

April 1, 1976

Dear Sir:

We are conducting at Virginia Tech a research study in word processing. The purpose of the study is to identify job tasks performed by secretaries and supervisors in word processing centers and the types of employment tests administered to applicants. We hope that the study will result in new information that will be useful to business firms with word processing centers.

Your participation can contribute greatly to the success of this study. An interview guide will be used as a means of collecting the needed data. Any information you provide will remain strictly confidential.

A word processing center is defined as that area of the office that combines the specialization of personnel, procedures, and equipment to transform ideas into written communications. Generally, word processing equipment consists of dictation units and automatic typewriters and utilizes various media such as magnetic tape or magnetic cards.

If your firm has a word processing center that qualifies under the definition given in the preceding paragraph, we would very much appreciate your indicating your willingness to participate in this research study by completing the form at the bottom of this letter and returning it in the enclosed envelope by April 10, 1976.

Sincerely,

*Walter L. Shell*

Walter L. Shell  
Associate Professor  
Business Education

*Marietta Spring*

Marietta Spring  
Graduate Assistant  
Vocational-Technical Education

-----  
 Yes, we will participate in your study.  
 No, we do not have a word processing center.

Name of Business		
Address	City	Zip Code
Return to: Ms. Marietta Spring 2082 Derring Hall VPI & SU Blacksburg, VA 24061		
	Name	
	Title	



APPENDIX B

Follow-up Letter Requesting Participation

APPENDIX B



COLLEGE OF EDUCATION

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DIVISION OF VOCATIONAL & TECHNICAL EDUCATION

April 19, 1976

INFORMATION ON RESEARCH PROJECT

This letter is a follow-up to the one mailed on April 1, 1976. As stated in that letter, your participation is needed in a research project being conducted at Virginia Tech.

The purpose of the study is to identify job tasks performed by secretaries and supervisors in word processing centers and the types of employment tests administered to applicants. The key personnel of word processing installations are supervisors and administrative and correspondence secretaries. Generally, word processing equipment consists of dictation units and automatic typewriters and utilizes various media such as magnetic cards and magnetic tape.

We are attempting to identify word processing installations within business firms. Once the word processing centers have been located, I should like to schedule an interview at your convenience for the purpose of obtaining needed information from supervisors and secretaries. Each interview will take no more than 15 or 20 minutes of the interviewee's time.

If you have not completed and mailed the form at the bottom of our April 1 letter, would you please take a moment to complete the stub at the bottom of this letter indicating your willingness to participate in this research project. Your help is urgently needed. Check the second line only if you do not have a word processing center; but in either case, please return the stub in the enclosed envelope.

*Walter L. Shell*

Walter L. Shell  
Associate Professor  
Business Education

*Marietta Spring*

Marietta Spring  
Graduate Assistant  
Vocational-Technical Education

- 
- Yes, we will participate in your study.  
 No, we do not have a word processing center.

Name of Business		
Address	City	Zip Code
Return to: Ms. Marietta Spring 2082 Derring Hall, VPI & SU Blacksburg, VA 24061		
	Name	
	Title	

APPENDIX C

Word Processing Interview Guide

WORD PROCESSING INTERVIEW GUIDE

I General Information

Name of Company \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Zip Code \_\_\_\_\_

Occupational Field:

- |   |   |
|---|---|
| <input type="checkbox"/> Commerce       | <input type="checkbox"/> Law            |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Medicine       |
| <input type="checkbox"/> Education      | <input type="checkbox"/> Military       |
| <input type="checkbox"/> Finance        | <input type="checkbox"/> Religion       |
| <input type="checkbox"/> Government     | <input type="checkbox"/> Social Service |
| <input type="checkbox"/> Industry       | <input type="checkbox"/> Utility        |

1 Total Number of Employees \_\_\_\_\_

2 Total Number of WP/AS Employees \_\_\_\_\_

3 How long has your WP/AS center been established?

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> 1-6 months   | <input type="checkbox"/> 3 years           |
| <input type="checkbox"/> 7-12 months  | <input type="checkbox"/> 5 years           |
| <input type="checkbox"/> 13-18 months | <input type="checkbox"/> more than 5 years |
| <input type="checkbox"/> 2 years      |  |

4 Is any on-the-job instruction given to new employees in the operation of word processing equipment?

yes  no If yes, what is the extent of the instruction given?

- 5 How many and what kind(s) of automatic typewriter(s) are located in your installation?

Number of Each

Automatic Typewriter

_____	IBM magnetic card selectric (MC/ST)
_____	IBM magnetic tape selectric (MT/ST)
_____	IBM magnetic tape selectric com- poser (MT/SC)
_____	IBM memory typewriter
_____	REDACTRON text editing typewriter
_____	WANG magnetic cassette
_____	WANG videotape (CRT) display
_____	Other (specify) _____

- 6 How many and what kind(s) of dictation unit(s) are located in your installation?

Number of Each

Dictation Unit

_____	Dejur-Grundig Executive (mini- cassette)
_____	Dictaphone Model 241 (standard cassette)
_____	Dictaphone Model 800 Series (mag belt)
_____	IBM 6:5 Cartridge System (disk)
_____	IBM Microphone Input (mag belt)
_____	Norelco 96 (minicassette)
_____	Other (specify) _____

7 Which kind of typing test do you administer?

none

straight copy:  1-  3-  5-  10-minute

production (specify \_\_\_\_\_)

8 Are clerical tests administered as part of the pre-employment evaluation of applicants?  yes  no

If yes, which of the following tests are used?

Basic math  yes  no

Filing  yes  no

Proofreading  yes  no

Spelling  yes  no

Other(s)  yes  no

If yes, specify \_\_\_\_\_

9 Do you employ high school graduates?  yes  no

10 Do you employ secretaries with no previous office experience?  yes  no If no, why not?

11 What are the sources of word processing employees?

Secondary school

Community college

4-year college or university

Proprietary school

Public employment office

Private employment agency

Present staff

Other

- 12 Have channels of promotion been established in your word processing center?   \_\_\_ yes   \_\_\_ no
- 13 How many word processing secretaries do you expect to hire within the next year?   \_\_\_ the next three years?   \_\_\_
- 14 Why did your organization convert to word processing?
- \_\_\_ To reduce office costs
  - \_\_\_ To improve turnaround time in producing documents
  - \_\_\_ To improve supervision of all clerical and secretarial personnel and their activities
  - \_\_\_ To reduce the need for an expensive, redundant filing system
  - \_\_\_ To improve control of all correspondence (quantity and quality)
  - \_\_\_ Other (specify)
- 15 What level of management made the decision to convert to word processing?
- \_\_\_ Board of directors
  - \_\_\_ President and vice-presidents
  - \_\_\_ Middle management
  - \_\_\_ Other

16 What were the techniques employed in the conversion process?

- Procured the assistance of word processing equipment sales representative
- Consulted with user of a recently installed word processing system
- Asked for the expertise of a reputable independent consulting firm that specializes in surveys
- Assigned an individual or formed a task force to make a feasibility study
- Conducted interviews, individually or in groups, with managers and their secretaries
- Requested potential word originators and secretaries to complete questionnaires
- Conducted task-list surveys among departments within the firm (collection and analysis of copies of all documents typed over a predetermined test period of one, two, or three weeks)
- Logged, within each survey area, how each secretary's time was spent
- Other techniques



17 Were there any problems encountered in making the transition to word processing? \_\_\_ yes \_\_\_ no

If yes, what were some of the problems?

\_\_\_ Reluctance on the part of personnel to accept the concept of word processing after the decision had been made to convert to word processing

\_\_\_ Physical layout called for remodeling or expansion

\_\_\_ Limited time of dictation unit selected for use by word originator proved to be less than ideal for after-hours work

\_\_\_ Noise pollution necessitated the installation of carpeting and partitions around work stations or walls treated with cork or draped with fabrics

\_\_\_ Other problems

II Supervisor, Correspondence or Administrative Secretary Data

Name of Interviewee \_\_\_\_\_

Title \_\_\_\_\_

1 How long have you worked for the organization? \_\_\_ years

2 What is your highest educational attainment?

\_\_\_ High school graduate

\_\_\_ Post-high school 13 14 15

\_\_\_ Baccalaureate degree

\_\_\_ Other (specify)

3 What was the length of your previous office work experience before your present position?

\_\_\_ None

\_\_\_ Less than one year

\_\_\_ 1-5 years

\_\_\_ More than 5 years

4 Did your previous job require the use of a Selectric typewriter? \_\_\_ yes \_\_\_ no

5 Did your previous job require the use of dictation equipment? \_\_\_ yes \_\_\_ no

6 For word processing secretarial positions, what is the minimum typewriting speed requirement?

\_\_\_ 40-44 wam                      \_\_\_ 50-54 wam                      \_\_\_ 60-64

\_\_\_ 45-49 wam                      \_\_\_ 55-59 wam                      \_\_\_ 65 wam or more

7 Is the ability to take shorthand dictation a requirement for either secretarial position?

Administrative secretary \_\_\_ yes \_\_\_ no

Correspondence secretary \_\_\_ yes \_\_\_ no

8 Where did you receive your word processing secretarial training?

\_\_\_ Community college

\_\_\_ 4-year college or university

\_\_\_ Proprietary school

\_\_\_ High school evening program

\_\_\_ Manufacturer's institute or seminar

\_\_\_ On-the-job training program

\_\_\_ Other (specify)

9 As a secretary, how difficult do you find the work?

(The difficulty of the work is to be rated on a scale of 1 to 5--1 is the least difficult, 5 is very difficult.)

1      2      3      4      5

10 How is the work of correspondence secretaries measured?

\_\_\_ Number of lines produced

\_\_\_ Number of pages produced

\_\_\_ Number of cards, tapes, or cassettes transcribed

\_\_\_ Not measured

- 11 As a supervisor, how well do you rate the overall performance of word processing secretaries? Circle one number on the scale of 1 to 5--1 = poor, 2 = fair, 3 = average, 4 = good, 5 = excellent.

1        2        3        4        5

III

## JOB TASKS

## Nontyping

Never

Occasionally

Often

Do you perform any of the nontyping tasks listed below? If so, what is the frequency of performance--never, occasionally, often\*?

- 1 Do you operate any of the following office machines?
  - a Photographic copier
  - b Ten-key adding machine
  - c Full-key adding machine
  - d Electronic calculator
  - e Paper collator
  - f Printing calculator
  - g Spirit duplicating machine
  - h Fluid duplicating machine
  - i An addressing machine
- 2 Do you take dictation using a shorthand system?
- 3 Do you plan the placement of material to be typed?
- 4 Do you compose correspondence to be revised or approved by other personnel?

\*Two or more times a week

JOB TASKS	Never	Occasionally	Often
Nontyping			
5 Do you compose and sign correspondence without the approval of others?			
6 Do you proofread prepared copy?			
7 Do you edit material during transcription or typing?			
8 Do you use a dictionary, thesaurus, or other reference materials?			
9 Do you code and file materials systematically?			
10 Do you retrieve materials, information or recorded data from the files?			
11 Do you update files?			
12 Do you clean and maintain a typewriter?			
13 Do you perform receptionist duties, such as greeting callers?			
14 Do you open, organize, and route incoming mail?			
15 Do you read the mail and mark important points for help in answering the mail?			
16 Do you handle outgoing mail?			
17 Do you make appointments for your superior?			

JOB TASKS	Never	Occasionally	Often
Nontyping			
18 Do you handle incoming telephone calls?			
19 Do you place outgoing local calls?			
20 Do you use direct distance dialing?			
21 Do you arrange for conference calls?			
22 Do you use the WATS line telephone service?			
23 Do you prepare the payroll?			
24 Do you log information, such as typing production work?			
25 Do you make travel arrangements?			
26 Do you arrange conferences and executive meetings?			
27 Do you make computations and verifications, such as sales, commissions, or billings?			
28 In the absence of your immediate superior, do you represent the company at board meetings, professional conferences, etc.?			
29 Do you explain or discuss dictation problems with the word originator responsible?			

JOB TASKS	Never	Occasionally	Often
Nontyping			
30 Do you establish work priorities?			
31 Do you coordinate individual work with the work of word processing personnel?			
32 Do you instruct word processing personnel in office procedures?			
33 Do you make routine decisions, interpretations, and judgments using an office manual or written statements of policies and procedures?			
34 Do you administer employment tests?			
Typing			
Do you perform any of the typing tasks listed below? If so, what is the frequency of performance--never, occasionally, often?			
1 Transcribe from recorded dictation, such as IBM or Norelco transcriber, Dictaphone, etc.			
2 Transcribe from shorthand notes			
3 Type interoffice memorandums			



JOB TASKS	Never	Occasionally	Often
Typing			
4 Type one-page letters			
5 Type multipage (two or more) letters			
6 Type statistical reports requiring columnar format			
7 Type multipage documents--for example, proposals, specifications, speeches, journal articles, etc.			
8 Type information on preprinted forms--invoices, statements, legal documents, etc.			
9 Type form letters (individually typed letters using "standard" paragraphs			
10 Address envelopes or cards			
11 Type address of file labels			
12 Type outlines requiring indented format			
13 Type itineraries			
14 Type minutes of executive meetings			
15 Type stencils or masters			

APPENDIX D  
JURY PANELISTS

APPENDIX D

JURY PANELISTS

Norfolk Chapter, Administrative Management Society:

Mr. Robert Gibson  
Royster Company  
Norfolk, Virginia 23510

Mr. Vincent Gillikin  
Smith-Douglass Company  
Norfolk, Virginia 23501

Ms. Judy Harrell  
Portsmouth Redevelopment and Housing  
Portsmouth, Virginia 23705

Certified Professional Secretary:

Ms. Ruby Roberts  
270 Clearfield Avenue  
Virginia Beach, Virginia 23462

Business Educators:

Professor Anne K. Henry  
Secretarial Science Department  
Rappahannock Community College  
Glenns, Virginia

Ms. Peggy E. C. Lee  
Business Education Department  
Virginia State College  
Petersburg, Virginia 23803

APPENDIX E  
Case Studies

## APPENDX E

### CASE STUDY--ORGANIZATION A

Role and Development. To determine the need for word processing, the management of this large banking institution conducted a feasibility study. Copies of all typed documents were collected and used in an analysis of the tasks performed by the bank's secretaries. A marketing representative of a word processing equipment manufacturer was also consulted. However, the final decision to convert to a word processing system was made by the executive vice-president in charge of operations, who believed that office costs could be reduced and that there would be better control of the quantity and quality of all correspondence.

A word processing center was installed at the bank's main office in 1970. The only real problem management encountered in making the transition to word processing was a reluctance on the part of its personnel to accept the word processing concept.

Staff and Equipment. The word processing center is staffed by a word processing manager, an assistant manager, and ten correspondence secretaries. Although the manager is responsible for the overall operation of the center, the

manager's primary responsibility is the preparation of the budget and the payroll. The assistant manager supervises the secretarial activities.

To qualify for the position of correspondence secretary, an applicant must type between 55 and 60 words a minute on straight-copy material. New correspondence secretaries are generally trained on automatic typewriters at the word processing equipment division sales office. Because the division sales office has a backlog of students, it is not always possible for a new secretary to attend one of their training classes. Instead, a new correspondence secretary received on-the-job instruction in the word processing center, where equipment training manuals are used.

The hiring of additional correspondence secretaries or replacements for the center will depend on two administrative decisions: (1) the establishment of an administrative support function and (2) decentralization of the company's existing word processing system, whereby each department within the organization will initiate its own word processing function.

Equipment includes nine IBM Mag Card II machines, one IBM Magnetic Tape Selectric typewriter, and eleven IBM microphone input dictation units.

Procedures. The correspondence secretaries are assigned to three work groups: trusts and investments, commerce, and marketing and miscellaneous. Letters, interoffice memorandums, and trust and financial reports are the principal kinds of typed documents produced by the center. All documents are photocopied by a messenger and delivered to the word originator. Work priorities are established by the assistant manager, who also coordinates the work with the other departments served by the center. Work is measured by the number of lines produced.

#### CASE STUDY--ORGANIZATION B

Role and Development. In many underdeveloped countries, there are many uncared-for, poverty-stricken children. Since 1938, Organization B has helped many of these children by establishing sponsorships. Therefore, to carry out its mission, this social service organization has had to improve its secretarial services.

In 1965, the organization installed one IBM Magnetic Tape Selectric typewriter (MT/ST) and hired a magnetic typewriter operator. Three years later, two more MT/STs were added; and in 1970, one IBM Magnetic Tape Selectric Composer was installed.

Realizing the need for a better method of handling a voluminous amount of correspondence, middle management of

Organization B sought the advice of a word processing equipment vendor. Management was convinced that the supervision of all secretarial activities could be improved through a centralized transcription department. In 1972, the organization's word processing center was formally established.

Staff and Equipment. The word processing center has ten workers, including a supervisor, eight correspondence secretaries, and one word processing trainee. All word processing employees were working for the company at the time the center was installed. An "on-call" secretary helps to reduce the work load during peak periods and vacations. Equipment consists of eight IBM Magnetic Tape Selectric typewriters and six IBM transcribers.

Procedures. Dictation is recorded on magnetic tape and transcribed in rough draft. Since all correspondence must be accurate, the rough drafts are proofread by the supervisor or the word processing trainee. The text is played back and typed on organization stationery.

Some word originators write out their letters on yellow legal sheets and send them to the word processing center. When the sheets are received in the center, the supervisor logs the information and establishes work priorities. Using the word originator's longhand copy, a correspondence secretary then dictates the material onto magnetic tape. The



tape, which is retained as a file of the recorded material, is played back as the secretary types and edits the material in rough draft. After a draft is proofread, a final copy is produced and returned to the word originator. Presently, the output of the correspondence secretaries is measured by the number of letters produced. The supervisor, however, anticipates a change to a more efficient work measurement procedure.

#### CASE STUDY--ORGANIZATION C

Role and Development. Organization C is an educational institution that grants the Associate in Arts and Associate in Applied Science degrees. Because an accreditation report showed insufficient secretarial assistance, the institution was faced with the decision of hiring additional secretaries for each department or converting to a word processing system.

At the request of the administration, a sales representative of a leading word processing equipment manufacturer conducted a task survey among the existing departments within the organization. Each secretary was asked the tasks that were performed and the frequency of performance for each task. An analysis was made of the tasks. Upon the basis of the findings of the analysis, the sales representative

recommended a word processing system. The final decision to convert to word processing rested solely with the president.

In 1973, Organization C installed its word processing center. The noise pollution created by the machines necessitated the installation of carpeting, partitions around the work stations, and walls treated with cork.

Staff and Equipment. The word processing center is directed by a word processing supervisor with a staff of eight full-time "clerk-stenographers." Although the work of the center has been streamlined, the job title of clerk-stenographer has not been reclassified as "correspondence secretary."

Equipment includes two IBM Mag Card II machines, one IBM Magnetic Tape Selectric typewriter, one IBM Magnetic Tape Selectric Composer, one IBM Mag A typewriter, and two IBM Executive Mag Card machines, two IBM 6:5 cartridge dictation systems, and five IBM transcribers.

Procedures. Course syllabi, self-study questions, and examination questions are among the types of documents produced by the center for classroom use. The self-study questions, which are prepared by professors, are stored on magnetic cards and coded. The magnetic cards and a copy of the self-study questions are filed in a manila folder. When a professor wants examination questions prepared, he sends

specific instructions to the center, including the code number along with any changes or deletions. The file folder is located, and the magnetic card is used to type and reproduce the professor's examination. Finished examinations are picked up at the center by each professor.

Memorandums, letters, reports, and minutes of meetings are also produced by the center's personnel. A work order for each typing task is prepared and filed in the folder along with the magnetic card and a copy of the document. The supervisor maintains a record of the number of lines produced to justify operational costs and the need for new equipment.

#### CASE STUDY--ORGANIZATION D

Role and Development. Organization D is engaged in social services. Prior to the implementation of word processing, the organization had a six-month backlog of work. To determine how best to reduce this backlog, a feasibility study was undertaken with the assistance of a word processing equipment salesman. Since desk-size units were already in service and word originators were familiar with the dictating machines, upper management decided to convert to a word processing system utilizing the desk-size units. Organization D's center has been in operation since 1971.

Staff and Equipment. The word processing center is staffed by a supervisor and eleven correspondence secretaries, who are called "transcribing typists." Four additional correspondence secretaries are located in a branch office.

When a correspondence secretary is hired by the company personnel office, the new word processing employee spends one week in Organization D's training unit, where on-the-job instruction is given. This instruction includes orientation to the nature of the work, completion of payroll forms, discussion of a dress code, and a tour of the main building. When a word processing secretary begins work in the center, the supervisor instructs the secretary in the operation of the equipment and asks the secretary to study the equipment manual.

Presently, the center has 16 IBM Magnetic Card Selectric typewriters and 16 IBM dictation units with magnetic belts.

Procedures. Social workers' reports are the principal documents produced by the secretaries. Work is handled on a first-come basis with the exception of rush jobs, which take priority. As a result of the conversion to word processing, the backlog of work has been reduced to six weeks. The objective is to increase production so that all case records are kept current. Work measurement is by line count.

## CASE STUDY--ORGANIZATION E

Role and Development. Although the Youth and Detective Bureaus of Organization E, a law enforcement agency, were provided secretarial assistance for the output of written records, the paperwork explosion caused the organization's principal officer to consult with a local office equipment sales representative. A feasibility study, which included a task survey among the various departments, was conducted; and the data collected in the study were analyzed. The findings of the data analysis revealed a need for a word processing system. Organization E's word processing center was installed in 1972.

Staff and Equipment. Sixteen word processing employees work under the direction of a supervisor, who is the only law enforcement officer in the center. The job title "correspondence secretary" is not used; instead, four employees who work during the day are called "intermediate clerk-typists." The other 12 employees, who work in shifts, are known as "complaint clerks." All 16 employees operate the automatic typewriters.

The word processing center is equipped with six IBM Magnetic Card Selectric typewriters and six IBM transcribers. In addition, 25 portable dictation units are used by patrol officers.

Procedures. The accuracy of written, detailed reports is vitally important to Organization E. The recorded dictation is transcribed from the magnetic belts, proofread and edited, and typed into an error-free report for the word originator's approval or amendment. When an officer is called to the scene of an accident or crime, the portable dictation units are used for recording information. Later, the recorded material is brought to the center and transcribed. All reports are kept current.

In addition to the reports produced by the center, letters for all word originators are typed. The work of the Youth and Detective Bureaus is now handled by the word processing staff. All work is measured by the number of lines typed.

#### CASE STUDY--ORGANIZATION F

Role and Development. The application of word processing in Organization F, a banking institution, is in its Master Charge Department. To respond more promptly to requests for Master Charge accounts, to improve the quality of typewritten work, and to control the secretarial activities, management decided to initiate a word processing system.

Staff and Equipment. The center, located in one of the branch banks, has five correspondence secretaries and

a word processing supervisor. Screening for word processing positions is handled by the bank's personnel department. During working hours of the first and second day on the job, each new correspondence secretary is trained in the operation of the word processing equipment and on each job task that is completed in the center. Within a month's time after initial employment, the new correspondence secretary is expected to be able to perform the routine tasks efficiently.

The center has five IBM Magnetic Card Selectric typewriters and four IBM dictation units with magnetic belts.

Procedures. The principal activity is the production of letters either approving or rejecting a request for a Master Charge account. Letters pertaining to delinquent accounts also are typed on the automatic typewriters in the center. Most of the output is form letters using standard paragraphs. All dictated material is recorded on tape and coded. Many of the bank executives have been hesitant in using the dictation machines. The center will accept long-hand copies for output of the typewritten document because some bank officers still convey their thoughts in handwritten copy and send them to the center. A correspondence secretary first must record the material on tape. The tape is then played back as the secretary types and edits material before retyping it into final copy. Work is measured by the number of lines produced.

## CASE STUDY--ORGANIZATION G

Role and Development. Before the advent of word processing, the present word processing center of Organization G, a governmental agency, operated as a stenographic pool with the dictators and stenographers occupying one large office. Only a partition separated the two groups of office workers.

At the time conversion to word processing was being considered, there was an increase in the amount of paperwork. The representatives of three different manufacturers of word processing equipment were consulted, and a task-list survey was conducted. After reviewing the findings of the survey, management decided to implement a word processing system.

The physical layout of the office was improved by removing the partition that divided the work areas of the dictators and the stenographers in the original stenographic pool. Accoustical walls and carpeting were installed to reduce noise. The dictators (word originators) were relocated in remote offices within the building.

Staff and Equipment. Since the conversion to word processing, the center has been staffed by 21 correspondence secretaries, two messengers, and a supervisor. Equipment consists of ten IBM Magnetic Tape Selectric



typewriters, nine Magnetic Card Selectrics, four IBM Mag IIs, one IBM Executive typewriter, and one IBM Magnetic Tape Selectric Composer. There are also 18 IBM dictation units available.

Procedures. Reports, interoffice memorandums, form letters, and multipage documents are typical examples of the work produced through the center's operations. All work of the correspondence secretaries is measured by line count and the number of documents typed. When the typed documents are completed, they are delivered to the word originator on a scheduled basis several times a day.

The installation of a new transcription system has helped to decrease the center's turnaround time, which is now never more than 24 hours. Even with a sharply increased volume of work, all work is produced more rapidly and with a noticeably higher degree of quality. However, because of a high rate of absenteeism, the word processing supervisor frequently spends time keyboarding the input in order to reduce the backlog of work.

#### CASE STUDY--ORGANIZATION H

Role and Development. Organization H has a denominational affiliation. Because the executive director of the organization heard about word processing, he asked that a

feasibility study be conducted to determine if there was a need for word processing. Organization H procured the assistance of a word processing equipment salesman, who made an internal survey. Based on the results of the analysis and the salesman's recommendation, the board of directors voted to establish a word processing center. Three reasons influenced the board's decision: (1) a word processing system would reduce office costs, (2) an installation would improve the supervision of all clerical and secretarial activities, and (3) the system would better control the quantity and quality of all correspondence.

In the transition to word processing, one immediate problem had to be alleviated. Adequate space for the center was needed. The word processing center was to be located in a former apartment in the building occupied by the organization. The physical layout called for renovation of the living quarters and for installation of carpeting to reduce noise.

Staff and Equipment. The word processing center has been in operation since 1974 and now has 22 word processing secretaries and a manager/supervisor. The workers are assigned to one of three word processing groups: overseas, missionary services, and management support. Leaders head each work group and help to coordinate the work of their group.

Equipment includes eight IBM Magnetic Card Selectric typewriters, ten IBM Mag IIs, two IBM Mag A machines, four Doro cassette dictation units, and three Dictaphone Thought Tank recorders. The center serves approximately 80 word originators.

Procedures. Minutes of committee and board meetings, one- and two-page letters, memorandums, and multipage documents comprise the bulk of the work output by the center's staff. The input via the Dictaphone Thought Tank System is directed automatically to the correspondence secretary who will provide the fastest turnaround time.

In making the transition to word processing, management had to convince its personnel that in a typical word processing system the one-for-one basis for secretaries almost no longer exists and that work processed in the center is not "garbage." The work received by the center has improved, and the volume of work has increased. Work is measured by the number of lines produced. The turnaround time goal is eight and one-half hours.

#### CASE STUDY--ORGANIZATION I

Role and Development. Organization I is an educational institution whose mission is to prepare students for the medical profession. Before the administration granted

approval to install word processing equipment, a task study was made. Copies of all typewritten documents were collected and analyzed. A log, which showed how each secretary's time was spent, also was maintained. One secretary was timed on all work typed for a two-week period. As part of the study, tests also were given to office workers, using automatic typewriters, to determine how much faster work could be produced.

To provide for more rapid output of the dictated material, IBM Magnetic Tape Selectric typewriters (MT/ST) and individual dictation units were installed. Thus, Organization I's word processing center began officially. Because of the noise created by the operation of the MT/STs, the administration soon decided to remedy the situation and install more up-to-date equipment--IBM Memory typewriters.

Staff and Equipment. Nine IBM 6:5 cartridge systems, seven IBM Memory typewriters, one IBM Mag II machine, and one IBM Selectric typewriter equip the center, which is staffed by a supervisor and 12 "medical transcribers." The transcribers work in shifts and perform the tasks normally assigned to correspondence secretaries.

Initially, the transcribers attended an IBM institute for one and a half days to learn the operation of the MT/ST. Now, a new secretary is given a one-day orientation by the

institution and spends one year on the job in supervised training. A five-minute straight-copy typing test is administered to an applicant; and a production test, which consists of a simple letter to be typed in acceptable copy, is given by the supervisor of the center. In addition, a test on English grammar, punctuation, and spelling skills is administered.

Procedures. The work produced in Organization I's word processing facilities is highly specialized. A knowledge of medical and drug terminology is essential for producing final output in the word processing unit. The work may be categorized as (1) letters of referral, (2) operative reports, and (3) doctor's patient summary reports (dictated at time of discharge). Operative reports take priority over all other dictated material. Although the IBM 6:5 cartridge system is used for recording dictated material, the work is measured on the basis of the number of belts transcribed. Seventeen minutes of a doctor's dictated report is the equivalent of one magnetic belt.

#### CASE STUDY--ORGANIZATION J

Role and Development. The word processing center of Organization J, a well-known manufacturing firm, has been in operation one year. Prior to the implementation of word processing, a lack of proper communication appeared to exist

within the company and within the division. A task force conducted a study in management information services. The results of the study indicated that the installation of a word processing center would improve the control of the packaging division's correspondence and the efficiency of the existing secretarial staff.

Six secretaries, who had high-level secretarial positions within the division, volunteered to transfer to the word processing center at the time of its establishment. The secretaries were given two weeks of one-half day instruction on IBM Magnetic Card Selectric and Memory typewriters.

Staff and Equipment. Organization J's word processing staff includes six correspondence secretaries and one supervisor, who form the nucleus of specialists to support 110 originators engaged in the division's activities. Two IBM Mag IIs, four IBM Memory typewriters, and six IBM 6:5 cartridge dictation systems have been installed in the center.

Procedures. Through the implementation of a word processing system, the communication problem within the division has been resolved. The efficiency of the secretarial staff has improved through the use of a work cart. The supervisor determines the work priorities from the work request form completed by the originator and files the form

with supporting cards, disks, or tapes in a work cart. The work input is categorized as "rush," "revision," or "routine." Rush work has first priority; revision work, second priority; and routine work, third priority. As work is completed, each secretary consults the cart for work to be processed in order of priority. Unless otherwise requested, the work is returned in final form with three carbon copies and an envelope to the originator. Magnetic cards or tapes for routine work are retained for two days. A daily log sheet is maintained by each correspondence secretary, who is required to produce 600 lines per day.

There has been no turnover of word processing personnel since the word processing center was created. Two other secretaries employed with the company have requested transfer to the word processing center. The supervisor has projected a need for three additional secretaries within the next three years to handle an increased work load.

#### CASE STUDY--ORGANIZATION K

Role and Development. Although all departments of this banking institution are primary users of its word processing center, Organization K's center derives its work load from the trust and financial departments. The two departments provide the greatest amount of input for word processing.

The development of Organization K's word processing center covers a three-year period. Initial contact was made with a word processing equipment representative, who conducted a task survey. Within one week, all the bank's secretaries were interviewed to determine what types of secretarial tasks were performed. Copies of documents typed by the secretaries were collected and analyzed by the representative, who recommended a centralized word processing approach. However, word processing was not adopted at that time because the president wanted to reorganize the bank.

Three years later the major organizational changes had been accomplished. However, Organization K found itself caught in a profit squeeze. Since no other changes were anticipated, a task force was organized to study the situation. The president and the task force remembered the earlier professional study and commissioned the equipment representative to make a follow-up study to determine what savings could be made within the organization. Two proposals were presented to Organization K: (1) a centralized office area where correspondence would be processed through the use of a central telephone dictating system and (2) a decentralized word processing section using a microphone dictating system. The centralized approach was selected because the goal of management was to improve the quality of the bank's correspondence while reducing clerical expenses.



During the transition period to word processing, an open house was held for all bank employees. The purpose of the open house was to provide personnel with an opportunity to view the word processing equipment so that each employee would have a better understanding of the word processing concept and of how the system would affect the bank's functions. Two weeks of training were allotted for word originators to practice using the centralized dictation system. During this time, orientation and training sessions were held for other word processing personnel.

Staff and Equipment. The word processing center is equipped with eleven IBM Mag Card II typewriters and nine IBM 6:5 cartridge systems. A bank official serves as coordinator of the word processing center, which is staffed by nine correspondence secretaries, two section leaders, and a word processing supervisor. The IBM study identified the department secretaries who they felt should become members of Organization K's word processing "family."

Procedures. The work produced by the center is divided into two sections--trust and financial. Six correspondence secretaries are assigned to trust; five, to financial. All work is coordinated by the section leaders, who report to the word processing supervisor.

The personnel department is equipped with its own IBM Memory typewriter, but the department uses the word processing center as a backup for the production of letters soliciting applications for bank position vacancies.

The degree of improved production resulting from the conversion to word processing is illustrated by the fact that the center was established to handle 115,000 lines per month. Twelve months later the word processing center was producing a total of 125,000 lines per month, or an increase of approximately 8.7 percent.

#### CASE STUDY--ORGANIZATION L

Role and Development. The implementation of word processing at Organization L, a pharmaceutical firm, evolved from the organization's need and desire to use word processing. To determine the need for word processing, technical reports were typed in rough draft and revised by a secretary on an IBM Magnetic Tape Selectric typewriter. The fact that the word originator had to proofread a report only after corrections were made by a secretary caused management to recognize a need for word processing. Organization L's word processing center was established in 1970. Because of overcrowded conditions, the center was moved to its present location five years later.

Staff and Equipment. The word processing center is directed by a supervisor with a staff of twelve secretaries. Two of the secretaries serve as work coordinators and report directly to the supervisor. One secretary provides administrative support services.

Organization L's word processing system includes ten IBM Mag II machines, two A. B. Dick Magna I typewriters, six IBM Microphone Input units with magnetic belts, and ten Philips/Norelco dictation systems with reusable minicassettes. Three Lanier Tel-Edisette dictating systems also were used.

Procedures. The word processing installation at Organization L is a multipurpose transcription center. All company divisions use the center. There are two work groups. One group manipulates reports; the second group processes correspondence. Typical work output by the report group includes chemistry and insurance reports, patent applications, and product distribution agreements. The scientists in research and development write out their reports and send them to the center to be typed accurately in final form. Thirty-five percent of the center's output is corporate work--pharmaceuticals, research and development, chemicals, legal agreements, and financial affairs. All work of the correspondence secretaries is measured by line count.

Organization L's philosophy of word processing has been that the center will accept input in any form--longhand or

typewritten copy or dictated material via a magnetic medium. The center will not send a secretary to a word originator to take dictation.

Although an administrative secretary normally does not perform typing job tasks, the administrative secretary in Organization L types shipping and address labels, packing slips, and invoices. Among the secretary's nontyping tasks are library research and travel arrangements for the scientists in research.

#### CASE STUDY--ORGANIZATION M

Role and Development. Organization M is a large law firm. Initially its word processing center had eleven IBM Magnetic Tape Selectric typewriters (MT/STs), which were used to produce the firm's correspondence and legal documents with a two-day turnaround time. As the attorneys expected a faster turnaround, the use of the MT/STs was not the solution to the problem. The administrative manager sought the expertise of an independent consulting firm that specializes in surveys. The consulting firm recommended a computerized system for the firm.

Staff and Equipment. After some consideration, the firm installed an LCS Compu-Text word processing system in 1975. The system includes magnetic disk storage, three IBM Selectric terminal typewriters, and a QUME line printer. Each of

the three magnetic disks in the system can store 1500 paragraphs (three paragraphs per legal page). A supervisor and four secretaries provide support to the firm's attorneys who use the center.

Procedures. Approximately 85 percent of the work received by the center is typewritten drafts, and 15 percent is on handwritten yellow legal sheets. Work is processed on a first-come basis unless designated "rush." Presently three divisions of the firm send work to the center for processing. These divisions are real estate, trust, and corporate.

All input is typed on a terminal typewriter either as an original or draft and stored on disks with numbers assigned to each document and paragraph. The final version is produced on the line printer, which adjusts the margins on continuous-form paper. The document is peeled off the continuous-form paper and reproduced on a photocopier. A duplicated copy is filed by an attorney's name under one of the three divisions using the system. Copies of wills are filed by the client's name. The method of work measurement used is the number of pages produced by each secretary.

Although the system has improved the creation of voluminous legal documents for the firm's clients, the input problem of the typed and handwritten copy has not been

resolved. The editing and output problem that existed with the original MT/STs, however, has been solved.

#### CASE STUDY--ORGANIZATION N

Role and Development. Organization N is the office services division of a nationwide insurance company. This division underwrites life, health, and accident policies. Although the secretarial staff produced a large volume of work, office costs were excessive. After serious consideration, the vice-president in charge decided to procure the assistance of an equipment salesman, who conducted a task study. Upon the salesman's recommendation, the vice-president approved the installation of a word processing system.

As office space was a problem, it was decided to remodel a residence located a short distance from the main office building. The center, established in 1975, occupies a small area in the renovated building, which also is used for overflow offices.

At first the organization had difficulty persuading and convincing word originators to use the dictating equipment. Poor articulation of proper names created a problem with the secretaries in transcribing the input. Another company problem has been the ability to hire qualified word processing personnel.

Staff and Equipment. Under normal operations, two secretaries and a part-time typist serve the policyholder service department. The senior secretary supervises the work in the center and instructs new employees in the operation of machines. Equipment includes one IBM Magnetic Card Selectric typewriter, seven IBM Microphone Input dictating machines, and four IBM portable cassettes. The portable units are used by the organization's traveling salesmen.

Procedures. Work is received in the center and processed on a first-come basis. Letters, memorandums, and statistical reports are typed on the MC/ST; multipage documents are typed on the MT/SC, which justifies the margins. As work is completed, it is placed in an outgoing mail receptacle. There the work is collected by a messenger who delivers it to the word originator. At the present time, work produced in the center is not measured.

#### CASE STUDY--ORGANIZATION O

Role and Development. Organization O is a law firm. Word processing was implemented to meet the need for improvement in production and control of the legal documents of its clients. Word processing is combined with data processing in the firm's office organizational structure.

The firm needed a system that would handle the work load for word processing as well as computerized accounting applications. After some consideration, a Barrister 300 Comptek computer was installed.

Staff and Equipment. The center has three IBM Selectric terminals, the Comptek computer, and a printer, which plays out at 600 lines per minute. The storage device includes three random-access magnetic disk drives. Presently, two terminals are assigned to data processing; and the third terminal is used by the word processing supervisor, who also serves as the computer operator and the only person in the center involved in word processing. However, the volume of word processing input has increased to the point that a correspondence secretary will be added to the staff.

Procedures. Contracts, lease agreements, affidavits, wills, and managerial reports are the kinds of documents produced by the word processor. As the supervisor receives the work, the information is logged. An attorney may either mark up a model document by hand or send a handwritten legal sheet to the center. Each model document is identified by a code number that identifies the copy stored on a magnetic disk. The processor enters first the identification code on the terminal and then any changes shown in the marked-up document by typing out each change or addition. The



computer will automatically locate the stored copy, make the necessary changes, and adjust the margins.

From the handwritten copy, a document is typed as either an original or rough draft. A code number is assigned to each document, which is stored on a magnetic disk for instant retrieval. Presently, no method of work measurement is used.

#### CASE STUDY--ORGANIZATION P

Role and Development. As a subsidiary of a pharmaceutical firm, Organization P is engaged in the manufacture of dog care products, toiletries, and cosmetics. The company has offices located on the East Coast and in Louisiana, Texas, and Illinois. The local plant is organized into several departments: manufacturing, marketing, credit, and personnel.

Initially, six full-time secretaries of Organization P served 28 originators; now, four full-time correspondence secretaries support 65 word originators. Each new secretary spends the first three or four days of employment learning how to operate word processing equipment and becoming familiar with the company's products, trade names, and consumer relations mail.

The word processing system was installed in 1970; and since its inception, secretarial support to the word originators has continued to improve.

Staff and Equipment. Work in the center is directed by a supervisor. Equipment consists of four IBM Magnetic Tape Selectric typewriters, three IBM Magnetic Selectric Composers, and four IBM transcribers. The installation also includes a Selective Recorder Network System (SRN) with six banks of recorders.

Procedures. Work is received by the center in two forms: dictated material through the SRN system and typed letters from traditional secretaries. Letters from the secretaries are dictated onto tapes and retyped by a correspondence secretary. All correspondence tapes are retained for 48 hours. The number of lines typed is the method of work measurement used.

Each correspondence secretary is assigned to one of two work groups. The secretaries in one group are scheduled to transcribe and type on the MT/STs; the other group of secretaries operates the Selectric Composers. The secretaries work on the assigned machines for one week and then alternate. This practice allows the secretaries to become familiar with all the equipment and promotes teamwork. Moving from one machine to another also has helped to improve the morale of the word processing staff.

## CASE STUDY--ORGANIZATION Q

Role and Development. The word processing center of Organization Q is located in a hospital, which opened early in 1976. The system was installed in a centralized area adjacent to the administrative support section. Before making the decision to install word processing equipment, the administrator sought the advice of an independent consulting firm and contacted other hospitals who use word processing in medical records. The hospital administrator felt that, instead of establishing the center in the medical records department, office costs could be kept at a minimum by locating the center in a centralized area.

Staff and Equipment. Under the direction of a supervisor, four full-time and two part-time correspondence secretaries operate four IBM Memory typewriters, two Vydec visual display devices, and nine Philips/Norelco dictation units with minicassettes. Administrative secretaries have not been incorporated into the organizational structure.

Procedures. The staff produces two types of reports: operative and medical. In the completion of the reports, accuracy is essential for both medical and legal reasons. Operative reports must be transcribed, typed, and returned to the patients' charts within a reasonable time. All finished reports are delivered by messenger service.

Letters, interoffice memorandums, statistical reports, newsletters, and medical journal articles are among the documents produced by the secretaries in the center. Work measurement is by line count.

#### CASE STUDY--ORGANIZATION R

Role and Development. Organization R is one of three regional offices of the third largest privately owned telephone company in the United States. The regional offices are located in California, Missouri, and Virginia. A corporate office is maintained in Atlanta.

Prior to the implementation of a word processing system, an internal study was made to determine what projects were under way and who was working on the projects--secretaries, executives, or graphic arts personnel. The vice-president decided that a word processing system would not only reduce office costs but would also improve the control of all projects, reports, and correspondence.

Staff and Equipment. A staff of five correspondence secretaries, ten administrative secretaries, and a supervisor provide support to the finance department of the Virginia office. The word processing center is equipped with four IBM Mag II machines, one Vydec visual display device, one IBM Correcting Selectric II typewriter, two

IBM 6:5 cartridge dictation systems, two IBM Microphone Input dictation machines, and two IBM portable units.

Procedures. Documents prepared in the center fall into one of three categories: (1) original dictation, (2) prerecorded material, or (3) submitted copy. Twenty percent of the work received by the center is dictated material. Letters, memorandums, and reports are classified as original dictation. Material that can be stored for repetitive use is categorized as prerecorded material. Submitted copy includes all items that cannot be recorded on a dictation unit and must be transmitted to the center in handwritten or copy form. For example, financial statements and projects are submitted copy. Sixty percent of the input is statistical work.

Most input is recorded over a centralized processing system or on one of the individual dictation units. Once the work is received, a correspondence secretary records the material on a magnetic medium, which is stored for five days in case revisions are required. The completed document is placed in a manila folder and returned to the originator by a courier.

Each correspondence secretary logs all assignments on a daily basis. At the end of the week, the daily log sheets are sent to the supervisor, who summarizes the work

processed. The summaries aid the supervisor in determining the turnaround time, departmental use, and amount of work produced in the center. Line count is the method of work measurement used.

The administrative secretaries provide support to the company vice-presidents and are generally responsible for minutes of meetings, background material for projects, proofreading, scheduling appointments, making travel reservations, handling telephone calls, updating forms and procedures, filing copywork, handling the mail, and greeting callers. Among the tasks for which a secretary is responsible to the center are logging and checking material being sent to the center, updating word originators' manuals, attending word processing center meetings, advising the supervisor when rush work or large volumes of work may be expected, and advising word originators of any procedural changes.

Since its installation, the turnaround time on the Vydec has been reduced by 50 percent. The overall turnaround time in the center is less than four hours.

#### CASE STUDY--ORGANIZATION S

Role and Development. The word processing center of Organization S is responsible for keeping the medical records of the hospital up to date. Because the medical

records librarian was familiar with the capability of automatic typewriters and dictation machines, she persuaded the hospital administrators to install a word processing center.

Staff and Equipment. The word processing center is staffed by three medical transcribers and a supervisor, who also helps to keyboard the work received in the center. Equipment consists of two IBM Magnetic Tape Selectric typewriters, one IBM Memory machine, one IBM Selectric, and five Lanier Tel-Edisette systems.

Procedures. Work is processed in the center from the dictated material recorded on the Lanier Tel-Edisette units, which use standard cassettes. The cassettes have a recording capacity of six to nine hours of dictation. Normally, when a cassette is filled with dictated material, the cassette ejects automatically and a new one is inserted. A medical transcriber types from the cassettes as they are filled. The number of cassettes transcribed determines the amount of work produced.

If dictation requires priority handling, a cassette can be ejected for immediate transcription by one of the transcribers in the center. For example, operative reports have top priority over other medical reports. All operative reports are kept current, but with other reports there is a two- or three-day turnaround time.

One of the problems encountered by the workers in the center has been the interpretation of the material dictated by physicians with a foreign accent. In turn, the physicians complain about using the dictating equipment because they are unfamiliar with the operative features of the units.



## VITA

Marietta Spring was born in Owensboro, Kentucky, July 19, 1921. In 1939 she graduated from Owensboro High School and subsequently attended DePauw University for two years. In 1960 she received the Bachelor of Arts degree in business education from Kentucky Wesleyan College. Her Master of Business Administration degree was completed in August, 1965, at the University of Denver.

She was employed as a secretary and bookkeeper for a dairy products company in Owensboro for sixteen years. She taught one year each in McLean and Ohio County, Kentucky, and Spencer County, Indiana, schools. She also served as a member of the Lawrenceburg Consolidated High School faculty at Lawrenceburg, Indiana, for two years and of the Owensboro High School faculty for two years.

Upon completion of her MBA degree, she became a full-time faculty member at St. Mary's College of Maryland, where she taught for five years. During her sixth year at this institution, she served as registrar and part-time business instructor.

In September, 1971, she accepted a position at Old Dominion University as assistant professor of business education and office administration. In April, 1975, she was granted a one-year leave of absence to complete the residence requirements for the Doctor of Education degree at Virginia Tech. While completing her graduate studies, she was a graduate teaching

assistant. She returned to full-time teaching at Old Dominion University in September, 1976.

She has published several articles in professional journals and is a member of a number of organizations in business education and related fields.

*Marietta Spring*

A SURVEY OF WORD PROCESSING CENTERS  
IN THE URBAN CORRIDOR OF VIRGINIA

by

Marietta Spring

(ABSTRACT)

The primary purpose of the investigation was to determine the status of word processing centers within the Urban Corridor of Virginia. The problem was an identification of the factors in the word processing conversion process and of the typing and nontyping tasks performed and the employment tests administered in the word processing centers.

Participants in the study were 19 organizations with word processing centers. Nineteen supervisors, 17 correspondence secretaries, and 2 administrative secretaries were interviewed.

To obtain the needed data, the Word Processing Interview Guide was developed by the investigator and validated by a jury panel. In the analysis of the data, frequency distributions and percentages of the responses were calculated. To determine the extent of the difference of the job tasks performed by word processing supervisors and secretaries, the Chi-square statistic was computed. In addition to the statistical analysis, 19 case studies were developed.

The following conclusions were derived from the results of the study:

1. Most participating organizations converted to a word processing system because of their desire to improve the quality and quantity of correspondence in their office.

2. In most organizations, the decision to convert to a word processing system was made by upper-level management.

3. As a technique employed in the conversion process, most organizations procured the assistance of a word processing sales representative.

4. Reluctance on the part of personnel to accept the word processing concept was the major problem encountered in making the transition to word processing.

5. Most organizations preferred the five-minute straight-copy typewriting test as a method for determining the typewriting speed for secretaries entering word processing work.

6. The minimum straight-copy typewriting rate required by most organizations was 50 words a minute.

7. Clerical skills in basic math, English grammar, filing, proofreading, and spelling were generally not part of the pre-evaluation of word processing applicants.

8. Most word processing employers did not consider previous office work experience a hiring requirement for word processing positions.

9. The ability to take shorthand dictation was not a requirement for secretarial employment in any of the participating word processing centers.

10. Previous experience in the use of a Selectric typewriter and of a dictation machine was not considered an essential qualification for word processing positions by most word processing employers.

11. Most of the automatic typewriters and dictation units installed in the participating word processing centers were manufactured by International Business Machines Corporation.

12. On-the-job instruction in the operation of equipment was provided by most word processing employers.

13. Some method of measuring correspondence secretaries' typing tasks was used by most of the organizations. The most frequently used method of measurement was the number of lines produced.

14. There appeared to be some overlap in the nontyping job tasks performed by supervisors and correspondence secretaries. Although supervisors were responsible for most nontyping activities, correspondence secretaries also performed some nontyping tasks.

15. There appeared to be some overlap in the typing job tasks performed by supervisors and correspondence secretaries. Although correspondence secretaries principally performed typing tasks, supervisors also engaged in some typing activities.

16. The majority of word processing centers had not adopted the administrative support function.