An Analytical Study of Word Processing in Selected Administrative Offices at Utah State University

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AN ANALYTICAL STUDY OF WORD PROCESSING IN

SELECTED ADMINISTRATIVE OFFICES AT

UTAH STATE UNIVERSITY

by

Lynnette T. Nielson

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

of

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in

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Lynnette T. Nielson

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ABSTRACT

An Analytical Study of Word Processing in

Selected Administrative Offices at

Utah State University

by

Lynnette T. Nielson, Master of Science

Utah State University, 1975

Major Professor: Dr. Theodore W. Ivarie, Jr.
Department: Business Education

The purpose of this study was to analyze the word processing

procedures in the offices of the President and Provost at Utah State

University. Seven secretaries participated in the survey by completing

a questionnaire and keeping a record of all typing and nontyping tasks

performed during two nonconsecutive weeks.

Each secretary performed a variety of duties--both typing and

administrative. A combined total of 148 hours was spent by all secre-

taries on typing tasks and 333 hours on administrative tasks during

the two-week study period.

A combined total of 9035 lines (average 12 words per line) of typing

was completed by all workers. Ninety-nine percent of the typing was

classified as text in format and originated in one of several ways in-

cluding: copy type, shorthand, revision, self composition, machine

dictation, and longhand.

Recommendations based on the data collected were made regarding the word processing system analyzed. Recommendations included the implementation of a semi-consolidated word processing system and the addition of standardized dictating equipment and a magnetic medium typewriter.

(88 pages)

CHAPTER I

INTRODUCTION

In a competitive economy the success of a business depends to
a large extent on its operating efficiency. Two ways of improving
operating efficiency are by motivating people to work faster and by
improving the methods of operation. As a result of a limit to the
speed at which people can work and maintain quality, many managers
seek better methods of operation. System concepts and techniques
are used for increasing internal operating efficiency by developing
improved methods of operation. (2:13)

Systems engineering involving hardware, software, and personnel
has defined some of the needs in the increasing volume of letters,
memos, forms, manuscripts, and statistical reports. This increasing
volume of paperwork has called for more detailed consideration from
managers and executives to the efficiency and cost effectiveness of an
office function in a government, business, or educational organization.
(20:7)

Improved hardware, combined with the systems approach and new
modes of office organization, have brought a valuable and essential
discipline to the function of creating, producing, and distributing
written business communication. This new approach to paperwork has
been termed "word processing." (25:6)

> Current thinking among users and manufacturers is to
> put word processing to work any place in an organiza-
> tion where it effectively raises productivity. What
> it means: word processing will fit efficiently in a

big administrative center, in satelite centers, or in
one-machine situations. The determinants are the nature
and volume of work and the way people and departments are
presently organized. (12:59)

In order to design a word processing system to meet the needs
of those it serves, analysis of the present environment to determine
the appropriate applications of this concept is imperative.

Statement of the Problem

The purpose of this study was to analyze the word processing
system in selected general administrative offices at Utah State Uni-
versity, and to provide the data necessary for the design of a word
processing system that will best fulfill the needs of the offices
studied.

More specifically, the objectives of the study were to:

1. Perform a work group analysis to determine

   a. major and minor responsibilities of the work group

   b. average turnaround time

   c. backlogs due to typing

   d. number of office workers and principals

2. Conduct a typing category count to determine

   a. how many lines were typed per day and how much time
      was spent typing

   b. what kind of typing was done

   c. how the document originated

   d. what non-typing duties were performed and how much
      time was spent for each

3. Complete a workflow recap to determine

   a. total daily lines typed per worker

   b. total daily lines typed for the work group

   c. total daily lines typed by the work group from long-
      hand, shorthand, machine dictation, self composition,
      bopy type, or revised copy

   d. average hours per week spent typing

   e. average hours per week spent on non-typing activities

4. Take an inventory of present equipment to determine

   a. kinds and numbers of dictating and transcribing
      equipment

   b. present value of equipment

5. Discuss implications of the findings as to

   a. present strengths and weaknesses in the word processing
      system

   b. dictating and transcribing equipment that would relieve
      any existing deficiencies

   c. changes in job descriptions of secretaries that would
      facilitate greater efficiency

Importance of the Study

Offices today are finding it necessary to produce more at lower
costs. Nevertheless, the cost of paperwork is rising, and productivity
seems to be holding. For example, in 1920 a secretary could type 50
to 60 words per minute on a manual typewriter, which is approximately

the same speed typed in 1970 on an electric typewriter. According to Wallace of the IBM Office Products Division, the average transcription rate for secretaries still remains about the same--15 words per minute. (10:36)

For most organizations secretaries comprise one of the largest groups both in number of people as well as costs. Yet for reasons relating to the social nature of the job of the secretary, top management has not looked at secretaries as a group of workers where improvements in performance could be realized. (16:34) Currently with more advanced equipment available for the processing of words in the organization and the increased production that these advanced products make possible, a restructuring in the secretarial occupation seems logical.

Word processing offers the opportunity for business to reallocate secretarial resources to their point of need. It makes possible definable career paths for secretaries and creates functional management positions to which the secretary may aspire. (32:8) At the same time the quality and quantity of office work is improved because these duties are performed by specialists. (1:41)

Currently there are more than 100,000 word processing units at work in offices, and each month hundreds more are being installed. (9:40) Numerous reports and articles have been published on the effectiveness of these systems. Some benefits which have been realized by businesses are: (34:35)

1. Efficient utilization of personnel

2. Flexibility to handle peaks and valleys in secretarial workloads

3. Controlled staffing of clerical growth

4. Executive secretarial support

5. Additional and rapid input

Collins points out that there are "many ways to go with word

processing." (19:9)

> In fact, work processing is a very flexible concept, not a
> single, stereotyped approach. The basic idea is to analyze
> the problem, then design and implement a means of doing the
> job better than it can be done by traditional methods. (19:9)

A word processing system should be designed to meet the needs of those

it serves. When considering word processing an organization should

study in depth its present environment.

Stevenson reveals the need to survey present operations in the

following.

> This survey, its design and operation, is perhaps the most
> important single element in the development of a word pro-
> cessing program since the decisions made from that point
> on will be based on it.

> This is the only method of obtaining accurate, relevant
> unbiased facts about existing productivity, level of
> service, costs (how much time is spent) and utilization
> of human resources. The survey lets you design a system
> based on your situation, and then implements this system
> based on these same facts. (45:44)

Definition of Terms

Terms related to word processing used in this paper are defined

as follows:

Administrative Hours refers to the time devoted by a secretary to

office activities other than typing.

Administrative Secretary is the person who performs the usual

nontyping tasks, such as filing, processing the mail, handling tele-
phone calls, and other supportive services for management and profes-
sional personnel.

Administrative Support Center is the room or area which houses
the administrative support group (administrative secretaries, messengers,
receptionist, and supervisor) that performs the nontyping tasks and
supportive services for management and professional personnel.

Automatic Typewriter is an electric typewriter that records words
on a paper tape or on a magnetic medium aat the same time as it types on
a sheet of paper (or displays on a screen, as in a video text editing
machine). Recorded material can be played back with little human
assistance at high rates of speed.

Career Paths are the lines of progression from one position to
another established by management to provide opportunities for advance-
ment to higher level jobs.

Correspondence Secretary is the person who performs the transcrib-
ing of dictation, typewriting, and editing tasks on an automatic typewriter.

Input refers to the information entered into a system to be processed.

Magnetic Medium Typewriter is an electric typewriter that records
alphanumeric characters on a magnetic medium (card, tape, cartridge, or
tape cassette) at the same time that it types on paper. Corrections are
made by backspacing and striking over the error. Once a perfect copy
has been recorded, it can be played back at 150 to 185 words per minute
(the speed of playback depends upon the brand and model of the type-
writer). The magnetic typewriter can also be classified as a text
editing typewriter, a power typewriter, an automatic typewriter, a

revision typewriter, or a repetitive typewriter.

Output refers to the final results after recorded information is processed, revised, and printed out.

Playback is the automatic typing out of material recorded on the card, tape cartridge, or tape cassette of a magnetic typewriter. The speed of playback varies from 150 to 185 words per minute, depending upon the brand and model of the typewriter.

Principal is another term for word originator (see Word Originator).

Word Originator is the person (author, dictator, executive, manager principal) who initiates the oral or written ideas to be processed.

Word Processing is the transition of oral or written ideas to typewritten or printed form.

Word Processing Center is the area or room which houses equipment and trained personnel for processing written communications.

Word Processing System is the combination of specific procedures, methods, and equipment utilized by trained personnel to accomplish the transition of oral or written ideas to typewritten or printed form.

Summary

According to Dykeman, word processing is a new approach to paper-work involving the use of improved hardware, combined with the systems approach and new modes of office organization. (25:6) In order to design a word processing system that will meet the needs of those it serves, analysis of the present environment to determine the appropriate applications of this concept is imperative.

The purpose of this study was to analyze the word processing system in selected administrative offices at Utah State University and to provide the data necessary for the design of a word processing system that will best meet the needs of the offices studied.

CHAPTER II

REVIEW OF LITERATURE

The purpose of the review of related literature was to present an overview of the concept of word processing. This chapter describes word processing as reported in literature. Although there have been many articles written about word processing, very few research studies related to word processing were available for review.

Origin and Nature of Word Processing

Word processing has existed ever since man first began using written communications. During the twentieth century, word processing has been enhanced, and especially in the last decade with the formation of word processing and administrative centers. (13:16)

The term "word processing" originated in Germany where it is called "textverabeitung" (text processing). Ulrich Stenihelper conceived the basic idea shortly after the magnetic tape typewriter was introduced in 1964. His theory included the directing of all dictation to one or more central transcribing locations where error-free documents could be produced on automatic typewriters once the dictation was correctly keyboarded at rough draft speeds. He believed that this method would produce savings in both time and money. (15:292)

According to Rankin, International Business Machines (IBM) adopted Stenihelper's concept of word processing to complement its equipment with text-editing capabilities. By 1968 a system of reorganizing a firm's

and procedures with the support of the specialized equipment was
introduced. "IBM named this combination of people, procedures, and
equipment that transforms dictation into printed communication and
helps to facilitate the flow of related office work--Word Processing."
(42:3)

The structure of word processing consists of three basic components.
The first part involves equipment. Automatic electronic equipment is
used for the input and output functions of the communications process.
This equipment is designed to function together to handle a greater
amount of work than is otherwise possible. Second is the procedures
and controls through which people and machines can be properly utilized
to yield a high return on the organization's investment. Third is the
personnel component, which offers the organization significant benefits
because it: makes possible definable career paths in the clerical en-
vironment; introduces the concept of functional management into the
secretarial area; permits the organization to establish functional job
descriptions for clerical employees; brings about a transference of
loyalty to the goals of the organization. (14:4) To realize the bene-
fits of word processing, an organization must address all three parts.
The objective should be the synergism that results when all three com-
ponents are properly implemented.

Word processing is a system which begins with the input by the word
originator, who transmits his thoughts most often in the form of machine
dictation belts or tape or telephone dictation direct to dictating
machines in the transcribing unit. A typist then transcribes on a mag-
netic typewriter which produces a magnetic tape or card in most

applications. The first draft is then returned to the word originator
for approval. If the document is error free and meets his approval, it
is signed and transmitted to the recipient. If the word originator
decides to make changes or corrections, the document is returned to the
typist. Changes and/or corrections are made by the typist to produce
an error-free magnetic card or tape. The corrected medium is used to
produce the desired document played back at a speed of 150 words per
minute. (6:39) A diagram of this system is shown in Figure 1, page 12.

Increased productivity

One of the benefits which may be realized in word processing is
the increased productivity of word originators, whose time accounts for
a high percentage of the cost of written communications. With the use
of dictating equipment communications can be recorded at a speed of 60
words per minute. This is twice the usual dictation rate of 30 words
per minute obtained while dictating to a secretary, and four times the
usual longhand writing rate of 15 words per minute. (44:5)

As well as increasing the productivity of word originators, word
processing increases secretarial productivity. Net transcription speed
can be increased from 15 words a minute while transcribing from shorthand
notes to 20 words a minute transcribing from machine dictation to 30 words
per minute with the use of a magnetic media typewriter. (44:5)

With the high cost of paperwork and business communications, produc-
tivity and efficiency are of importance. Research completed by Dartnell
Institute revealed that "it costs $3.31 to send out just one letter." (3:30)
Other figures presented by Dartnell Institute surveys showed the cost

```
┌─────────────────────────────────────┐
│ WORD ORIGINATOR                     │
│                                     │
│ Transmits ideas by                  │
│   1. longhand copy                  │
│   2. rough draft copy               │
│   3. dictation to secretary         │
│   4. dictation to machine           │
└─────────────────────────────────────┘

    ┌──────────────────>

┌─────────────────────────────────────┐
│ WORD PROCESSING CENTER              │
│                                     │
│ To be transcribed on a              │
│ magnetic (text editing)             │
│ typewriter for production           │
│ of typescript                       │
└─────────────────────────────────────┘


┌─────────────────────────────────────┐
│ WORD ORIGINATOR                     │
│                                     │
│ For approval or for changes         │
│ and/or corrections                  │
└─────────────────────────────────────┘


              ╱╲
             ╱  ╲
   No       ╱ APPROVED ╲
  ─────────< As final copy? >
             ╲        ╱
              ╲      ╱
               ╲╱

               │ Yes
               ▼

┌─────────────────────────────────────┐
│ RECIPIENT (OUTBASKET)               │
└─────────────────────────────────────┘
```
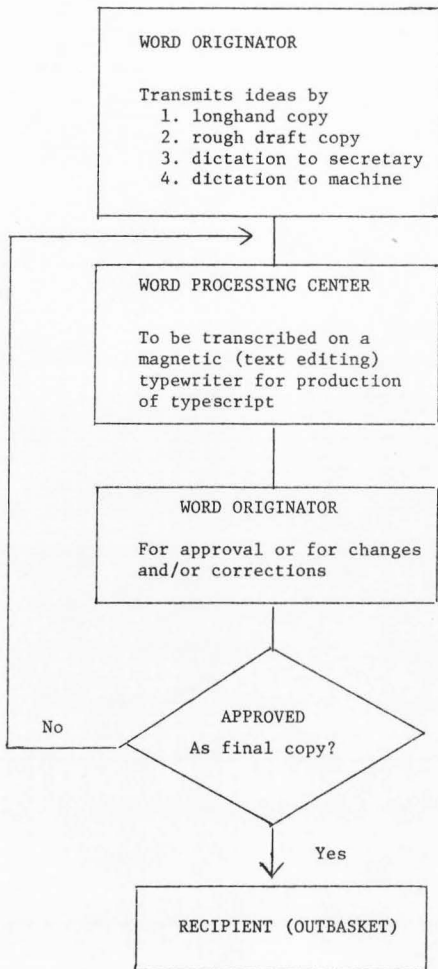
Figure 1. Word processing system (17:14)

of the average business letter rose 183 percent in the past 20 years, and could double in another 20 years putting the cost of a dictated business letter to over six dollars. (40:63)

Applications for word processing

Although there are hundreds of ways to use word processing, five main application areas have evolved.

1. Repetitive work. Repetitive work includes straight form letters or any job where the document content remains the same.

2. Repetitive plus variable. This application for word processing involves the selection of standard stored paragraphy that apply to the subject, and the addition of dictated or written paragraphs that apply to that particular document.

3. Correspondence and dictation. Correspondence and dictation involve the transcription or copying from previously written copy and keyboarding on a magnetic keyboard typewriter which then records on some form of magnetic media. Once the copy is corrected, the typist automatically types out the correct portion, manually keyboarding only the necessary corrections or changes.

4. Text preparation, editing, and revision. This application for word processing deals with materials to be published. Material is keyboarded into the word processor for the first draft, which goes back to the originator for corrections and revisions. The word processing operator (or typist) keyboards the changes, and produces a finished typed copy or another output media (such as tape or cards) for producing finished work.

5. Composition and typesetting. This application for word processing involves the use of a word processor to record copy for setting and arranging type, along with instructions. To produce typeset copy, the recorded material (on tape, cartridges, cassettes, magnetic cards, or paper tape) goes to a composing typewriter, photocomposition device, or typewriter. (12:57)

Equipment Used in Word Processing

Distinct types of hardware, each suited to particular applications or configurations, provide a selection that enables the user to meet his unique word processing requirements. Equipment used in word processing includes dictating machines for the input and automatic typewriters for the output function. An important part of a word processing system is that this hardware be combined in the creation of business communications to provide greater efficiency.

Automatic typewriters

The rapid succession of products for processing words has helped business meet its typeing and editing needs more efficiently. From the advances in equipment in the past few years, five distinct types of automatic typing/editing devices have evolved, each with distinct characteristics.

Paper medium repetitive typewriters. The first repetitive typewriters were sold during World War I. (42:3) These machines used paper rolls and are still used for repetitive typing tasks. The paper roll is run through the machine as many times as needed to type the desired

number of copies of a particular document. Rolls can be programmed to stop at certain points to allow manual keyboarding of items peculiar to that document. (21:44)

With this type of equipment a Guide Letter Book containing all the letters or repetitive texts is usually prepared. When an employee wishes to send a standard letter or use a particular repetitive text, he merely fills out a form, specifying the letter or text by code number, and indicating what variable information should be inserted. As well as using standard paragraphs, the originator can tailor a document to a particular situation by specifying standard paragraphs in whatever order is required, interjecting variable information when necessary.

Paper tape automatic typing machines operate in a similar way as those with paper rolls. The tape, however, is much more fragile than the roll and may not be good for as many letter copies. The advantage of the tape is that it can be stored more compactly than the roll. (21:46)

The major advantage of the automatic repetitive typewriter is its ability to mass-produce letters or other typewritten work at a very low per document cost. Costs for this equipment are usually from $1,500 to $3,000 per unit. (21:43)

Magnetic medium typewriters. Most of the equipment that is used in word processing and is currently in operation are magnetic medium for recording and playback. Prices range from $7,000 to $18,000 for equipment with text-editing capabilities. These units provide features for correction, deletion, insertion, revision, and formatting. (12:56) The recording medium utilized consists of some form of digital recording medium such

as magnetic cards or magnetic tape. A typewriter keyboard is used to
enter the information on the medium. (21:43)

These machines allow the operator to type at a rough draft speed,
correcting errors simply by backspacing and striking over. The incor-
rect characters are then replaced by the new material. Once the material
is recorded on the medium correctly, the machine automatically types a
perfect copy at speeds of 150 words per minute. (36:9) The recorded
medium can then be stored for future reference or reused. Form letters
are often recorded on this equipment and filed for future use.

Magnetic typewriters were originally classified as either single-
or double-station devices. There are some machines on the market, however,
which are single-station machines but give greater flexibility than most
double-station devices. The basic differences between the single- and
double-station devices are described as follows:

> With single-station text editing machines, the document
> is typed on a keyboard similar to that on a regular type-
> writer; certain codes and instructions to the machine are
> either keyed in also by the operator, or are already self-
> contained (programmed) within the medium. Everything needed
> to produce a document is thus contained on the single medium.
> The hard copy produced can be used for author "red pencil"
> editing.
>
> Machine editing is done on conventional models by auto-
> matically playing back a typed document. The typist stops
> the read-out where necessary to make corrections or type in
> any insertions. Deletions are made by "skipping over" recorded
> material.
>
> With a dual-station system, the typist uses the same procedure.
> However, when the first tape or card is reading out prerecorded
> material, and additions or corrections are keyed in by the
> typist, the second station records everything that is typed--
> both the automatically typed read-out and the new keyed material.
> The revised document is stored on the second medium. This "col-
> lating" process can be repeated indefinitely. (21:49)

CRT magnetic typewriters. Machines in this category utilize CRT's (TV tube-like devices) to allow the user to see and correct the copy before it is actually committed on to the media. This type of equipment is often selected for long documents requiring heavy editing.

The basic configuration for CRT magnetic typewriters consists of a CRT and keyboard console for entering the copy, and a printer and logic console which houses the cassette and prints the document. As the material is typed the words appear on the display screen before the typist. An outline of the page also appears on the screen to give the typist an overall picture of how the printed page will look. To correct or erase, the user backspaces and strikes over, and the correction appears on the screen. A cursor (small blinking light) shows the typing location on the screen at all times. (4:32)

Upon completion of a page of typing, the contents of the screen are transferred to a magnetic tape cassette. Paper is then inserted into the typing station, and the station automatically types the first page at 150 words per minute. While the first page is being typed the typist can proceed to type the second page on to the video screen. The capability of this equipment to input and output simultaneously is an advantage of this system. (21:50)

Shared logic text editing. Shared logic text editing systems allow multiple terminals to simultaneously access a common computer's logic and storage. High speed printers and photocomposition equipment make these systems particularly attractive for certain long documents and publication oriented work. (12:56)

Shared logic text editing systems utilize a central minicomputer

to control a number of directly connected typing stations. Stand-
alone devices have a one-to-one ratio between the logic console and
the input-output typewriter or display console work station. Shared
logic systems allow this ratio to increase, in most systems, up to
ten-to-one or higher. The higher the number of stations connected to
the central processor, the lower the cost per work station. (12:56)

The shared text editing services. The principle of time shared
text editing services involves a telecommunications connection to a
remote computer, where words may be processed on a time sharing basis
similar to that of data processing time sharing. Work processing time
sharing makes use of remotely located memories, high-speed printers,
and photocomposition devices. The user pays only for the computer time
actually used, the cost of the terminal, and sometimes a charge for
memory storage. (12:56)

One advantage of time shared service is that original documents
can be typed and edited "on line" and then printed by a line printer
at the central computer facility and delivered by messenger the next
day; therefore, the input terminal and operator are not tied up for
extended periods of time. (21:52) Another advantage of time sharing
is the large memory capacity and elimination of idle time. (11:27)

Dictating equipment

Dictating equipment has evolved from a distinctly separate office
tool into a very vital part of word processing--as much a part as the
typewriter. Dictation equipment enables the author to record his
paperwork at an average speed of 60 words a minute, which is four times

faster than writing in longhand. There are two major categories of
dictating equipment--discrete media machines, and central recorders,
including endless loop systems.

Discrete media machines. Dictating equipment in the discrete media
category use a recording medium which can be stored, moved, mailed, or
switched from a dictation machine to a transcription machine. Typical
media used includes belts, cassettes, disks, and cartridges. These
machines are available in portable, desk, and central recorder models.
(22:56)

Discrete media portable units are distinguished by their mobility.
The media used by the portable unit vary from the standard or mini-
cassette to magnetic or visible belts. Some are interchangeable with
other brands of equipment, while others are exclusive to machines of
one manufacture. (35:34) Ober points out that many companies with
centralized dictation systems also utilize portable units because of
the convenient size and availability. (36:13) Portable models currently
make up one-third to one-half of total dictating equipment purchases.
(22:56)

Discrete media desk-top units are categorized by the function they
perform: dictate only, transcribe only, and combination units. These
units lack the mobility of the portable models, but perform more functions.
Features common to most desk-top machines are: (1) review, dictate, and
start-stop control capabilities; (2) conference capability to record
multiple-person meetings; (3) quick erase for correcting errors; (4) in-
dexing or digital counters to indicate letter length; (5) automatic voice

level control; (6) speed control for use in transcribing; (7) tele-
phone recording capabilities; and (8) remote control microphone.

Central recorders. Central recording systems fall into two basic
categories, determined by the way in which the recording medium is used.
The first category uses magnetic disks, cassettes, or belts, and is
interconnected through a phone system. The second category utilizes
endless loop systems which either are used individually or employ a
phone system. (22:58)

Private wire systems, unlike PBX, do not use Bell System facilities.
A special telephone network connects the word originator to the central
recorder. These systems use handsets with "push to talk" capabilities,
as with desk or portable units. The sets are connected to the central
recorder in one or more of three ways.

1. Nonselector stations are connected to only one recorder.
   If that recorder is busy, the word originator must wait
   until it is free before he can dictate.

2. Manual selector stations are connected to several re-
   corders . . . and the word originator selects a recorder
   which is free for his dictation.

3. Automatic selector stations are connected to several
   joint recorders. When the phone is lifted, the system
   automatically chooses the first free recorder. (22:55)

Another type of central recording system utilizes phone or PBX
systems as opposed to the private wire system. Connection between the
dictator and the recorder is achieved through use of Bell System tele-
phone equipment. Specially designed trunk links give instructions to
the central dictation system as interpreted from rotary signals or Touch-
Tone signals. The recorder then performs basic dictation tasks such as
'record" and "play back." (35:38)

Voice operated relays is one feature of phone or PBX central systems. They activate the recording equipment only when the voice is being projected into the receiver. An advantage of this feature is that the material to be transcribed is consolidated into a fairly continuous flow. (22:59)

The endless loop systems "use multi-hour loops of magnetic tape permanently fixed within a case, accessible via two tape heads placed a few seconds apart from each other." (22:60) Handling of the recording media is completely eliminated. The tape drops into a transcribing channel as it is recorded, and cycles back to the dictation channel after being transcribed. This allows for continual flow of dictation. (35:36)

The endless loop may be used in an individual or centralized system utilizing either a private wire or PBX connection between the word originator and the recorder. The individual loop systems are generally nonselective, whereas the centralized loops are, most often, selective in either a manual or automatic capacity. (22:60)

Central recording areas using endless loop systems are advantageous for heavy olume dictation. This is reflected in the increased complexity and capabilities of the equipment for use in this type of system. (35:42) Another advantage of the endless loop is the capacity for simultaneous dictation and transcription which saves time by eliminating the need to change belts. (36:12)

Implementation of Word Processing

If word processing is to be successful, user employees in the organization must willingly accept and support it. Administrative Management quotes Riland as follows:

> Organizational change is a process which is usually accompanied by almost total emphasis on the logical, financial, and technological reasoning behind it. This process of change, whether the 'scientific management' movement of 50 years ago or the introduction of the computer nearly 20 years ago, often meets its first important resistance when it begins to actually change the work habits and practices of those most involved, the work force affected by the innovation. (8:39)

Companies considering word processing must recognize the need for gradual and well studied implementation. Penzer suggests some ways in which word processing can be introduced.

<u>1</u>. Maintain open communication from the beginning. All personnel should be allowed and encouraged to participate in open discussions concerning the implementation of the new system.

<u>2</u>. Secretaries and users should be involved in developing the plan. People tend to support that which they help create.

<u>3</u>. Allowances for flexibility should be made within the system. Individual differences require different word processing systems.

<u>4</u>. Irrevocable changes should be avoided. The word processing concept should be set up under reasonable rather than perfect conditions.

<u>5</u>. Attitudes as well as performance should be measured. Conventional opinion surveys or interviews should be taken prior to any discussions about word processing with principals or secretaries. The

same instrument should be used approximately six months after the im-
plementation to measure change.

6. Jobs should be designed according to contemporary motivation
principles. Job responsibility and opportunity for accomplishment
should be commensurate with secretarial talent.

7. Professional managers should be trained as well. Word process-
ing managers must be people experts if the new system is to survive.
They should receive specialized word processing management trainings.
(39:58)

Physical facilities

The well thought out location of major elements of an office envir-
onment is desirable for effective operation. A word processing environ-
ment, which consists of work stations built around machines, should
provide worker comfort, efficiency, and attractive surroundings. When
creating a work station or a complete word processing center, close
attention is required to the physical factors that affect personal per-
formance. Of these physical factors, appearance of the facilities is
of great importance. (9:40)

The basic unit of a word processing work station combines the
automatic typewriter with furniture. Some automatic text/editing type-
writers are incorporated with the desk into one unit; others fit on or
in desks, tables, or work surfaces.

Noise control is an important consideration in designing the word
processing work station. Excessive noise in an office situation can
adversely influence the worker's health, attitude, and performance.

One study demonstrated that typists require 19 percent more energy to do their work in a noisy environment than in a quiet one. (5:68)

Noise pollution is a serious problem in a word processing work station because of the automatic text/editing typewriters. Although the noise level that exists cannot be eliminated as easily as noise in a general office environment, the noise level can be reduced by acoustical ceilings, insulated partitions, and carpeting on the floors. A combination of both porous and nonporous materials generally creates a most acoustically controlled environment. (7:15)

One of the most effective noise reducing measures is an acoustical enclosure for the automatic typewriters. Users have reported noise reductions of up to 60 percent with an effective acoustical typewriter enclosure. (9:41) These enclosures of plexiglass permit a complete view of the typewriter in operation and easy access to the typewriter keyboard and platen for inserting or changing paper.

Space requirements vary for work stations or for a word processing center. A minimum of 65 square feet per work station, and 35 square feet for each work take should be allowed. Work stations may be grouped in modular setups on a minimum space. For example, one grouping of four modular desks separated by free-standing sound control partitions occupies less than 150 square feet. (9:41)

Employee attitudes and productivity may be improved by the quality of the work environment. Therefore, it is important that the word processing work station or word processing center have a humane, people-oriented atmosphere where the hardware supports human activity.

Types of word processing systems

There is some controversy concerning the size an office must be
before it can successfully convert from a traditional word processing
system to a more consolidated system. Kleinschrod contends "it is the
big-company approach where the volume of work and the sizeable adminis-
trative savings justify a top-to-bottom revamping of procedures and a
heavy investment in hardware." (30:24)

Although a large company would realize benefits from the adoption
of word processing equipment, McGlynn points out that "This systemiza-
tion of resources can, in one form or another, be implemented produc-
tively in any office in which secretaries spend an average of 40 percent
or more of their time typing." (32:8) Word processing can be put to
work any place in an organization where it effectively raises productivity.
Word processing will fit efficiently in a big administrative center,
in satellite centers, or in one-machine situations. The determinants
are the nature and volume of work, and the way people and departments
are presently organized. (12:59)

Many organizations have not adopted a full-scale word processing
system because they view it as requiring dramatic changes both in
facilities and personnel. However, there are many possible configur-
ations, varying widely in the degree of change required. The essential
factor within the concept of word processing is the systemization of
dictation equipment and magnetic media typewriters into configurations
that take best advantage of employee capacities.

There are four basic types of word processing systems: traditional,

semi-consolidated, consolidated, and remote or computerized systems.

From these four many variations can be developed. (18:67) Kalow points

out that:

> As far as equipment is concerned, all systems assume that
> ideas to be transcribed are to be recorded by machine
> dictation rather than longhand or shorthand. And in all
> systems, it is the volume and complexity of the typing
> that determines the keyboard used--stand-alone electric
> typewriter, stand-alone magnetic keyboard, or communicating
> keyboard inputting work to a computer. Thus equipment is
> not the determinant between the various types of word pro-
> cessing systems. (29:9)

Rather than the equipment it is the personnel practices which

determine the type of word processing system. For example, the tradition-

al method requires a secretary to do all typing and administrative tasks

for one principal, or for him and several other people reporting to him

or working with him. Although this mode is the most prestigious and

favored among executives because of the high level of personalized

service, it is the most expensive to maintain. (28:72) Within the tradi-

tional system there may be specialized centers for handling overflow

work or other office duties. The distinguishing factor of this system

is the generalized job of the secretary and the fact that she reports

directly to the principal for whom she works. (29:9)

A second type of word processing mode appeared in 1967--the semi-

consolidated mode. According to Collins, "Advancements in personnel

and office equipment plus the cost of facilities to handle larger

volumes of communications prompted the introduction of this mode." (18:67)

In a semi-consolidated word processing system, the typing is consolidated

while the balance of the secretarial workload is shared by administrative

secretaries. The administrative secretaries have a variety of duties, while the correspondence secretaries' responsibility for typing is more involved but concentrated in that one area. Again, the personnel structure is the key element. Rather than reporting to the principals they support, both administrative and correspondence secretaries report to secretarial managers. (29:9)

The consolidated word processing system evolved in 1970. (18:67) In this system all secretarial functions are specialized. For example, secretaries may specialize in typing, filing, copying, telephone messages, and other functions. An individual may be responsible for several functions, and there is generally a back-up person trained in these functions. (18:67) Secretarial work is supervised by a central authority. Secretaries report to a center manager. The manager may report to the department manager or to an overall administrative manager. Each principal may work with one secretary who utilizes the specialization of other secretaries to accomplish a task, or the principals may work with each of the specialized secretaries in the center, depending on the requirements of the task. (29:10)

The remote or computerized word processing system differs from the consolidated system in that the personnel are not centralized to manage, control and handle work flow. Rather, the computer is able to provide management with the information required to make possible the desired degree of control in a widely dispersed secretarial force, eliminating the need for a word processing center. (29:10)

Management

Casady points out that a word processing system should include

the following management concepts:

Division of Work involves the creation of specialists (in
typewriting and administrative tasks) where before there
were generalists.

Supervision of Both Types of Specialists refers to the
hour-to-hour and day-by-day professional supervisor of
secretarial activities to replace the traditional office
manager who supervised secretaries part time.

Measurement is designed to achieve a balanced and appro-
priate amount of performance from both types of specialists.

Controls of costs, staffing, promotions, turnaround times,
and quality are incorporated for optimum levels of service
and employee satisfaction, personal fulfillment, and morale.
(17:13)

LaDue stresses the importance of good management of a word process-

ing system as follows:

Management is the key to success or failure of a word
processing system. This is true regardless of the design
of the system or the size or character of the organization
in which it is implemented. Various configurations and
forms of organization may be advantageous in different
situations; some equipment may be superior to others for
a given job; the right procedures and controls are a sig-
nificant factor in productivity; good facilities planning
and design can enhance the overall effectiveness of the
system. But ultimately management controls all of these,
and it is the quality of the management that determines
whether the organization it supports will derive the full
benefits now known to be obtainable. (31:3)

Management structures should serve not only to improve functional

effectiveness often lacking in traditional secretarial roles, but also

to provide incentive for professional growth of participants within

functions. For example, managers within both administrative and corres-

pondence functions can better attend to the following:

Distribution of workload among several secretaries to
meet deadlines without using overtime or temporary help.

Distribution of work to those having the most appropriate
level of skill to handle the jobs.

Effective development of skills resulting in higher produc-
tivity and quality of output.

Exercise of effective cost control over manpower.

Fair and accurace assessment of performance and promot-
ability. (27:27)

Penzer disagrees with the arguments for having professional manage-

ment as an integral part of secretarial word processing. He contends

that "An additional managerial layer fosters dual loyalty and can impose

double standards, where accountability is concerned, upon the secretary."

(39:54) He also feels that the distant relationships perpetuated by

word processing in contrast to the traditional direct contact between

a secretary and her boss has many disadvantages. (39:54)

Training requirements

Well-trained personnel are essential to the success of word pro-

cessing. Dillon believes that "beginning secretaries of the future will

have to be better qualified than at any other time in the history of the

profession." (37:32)

Training for correspondence secretaries who will be operating the

word processing equipment typically receive on-the-job technical training

in equipment techniques, center procedures, and a general review of com-

pany policy and standards. Typists selected for word processing should

have a complete understanding of the automatic typing equipment. The

length of time required to reach competency on the equipment varies with

the manufacturers, but generally two to five days is sufficient depending upon the complexity of the equipment. Training may be given in the user's office or in the manufacturer's office. (10:37)

Secretaries selected for the administrative function, or the non-typing tasks, receive training in use of the word processing center, telephone dictation, letter composition, records management, and management principles. (26:55)

The rotation method utilized by Eastern Airlines in their word processing center integrates training directly with the plan. Training is organized along the same lines as the job assignments. During the first eight weeks new secretaries learn how to operate the magnetic media typewriters at acceptable production levels. Approximately every three weeks thereafter, they are rotated to different administrative functions until they have completed the cycle. (38:7)

Implications for business educators. With word processing becoming more prevalent in the business world, business educators are faced with the responsibility of preparing students to enter the word processing domain. Ober makes the following suggestions for preparing students for word processing:

1. Less emphasis should be placed on shorthand and more on transcription ability. Likewise, less emphasis should be placed on typewriting speed and more emphasis on technical and production typing.

2. If it is not economically feasible to provide the expensive word processing equipment for classroom use, students should at aleast be exposed to machine transcription, not only at the orientation and familiarity levels, but also at the vocational-competence level.

3. An increased amount of class time should be provided
   during the student's terminal business class, whether
   it be second-year shorthand, typewriting, secretarial
   procedures, or something else, for such non-skill
   learning experiences as editing and abstracting copy,
   composing, and handling classified and rush projects.

4. Throughout his business courses the student should be
   exposed, using whatever means and methods available,
   to situations which aid in the development of those
   attitudes and traits which, while not unique to the
   word processing environment, nevertheless are more
   in demand there. These would include the ability to
   work without supervision and under pressure, the
   development of good judgment and initiative, and the
   ability to make decisions and follow through. (37:32)

Secretary's Role

The word processing concept has perhaps had its greatest impact

on the role of the secretary. With the increased productivity made

possible through the use of automated equipment for processing words,

a restructuring of the secretary's occupation has begun.

Career groups

The secretary's job can be divided into two distinct, integrated,

and manageable functions; namely, the correspondence, or typing function,

and the administrative, or nontyping function. These two functions are

usually designated as the word processing function and the administrative

support function, and those performing these functions are called corres-

pondence or administrative secretaries, respectively.

The tasks performed by the two separate secretarial groups vary

in amount and level from company to company--depending on the needs of

the principals. In general, the correspondence secretary is responsible

for typing, transcription, proofreading, and editing. The administra-
tive secretary is responsible for filing, mail handling, telephone,
appointments/calendar, composing, dictation, research, record keeping,
and other duties that the group of executives with whom she works might
assign. "She handles the quasi-professional duties, and her major pur-
pose is to relieve the executive of clerical and routine activities."
(36:21)

Fiore refers to the correspondence function as a "mechanistic func-
tion," and the administrative function as an "organic function." He
further separates the functional characteristics of the secretary's
role as follows. (27:24)

MECHANISTIC (Correspondence of typing activities)	ORGANIC (Administrative or nontyping activities)
Job description easier	Job description more difficult
Input/output more controllable	Input/output less controllable
Problems more predictable	Problems less predictable
Task elements largely psychomotor	Task elements largely cognitive
Independent activity more vital to productivity	Dynamic interaction more vital to productivity
Creativity/innovation areas cir- cumscribed	Creativity/innovation areas less circumscribed
Peer competition visible	Peer competition less visible
Multichannel communication less essential to effedtiveness	Multichannel communication more essential to effectiveness
Stuccess relatively independent of the particular boss sup- ported	Success relatively dependent on the particular boss supported

Fiore also feels that the characteristics of the mechanistic and
organic functions within the secretarial occupation satisfy different
needs through different types of participation on the part of the secre-
tary.

The mechanistic function would be most attractive to the
secretary seeking to derive satisfaction and a sense of
security from a clearly circumscribed on-the-job role.
The organic function would be more attractive to the secre-
tary seeking satisfaction through involvement in higher
risk situations. The mechanistic function pays greater
psychological dividends for some. Others, however, enjoy
the greater freedom offered by the organic function through
lack of structure, control, and predictability in the
situation. It is possible to think of the two functions
in terms of a security/risk trade-off. (27:25)

A study conducted by Casady (17) attempted to identify the factors

in the occupational experiences of magnetic typewriter operators that

are associated with job satisfaction. A sample was drawn from 77 com-

panies in the state of Minnesota that employ magnetic typewriter operators.

The study revealed that magnetic typewriter operators were most satisfied

with the pay and the amount of work they do and with the way their co-

workers get along with each other. The ability to produce a large volume

of error-free work with speed was also a source of satisfaction. Sources

of job dissatisfaction included the dislike or pressure to increase pro-

duction in shorter lengths of time, repetitious work which causes boredom,

and little chance for advancement.

Career opportunities

Traditionally, a secretary's status and salary have been based

primarily on the pay and status of her boss. In contrast, word prosess-

ing is based on viewing the secretary as an independent professional,

whose pay is based on her skills and performance directly. To some

secretaries this independent career status poses a threat of loss of

status.

Surveys have shown that some secretaries rate the one-to-one contact

with the principal as the most satisfying aspect of a job. The prin-
ciple of division of work changes the boss-secretary relationship, the
one-to-one concept, to a more productive operation. Ober points out
that the secretarial staff itself might initially resist the change to
word processing because they see the centralized center as merely a
typing pool and resent the loss of their secretarial status. (37:14)

Simpson stresses the benefit of the career independence of the
individual secretary. The chart below demonstrates his idea of typical
vertical career opportunities in a WP/Administrative Support organiza-
tion. (43:50)

Figure 2. Vertical career opportunities in a WP/administra-
tive support organization

Job enrichment and enlargement

The purpose of job enrichment is to bring greater job satisfac-
tion, commitment, and involvement to the individual worker. This may
be accomplished in several ways including task assignments, rotation
of task assignments, or delegation of authority. Job enrichment allows
employees to exercise varied skills. Fiore states that "The underlying
assumptions are that (1) the employee wants to derive greater need satis-
faction through more varied task assignments, and (2) productivity will
increase as the dynamic interplay of individual with organization in-
creases." (27:26)

A comparison of the characteristics of the correspondence and admin-
istrative functions, coupled with need fulfillment theory, indicates that
job enrichment finds its greatest application in administrative functions.
Fiore believes that:

> Application of this concept of the mechanistic function
> to any large extent, might destroy the character of the func-
> tion, diminish its appeal to the secretary, and generally
> interfere with its productive efficiency. (27:26)

Job enlargement is perhaps a more appropriate concept for application
to the correspondence or mechanistic functions. Through job enlargement
the basic skills exercised remain the same, but the procedures involved
are varied. Fiore believes the application of this concept to the mech-
anistic functions

> . . . provides the benefit of developing increased skill pro-
> ficiency through introduction of greater procedural complexity.
> At the same time, it can provide healthy changes in routine
> and job perspective for secretaries. Conscientious appli-
> cation of job enlargement can also provide the groundwork for
> designing promotional steps within the function (typing assignments

based on level of difficulty of format, vocabulary,
equipment used, speed required, confidentiality, etc.)
(27:26)

As mentioned previously, Eastern Airlines utilized a method whereby

secretaries rotate positions within the word processing system. Ornelas

makes the following statement concerning the effectiveness of this method.

> Involvement and experience in all secretarial roles help
> our secretaries develop mutual understanding and apprec-
> iation for one another's job. By rotating positions, they
> bring to their jobs a fresh point of view that often gener-
> ates improved workflow procedures. Because so many of our
> responsibilities are interrelated, our secretaries feel that
> an improvement at one workstation affects the entire organi-
> zation. (38:7)

One of the outcomes of word processing is the development of employee

loyalty to the organization and its goals rather than to the immediate

superior. Employees identify with the organization as a whole. These

loyalties are or should be developed because each employee has clearly

defined jobs and realistic career opportunities. (14:5)

Word Processing Survey

The degree of success of a word processing/administrative support

operation largely depends upon how the program is initiated. Stevenson

points out that "virtually every major decision made during orientation,

implementation, and operation of the program depends on the information

obtained during initial investigation." (45:44)

Stevenson stresses the importance of setting specific objectives

which should be met through the implementation of word processing. These

objectives might be reduction and control of cost levels, improvement of

service and executive efficiency, expansion of secretarial career
opportunities and job responsibilities, or other such improvements
or changes. Overall objectives should then be more specifically
stated in terms of measurable standards. (45:44)

Simpson states that before any survey can be taken, specific
rules must be established and understood by everyone involved.

> First of all, each group or department or "word origi-
> nators" has two general types of requirements--typing
> and administrative support. After conversion to WP, typ-
> ing will be performed by typing specialists or "corres-
> pondence secretaries." The administrative support tasks
> will be handled by "administrative secretaries." Exactly
> the way this division of work will be achieved is the
> result of the survey. In addition, surveys also enable
> management to determine the qualifications, aptitudes and
> career goals for their secretaries, for later reassignment
> into "administrative secretarial" or "correspondence
> secretarial" jobs. (43:62)

Once objectives have been established and priorities set a survey of
the present operation should be conducted. Through this survey secre-
tarial output can be categorized as either typing or administrative.

A comprehensive survey should include all secretaries, reception-
ists, typists, clerk/typists, clerks, secretarial supervisors, admin-
istrative assistants, floaters, and temporaries. Some manufacturers
of word processing equipment conduct surveys for the prospective buyer
of their products. The survey may also be conducted by an outside con-
sultant educated and trained in this speciality, or by staff members of
the organization. Each of these three alternatives has advantages as
well as disadvantages.

If the survey is conducted internally, the staff of the survey team

is likely to be more knowledgeable about the problems of the organi-
zation. However, staff members are often too close to the situation
and consequently biased. In addition, they often lack the necessary
training for conducting a word processing survey. (45:44)

An outside consultant, educated and trained in word processing,
will most likely be able to obtain accurate, unbiased, and relevant
data. Equipment recommendations will be based on the organization's
needs rather than what the manufacturer has to sell. The disadvantages
of using an outside consultant include the uninvolvement of the office
personnel within the organization, and the cost may be prohibitive.
(45:44)

A survey conducted by equipment manufacturers provides experienced
people to conduct the survey at no cost. However, the equipment solu-
tions may be biased and there may be an emphasis on typing not administra-
tive duties. Again if the manufacturer conducts the study the organiza-
tion's personnel will not learn anything about the word processing/
administrative support concept. (45:46)

The data collected during the survey should give management the
information needed to make an intellectual decision regarding changes
in present word processing operation. Stevenson suggests that a com-
prehensive word processing/administrative support survey must encompass
these basic items:

1. Copies of all documents typed over a two-week period.

2. Analysis, classification, and standards for all documents
   collected.

3. Random sampling of work stations of all personnel included
   in the survey.

4. A task analysis questionnaire which has been completed by the personnel surveyed.

5. Inventory of typewriters, dictation, and telephone equipment. (45:46)

Upon completion of the survey the results should be explained and made available to management for decisions with regard to implementation. According to Stevenson, this report should include the following information: A time distribution summary by department based on random observation of every day staff activity; availability of service, typing workload analysis from document study; source of typing input, type and length of document summary; typing performance analysis in standard hours; error ratios, high and low day typing variations; equipment summary and inventory; administrative workload analysis; floor plan symptoms; level of supervision; level of executive service; work distribution; systems and procedures in use, if any; and secretarial salary distribution comparisons by department. (45:46)

Approaching word processing successfully consists of knowing the kind of work performed, who does the work, and then matching the equipment, procedures, and personnel to complete the tasks most efficiently.

Summary

Word processing is a method of producing written communications at high speed, with increased accuracy, through the combination of procedures, automated equipment, and trained personnel. The secretary's job is divided into two distinct, integrated, and manageable functions; namely, the correspondence, or typing function, and the administrative, or nontyping function.

These two functions are usually designated as the word processing function and the administrative support function, and those performing these functions are called correspondence or administrative secretaries, respectively.

The word processing system was developed as a result of the magnetic typewriter, which was introduced in 1964. All dictation is directed to one or more central transcribing locations where error-free documents can be produced on magnetic typewriters once the dictation is correctly keyboarded at rough draft speeds.

One of the most discussed parts of word processing is the automatic typing and text-editing devices used in the system. Five distinct types of automatic typing/editing devices that have evolved are: automatic repetitive typewriters, magnetic typewriters, CRT magnetic typewriters, shared logic text editing, and time shared text editing services.

Dictating equipment has evolved from a distinctly separate office tool into a very vital part of a word processing system. The three major categories of dictating equipment are: discrete media machines, central recording systems (either discrete media or endless loop), and endless loop systems. An important part of a word processing system is that dictating and transcribing equipment be combined in the creation of business communications to provide greater efficiency.

The degree of success of a word processing/administrative support operation largely depends upon how the program is initiated. Decisions made during orientation, implementation, and operation of the program depends on the information obtained during initial investigation. It

is necessary to know the kind of work performed, who does the work, and then match the equipment, procedures, and personnel to complete the tasks most efficiently.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this chapter is to discuss the methods and pro-
cedures used in conducting the word processing study in selected
general administrative offices at Utah State University.

Population Identification

The offices selected for the study included the office of the
President of the University, Assistant to the President for University
Relations, Assistant to the President for Development and Special Pro-
jects, Provost, Vice Provost, Vice President of Business, and Assistant
Vice President of Business. These offices were elected for the study
because of physical location, budget structure, and lines of authority.
After the offices to be included had been identified, permission was
received from each principal to conduct the survey.

Secretarial workers in the offices included seven secretaries.
five full-time (working 40 hours per week), and two part-time (working
20 hours per week), all of whom participated in the study. The phys-
cial location of the offices separated the secretaries into two work
groups: the President's office (Work Group A), and the Provost's office
(Work Group B). Work Group A consisted of four full-time secretaries;
Work Group B consisted of one full-time secretary and two part-time
secretaries.

Study Instruments

As discussed in the review of literature, word processing surveys
are often conducted by trained personnel employed by the equipment
manufacturers. Therefore, a Marketing Representative of the Office
Products Division of International Business Machines Corporation was
contacted to get permission to review the study instruments used by
IBM Corporation for word processing surveys. The forms were reviewed
and compared with literature relating to work sampling and work measure-
ment in the office.

The survey instruments used included a Word Processing Question-
naire (Appendix A) and a Typing Category Count (Appendix B). A Word
Processing Questionnaire was completed by each secretary. This ques-
tionnaire collected information regarding the typing and administrative
tasks of the workers. The Typing Category Count required the secretar-
ies to record for each typing job the number of lines typed, the finished
format, the origin, and a description of the document produced. Space
was provided for recording total hours spent typing and total hours spent
preforming administrative tasks, each of which was recorded and described.

The Typing Category Count was pilot tested in the office of Student
Services at Utah State University for a period of one week. During that
time the two secretaries participating in the pilot were contacted fre-
quently to clarify any misunderstandings in the recording of work. A
problem identified during the pilot involved some misunderstanding as to
what constituted repetitive typing. No other problems were encountered.

Data Collection

There are many ways of performing work sampling and work measure-
ment in the office. Pomeroy states that "having the operator keep the
records is the most practical means for procuring time data and produc-
tion count." (41:77) According to the authors of Business Systems, two
week is an adequate period of study in an employee reporting approach.
(2:310) Based on these statements, an employee reporting approach was
used and conducted during two nonconsecutive weeks.

A prestudy meeting was held on April 5, 1974. All secretaries
participating in the study were asked to be present. Two secretaries
were unable to attend and were given instructions individually. A
Marketing Support Representative from IBM Corporation was present at
the meeting and explained how the Typing Category Count was to be kept.

The secretaries were instructed to record their work frequently
throughout the day, and immediately upon completion of each typing and
nontyping task, if possible. Each document typed was to be recorded on
the Typing Category Count, described in meaningful terms to the individual
secretary, and the total lines typed recorded in the appropriate column
depending upon the origin and finished format of the document. Instruc-
tions were given to the secretaries to record all nontyping tasks performed,
describing the task and the time required for its completion.

The seven participating secretaries recorded their daily work during
the weeks of April 8, 1974, and April 22, 1974. Each secretary was con-
tacted periodically during the two weeks to answer questions concerning
the recording of work. At the end of the second week, each secretary was

interviewed personally at which time the Typing Category Count and the Word Processing Questionnaire that had been completed by each worker were reviewed and checked for completeness. Unclear information recorded by each secretary was clarified. All forms were then collected for analysis.

Data Analysis

Data collected on the Word Processing Questionnaire and the Typing Category Count were organized as it related to the organizational structure of the offices studied, position profile of the workers, productivity, and equipment. Tables were then prepared from the data and the information was evaluated and interpreted. The findings along with the implications and recommendations derived from this study are presented in the remainder of this thesis.

CHAPTER IV

FINDINGS

The findings of the word processing study conducted in the
President's office and the Provost's office at Utah State University
are presented in this chapter. The data collected on the Typing Cate-
gory Count, Word Processing Questionnaire, and the information obtained
during the personal interview can be considered a representative sample
of the work being performed in the offices studied. This information
is presented and discussed as it relates to the organizational struc-
ture, positon profiles, productivity, and equipment.

Organizational Structure

As presented in Figure 3, page 47, the offices included in the
study consisted of six principals and seven secretaries. The President,
Provost, Vice President of Business, and Assist Vice President of Bus-
iness each had a full-time secretary. The Assistant to the President
for University Relations and the Vice Provost each had a part-time
secretary (working 20 hours per week). The secretary to the President
was also the immediate supervisor of a full-time secretary.

Because of the physical location the seven secretaries were separated
into two work groups. Four full-time secretaries working in the Presi-
dent's office were designated as Work Group A. One full-time and two
part-time secretaries in the Provost's office were designated Work Group
B.
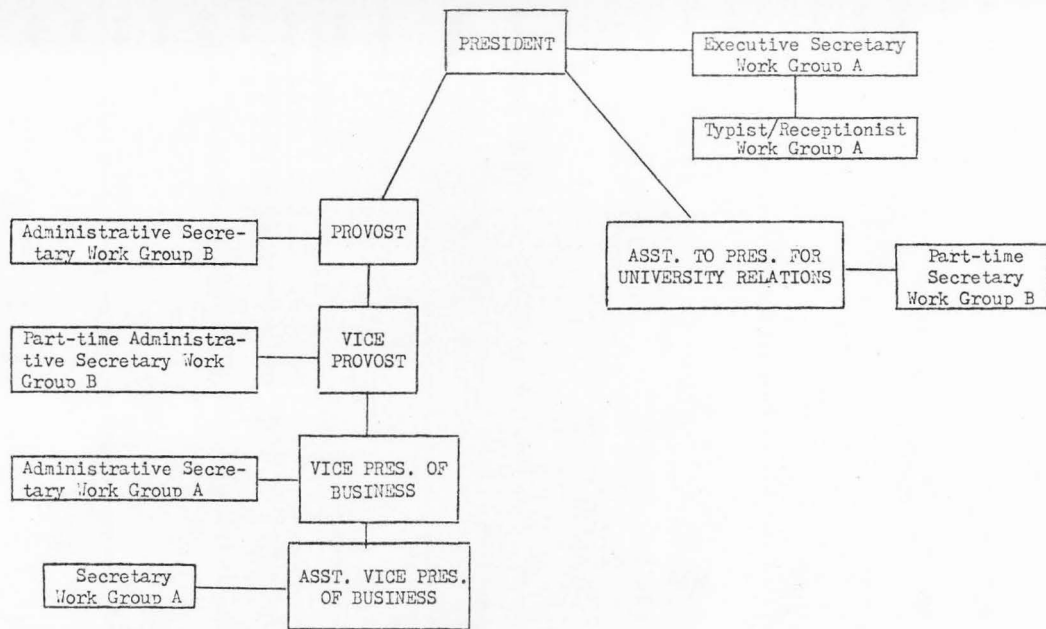
Figure 3. Organizational structure of personnel in offices studied

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The secretaries were grouped according to physical location in the offices studied rather than according to the organizational structure. Principals in the President's office (Work Group A) were the President, Vice President of Business, and Assistant Vice President of Business. Work Group B principals were the Provost, Vice Provost, and Assistant to the President for University Relations.

The data in Table 1 show the length of time each worker had been working for the University and the length of time on that particular job. Worker 1-A had worked for the University for 18 years and had been at her present position for 10 years. Worker 4-A reported the shortest length of time working for the University and at her present job, having been on the job only 2 days at the time the study was iniated.

Table 1. Length of time employed by the University and length of time at present job

Worker	Length of time with University	Length of time at present job
1-A	18 years	10 years
1-B	20 years	4 years
2-A	6 years	6 years
2-B	4 years	4 years
3-B	9 months	9 months
3-A	6 months	6 months
4-A	2 days	2 days

Position Profile

The typing and nontyping tasks most often recorded on the Word Processing Questionnaire and Typing Category Count were as follows: consultation with principal, copying and duplicating, errands, filing, mail, preparing back-up material, proofreading and editing, receptionist, scheduling, shorthand, and telephone. Tables 2 and 3 show the number of hours and percentage of time spent on each task by workers in Work Group A and Work Group B, respectively.

Each worker performed a variety of tasks during the study period. Of the nontyping tasks, the telephone and mail generally required the most time. Because of a special project being completed during the first week of the study, the tasks listed as "other" amounted to a rather large percentage of the total for some workers. No time was spent on errands during this particular sampling period.

The total hours spent typing and the total hours spent on administrative duties for each secretary are shown in Table 4. Five of the seven secretaries spent a majority of their time performing administrative tasks. Worker 1-B spent 51 hours (87.9 percent) performing administrative duties and 7 hours (12.1 percent) on typing tasks. Worker 3-A spent the most time typing, totaling 41 hours (51.9 percent) and 38 hours (48.1 percent) performing administrative duties. Total hours for the combined work groups were 148 hours (30.8 percent) typing and 333 hours (69.2 percent) administrative.

Table 2. Time spent by secretaries in Work Group A performing typing and administrative tasks

Task	Worker 1-A Hours	Worker 1-A Percent	Worker 2-A Hours	Worker 2-A Percent	Worker 3-A Hours	Worker 3-A Percent	Worker 4-A Hours	Worker 4-A Percent	Total Hours	Total Percent
Consultation with principal	5	6.2	2	3.1	0	0.0	2	2.5	9	3.0
Copy/duplicating	0	0.0	3	4.7	6	7.6	1	1.2	10	3.3
Errands	0	0.0	0	0.0	8	10.1	2	2.5	10	3.3
Filing	2	2.5	3	4.7	1	1.3	2	2.5	8	2.6
Mail	13	16.3	4	6.3	7	8.9	4	5.0	28	9.3
Preparing back-up material	6	7.5	2	3.1	0	0.0	0	0.0	8	2.6
Proofreading and editing	6	7.5	1	1.6	3	3.7	4	5.0	14	4.6
Receptionist	2	2.5	1	1.6	0	0.0	8	10.0	11	3.6
Scheduling	5	6.2	2	3.1	0	0.0	3	3.8	10	3.3
Shorthand	0	0.0	14	21.9	0	0.0	12	15.0	26	8.6
Telephone	16	20.0	10	15.6	6	7.6	4	5.0	36	11.9
Typing	11	13.8	19	29.6	41	51.9	30	37.5	101	33.3
Other	14	17.5	3	4.7	7	8.9	8	10.0	32	10.6
Total	80	100.0	64	100.0	79	100.0	80	100.0	303	100.0

Table 3. Time spent by secretaries in Work Group B performing typing and administrative tasks

Task	Worker 1-B		Worker 2-B		Worker 3-B		Total	
	Hours	Percent	Hours	Percent	Hours	Percent	Hours	Percent
Consultation with principal	1	1.7	8	10.0	1	2.5	10	5.6
Copying/duplicating	3	5.2	2	2.4	2	5.0	7	3.9
Errands	0	0.0	1	1.3	0	0.0	1	.6
Filing	5	8.6	2	2.4	2	5.0	9	5.1
Mail	6	10.3	3	3.8	3	7.5	12	6.7
Preparing back-up material	6	10.3	8	10.0	0	0.0	14	7.9
Proofreading and editing	3	5.2	1	1.3	3	7.5	7	3.9
Receptionist	0	0.0	6	7.5	0	0.0	6	3.4
Scheduling	2	3.5	7	8.8	2	5.0	11	6.2
Shorthand	0	0.0	0	0.0	0	0.0	0	0.0
Telephone	10	17.2	16	20.0	3	7.5	29	16.3
Typing	7	12.1	20	25.0	20	50.0	47	26.4
Other	15	25.9	6	7.5	4	10.0	25	14.0
Total	58	100.0	80	100.0	40	100.0	178	100.0

Table 4. Typing and administrative hours per worker in a two-week
          period

Worker	Typing hours	Percent	Administrative hours	Percent
1-A	11	13.8	69	86.2
2-A	19	29.7	45	70.3
3-A	41	51.9	38	48.1
4-A	30	37.5	50	62.5
1-B	7	12.1	51	87.9
2-B	20	25.0	60	75.0
3-B	20	50.0	20	50.0
Total	148	30.8	333	69.2

Productivity

Each secretary was asked to estimate the percentage of time she
spent typing in an ordinary day. Table 5 shows the estimated time as
reported by the secretaries. Worker 1-A reported 20 percent of her time
was spent on typing tasks, which was the lowest figure reported. Worker
3-A reported that she spent 70 percent of the time typing. The other
workers estimated that they typed 30 or 40 percent of the time.

Comparison of the estimated percent of time spent typing and the
actual percent of time spent typing during the two-week study period re-
vealed that Worker 3-B was the only worker to underestimate the amount of
time spent typing. Worker 2-A estimated that she typed 30 percent of the
time, and actually typed 29.7 percent of the total hours she worked during
the study period. Differences in the estimated percent of time spent

typing and the actual time spent typing ranged from about 3 percent to
19 percent.

Table 5. Estimated percent of time spent typing

Worker	Estimated percent of time spent typing
3-A	70.0
4-A	40.0
3-B	40.0
2-A	30.0
1-B	30.0
2-B	30.0
1-A	20.0

The data in Table 6 indicate the kinds of typing done as reported
by each worker. Six of the seven secretaries reported that they type
correspondence and copy from previously typed material. The next kind
of typing most frequently done was copy to be printed. None of the
workers reported typing spirit master, offset masters, checks, justified
copy, or stencils.

The data in Table 7 show the number and percent of the workers who
perform specific typing tasks for which word processing equipment (mag-
netic typewriters) is especially advantageous. All of the workers indicated
they they prepared rough drafts. In fact, Worker 1-A did not do typing
other than rough drafting of letters for retyping by another worker. Five
of the seven secretaries indicated that they did revision and retyping

Table 6. Reported kinds of typing done

Kind of typing	No. answering yes	Percent of 7
Correspondence (internal and external)	6	85.7
Copy from previously typed material	6	85.7
Copy to be printed	5	71.4
Form letters	3	42.9
Statistical typing	3	42.9
Billing	2	28.6
Fill-ins	2	28.6
Spirit masters	0	0.0
Offset masters	0	0.0
Checks	0	0.0
Justified copy	0	0.0
Stencils	0	0.0

Table 7. Specific typing tasks for which word processing equipment
may be advantageous

Typing task	No. answering yes	Percent of 7
Preparation of rough drafts	7	100.0
Revision or retyping	5	71.2
Typing from a book of standard paragraphs or pages	0	0.0

work. None of the secretaries did typing from a book of standard para-
graphs or pages.

In allowing for methods of input used by word originators that might
not be employed during the study period, workers were asked to indicate
how documents they typed originated. Table 8 shows the methods of input
used as reported by secretarial workers. None of the workers in Work
Group A reported machine dictation or longhand as methods of input, while
all workers in Work Group B indicated that both longhand and machine dic-
tation were used in the Provost's office.

Table 8. Reported methods of input used by word originators

Method of input	Worker response						
	1-A	2-A	3-A	4-A	1-B	2-B	3-B
Longhand	no	no	no	no	yes	yes	yes
Shorhand	yes	yes	no	yes	yes	no	yes
Machine dictation	no	no	no	no	yes	yes	yes
Typed work	no	no	yes	no	yes	yes	no

The total lines typed per worker during the two-week study period
from longhand, shorthand, machine dictation, copy type and revision is
shown in Table 9. The average line contained 12 words. A total of 9035
lines was typed by all workers combined. Of the 9035 total lines typed,
36.8 percent was from copy type, 17.2 percent from shorthand, 14.7 percent
from revision, 13.0 percent from self composition, 10.1 percent from
machine dictation, and 8.2 percent from longhand.

Table 9. Lines typed per worker in a two-week period from various methods of input

Worker	Longhand	Shorthand	Machine dictation	Self com-position	Copy type	Revision	Total
3-A	267	0	0	0	3148	0	3415
1-B	0	0	135	797	0	774	1706
4-A	0	917	0	28	97	280	1322
3-B	190	0	682	0	80	40	992
2-A	0	692	0	44	0	178	851
2-B	286	6	98	53	0	54	497
1-A	0	0	0	252	0	0	252
Total	743	1552	915	1174	3325	1326	9035
Percent	8.2	17.2	10.1	13.0	36.8	14.7	100.0

Table 10 shows the format in total lines of the typing completed during the study period. Classifications of format included text, statistical, forms, or other. Correspondence would be an example of a typed document classified as text. Those documents requiring tables or considerable typing of numbers or symbols were classified statistical. Documents classified as forms were pre-printed and required fill-in typing. Typing that could not be classified as one of these three were classified as other. Of the 9035 total lines typed, 99.1 percent was text, .1 percent statistical, .2 percent forms, and .6 percent other.

Table 11 shows the total lines typed for all workers combined by document origin and format. Of the 743 total lines typed from longhand, 733 were text and 10 statistical. Of the self composed lines typed, 1121

Table 10. Format of total lines typed per worker in a two-week period

Worker	Document format				
	Text	Statistical	Forms	Other	Total
3-A	3415	0	0	0	3415
1-B	1706	0	0	0	1706
4-A	1322	0	0	0	1322
3-B	972	0	20	0	992
2-A	851	0	0	0	851
2-B	434	10	0	53	497
1-A	252	0	0	0	252
Total	8946	10	20	53	9035
Percent	99.1	.1	.2	.6	100.0

were text and 53 categorized as other. From machine dictation 895 lines
of text were typed and 20 lines classified as forms. Table 11 also shows
all lines originating from revision, copy type, and shortland were text
in format.

Table 11. Document origin and format of total lines typed

| Document origin | Document format | | | | | | | | Other lines typed |
	Text	Percent	Statis-tical	Percent	Forms	Percent	Other	Percent	
Copy type	3325	100.0	0	0.0	0	0.0	0	0.0	3325
Shorthand	1552	100.0	0	0.0	0	0.0	0	0.0	1552
Revision	1326	100.0	0	0.0	0	0.0	0	0.0	1326
Self composed	1121	95.5	0	0.0	0	0.0	53	4.5	1174
Machine dictation	895	97.8	0	0.0	20	2.2	0	0.0	915
Longhand	733	98.7	10	1.3	0	0.0	0	0.0	743
Total	8952	99.1	10	.1	20	.2	53	.6	9035

Table 12 shows the number and percentage of the total lines typed that were repetitive or revised. Of the 9035 total lines typed, 1325 were revised lines and 846 repetitive lines. Twenty-four percent of the total lines typed were revised or repetitive in nature.

Table 12.   Total lines of typing that were repetitive or revised

Item	Number
Total lines of typing	9035
Total revised lines	1325
Total repetitive lines	846
Percent of total lines revised or repetitive	24.0

Table 13 indicates that the average typing rate for the secretaries studied was 12.2 words per minute. This was based on the 9035 total lines typed (average 12 words per line) and the 148 total hours spent typing by all workers combined.

In determining the turnaround time for typing jobs, each secretary was asked how much time she was allowed to complete a typing task. Although the size of the job would affect the length of time necesary for completion, the following time limits were given as averaged. Four of the seven workers were allowed 24 hours or less to complete a typing job. Two reported that the word was due immediately, or as soon as possible, and one was allowed more than 24 hours for completion of a typing job.

Table 13. Average typing rate for secre-
taries studied

Item	Number
Total lines of typing	9035
Total typing hours	148
Average typing rate in words per minute	12.2

Workers reported that they occasionally had to work overtime to
complete special projects or to complete routine tasks which were not
finished because of answering telephones, working on special requests,
and unexpected duties. The required overtime work was apparently not
due to backlogs in typing. Of the seven secretaries, four reported
that they did work overtime occasionally and three reported not being
required to work overtime. Although some workers from both Work Groups
reported working overtime, both part-time secretaries often worked more
than 20 hours per week.

Equipment

Table 14 shows the makes and trade-in values for the typewriters
that were used in the offices studies. The listed trade-in value for
each typewriter was obtained from the IBM Typewriter Sales Office in
Logan, Utah. Six of the seven secretaries were using IBM Executive type-
writers. One secretary had an IBM Selectric II typewriter.

Only the Provost's office was using dictating equipment in the

Table 14. Inventory of typewriters used in
offices studies

Make	Listed trade-in value
IBM Executive	$225.00
IBM Executive	200.00
IBM Executive	225.00
IBM Executive	225.00
IBM Executive	225.00
IBM Executive	225.00
IBM Selectric II	250.00

communications process. Each principal--Provost, Vice Provost, and
Assistant to the President of the University Relations--used a portable
Norelco mini-cassette dictating machine. There were also two IBM belt-
type dictating machines (Model 224) used by the Provost and the Vice
Provost. Worker 1-B and Worker 2-B shared an IBM Executory (Model 212)
transcribing machine. Worker 3-B used a Norelco unit with dictating and
transcribing capabilities.

Attitudes of Workers

As mentioned in the review of literature, word processing is often
threatening to secretarial workers because it sometimes means a change
in existing relationships between principals and secretaries. Also, the
fact that productivity is being measured may create negative attitudes.
Although the principals had given their approval of the study, the atti-
tudes and cooperation of the secretaries ranged from very good to rather
poor.

It was evident that some secretaries did not follow directions as given for recording their work. Careful analysis of the data collected revealed that the reported amount of time spent typing was inaccurate in some cases. Some workers reported spending less time than was probably spent on typing tasks. Certain typing jobs that were completed were not recorded in terms of total lines, origin, or format. A statement was written on the Typing Category Count form indicating that a particular job had been completed that required some typing. When questioned later the secretaries were not able to recall the specific data needed for the study.

The fact that there were inconsistencies in the data collected on the Typing Category Count may have some effect on the implications and recommendations made from this study.

Summary

The offices included in the study consisted of six principals and seven secretaries. Principals in the President's office were the President of the University, Vice President of Business, and Assistant Vice President of Business. Four full-time secretaries (Work Group A) were employed in the President's office. Principals in the Provost's office were the Provost, Vice Provost, and Assistant to the President for University Relations. One full-time and two part-time secretaries (Work Group B) worked in the Provost's office.

Each secretary performed a variety of duties--both typing and administrative. Administrative or nontyping duties most often performed were

consultation with principal, copying and duplicating, errands, filing, mail, preparing back-up material, proofreading and editing, receptionist, scheduling, shorthand, and telephone. A total of 148 hours was spent by all secretaries combined on typing tasks and 333 hours on administrative tasks during the two-week study period.

A total of 9035 lines of typing was completed by all workers combined during the two weeks. Ninety-nine percent of the typing completed was classified as text in format. Several methods of input were used by word originators of which 36.8 percent of the total typed lines was from copy type, 17.2 percent from shorthand, 14.7 percent from revision, 13.0 percent from self composition, 10.1 percent from machine dictation, and 8.2 percent from longhand.

Six of the seven secretaries used IBM Executive typewriters. Worker 4-A used an IBM Selectric II. Only the Provost's office used dictating equipment in the communications process.

Implications and recommendations based on the finding are presented in the remainder of this thesis.

CHAPTER V

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The final chapter of this study includes: (1) a summary of the purposes of the study, a description of the research procedure employed, and the major findings; (2) implications based upon the findings; and (3) recommendations.

Summary

If a word prosessing system is to meet the needs of those it serves, a survey of existing productivity, level of service, utilization of time and human resources is imperative. The purpose of this study was to analyze the present word processing system in selected general administrative offices at Utah State University and to provide the data necessary for the design of a word processing system that will best fulfill the needs of the offices studied.

Population identification

The offices selected for the study included those of the President of the University, Assistant to the President for University Relations, Assistant to the President for Development and Special Projects, Provost, Vice Provost, Vice President of Business, and Assistant Vice President of Business. Secretarial workers in these offices included seven secretaries—five full-time (working 40 hours per week) and two part-time (working 20 hours per week).

Instruments used

The instruments used to gather data to be used in determining current productivity and the nature of the work performed in the offices studied were: (1) a Word Processing Questionnaire, and (2) a Typing Category Count. Permission was given by IBM Corporation to use the Word Processing Questionnaire and the Typing Category Count form. Sufficient quantities of the forms were supplied by IBM Corporation for use in the study.

The Word Processing Questionnaire obtained general data on secretarial job and company characteristics not obtained by the Typing Category County (e.g., immediate supervisor, length of time with firm, percent of time spent typing, kinds of typing, kind of typewriter, nontyping duties). A questionnaire was completed by each of the seven secretaries participating in the study.

The Typing Category Count was used to collect specific data related to typing and administrative duties performed during the two-week study period. A record was kept by each secretary of all documents typed (e.g., document origin, format, description, total typed lines). Each administrative duty performed was also described and the time required for completion of the task recorded.

Collection and analysis of data

A prestudy meeting was held April 5, 1974, during which five of the seven participating secretaries were given instructions for completing the Word Processing Questionnaire and the Typing Category Count. Two secretaries unable to attend the meeting were given instructions individually.

Each secretary recorded her daily work for two nonconsecutive weeks. At the end of the second week each secretary was personally interviewed, and the completed forms were reviewed and clarified.

Tables were prepared from the data obtained on the Word Processing Questionnaire, Typing Category Count, and the personal interview. This information was then evaluated and interpreted.

Major findings

The major findings of the study are discussed as they relate to the organizational structure, position profile, productivity, and equipment.

Organizational structure. The offices included in the study consisted of six principals and seven secretaries. The President, Provost, Vice President of Business, and Assistant Vice President of Business each had a full-time secretary who performed both typing and administrative duties. The Assistant to the President for University Relations and the Vice Provost each had a part-time secretary (working 20 hours per week) who performed typing and administrative duties. The secretary to the President was also the immediate supervisor of a full-time secretary whose primary responsibilities involved typing.

Position profile. The length of time employed in present position as reported by the secretaries ranged from two days to ten years. Although those secretaries employed four years or more assumed the majority of the administrative duties, each of the seven secretaries performed both typing and administrative tasks.

The administrative duties most often performed were: consultation with

principal, copying and duplicating, errands, filing, mail, preparing
back-up material, proofreading and editing, receptionist, scheduling,
shorthand, and telephone. Of these nontyping tasks, the telephone and
mail generally required the most time.

The total hours spent typing by all secretaries combined was 148
hours during a two-week period. A total of 333 hours was spent on ad-
ministrative tasks by the groups combined. Five of the seven secretaries
spent the majority of their time on administrative tasks, ranging from
62.5 percent to 87.9 percent of the total hours worked individually.
Two of the seven secretaries spent half or more of their time typing.
Worker 3-A spent 51.9 percent of the time typing, which was the most
time spent typing by any of the workers.

Productivity. A total of 9035 lines of typing was completed by
all workers combined during the two-week period of study. Slightly over
99 percent of all lines typed were text in format. The remaining portion
was classified as .6 percent other, .2 percent forms, and .1 percent sta-
tistical. Of the 9035 lines completed, 1325 lines were revised and 846
lines were repetitive—amounting to 24 percent of the total lines typed.

Methods of input included longhand, shorthand, machine dictation,
self composition, copy type, and revision. Secretaries in Work Group A
reported that longhand and machine dictation were seldom or never used as
methods of input, while Work Group B reported that these methods were com-
monly used in their office. Of the input methods actually used during
the study period 36.8 percent of the total typing was from copy type, 17.2
percent from shorthand, 14.7 percent from revision, 13.0 percent from self

composition, 10.1 percent from machine dictation, and 8.2 percent from longhand.

Equipment. Six of the seven secretaries used an IBM Executive type-writer. Worker 4-A used an IBM Selectric II. Dictating equipment was being used only in the Provost's office. Principals in this office (Pro-vost, Vice Provost, Assistant to the President for University Relations) used portable Norelco cassette dictating machines. Two IBM belt-type dictating machines were also used by the Provost and Vice Provost. Workers 1-B and 2-B shared an IBM Executory transcriber and Worker 3-B used a Norelco dictating/transcribing machine.

Implications

This study was concerned with analyzing the present word processing system in selected general administrative offices at Utah State University. Implications of the findings will be discussed as they relate to (1) present strengths and weaknesses in the existing word processing system, (2) dictating and transcribing equipment which would relieve any existing deficiencies, (3) changes in the present job descriptions of secretaries which would facilitate greater efficiency.

Strengths and weaknesses of present system

The present word processing system in the offices studied is a traditional system requiring one secretary to do all typing and administrative tasks for one principal. The large proportion of time spent by five of the seven secretaries on administrative duties suggests that each principal feels confidence in his personal secretary and is willing to delegate much of his

clerical and routine activities to her. The administrative support present in the offices studied makes possible a savings of the principal's time because of the quasi-professional duties performed by the secretarial workers.

A distinguishing factor of the traditional word processing system is the generalized job of the secretary. Because each secretary performed a variety of administrative and typing tasks, a duplication of effort was evident. For example, each of the seven secretaries reported spending time on tasks such as mail, telephone, and filing. It may be implied that considerable time is lost when secretaries are frequently changing from one job to another.

A major weakness in the present word processing system is the absence of dictating equipment for input. Data collected during the study period revealed that only 10.1 percent of the total lines typed originated from machine dictation. Dictating equipment was used only in the Provost's office. Methods of input used in the President's office were most often shorthand and composition at the typewriter (rough drafted by Worker 1-A to be retyped in final form by Worker 3-A). Based on the data collected on the Typing Category County, input by Worker 1-A was at a rate of approximately 6 words per minute. According to the literature, this rate could be increased to 60 words per minute with the use of a dictating machine.

Dictating and transcribing equipment. Changes in the present dictating and transcribing equipment could relieve some of the existing deficiencies in the word processing system used in the offices studied. All word originators should use dictating equipment whenever possible as a

method of input into the system. In addition, the dictating equipment should be standardized allowing the recorded medium to be interchangeable.

The amount of typing completed during the two weeks would justify the addition of one magnetic typewriter. The need for each secretary to have a typewriter would, therefore, be eliminated.

Job descriptions. Position titles reported by the secretaries included: executive secretary, administrative secretary, secretary, and typist/receptionist. Data collected during the study showed that the administrative secretary performed many typing tasks, and the typist/receptionist performed several nontyping tasks other than those relating to receptionist. More specialization of secretarial jobs would seem warranted with a more distinct separation of the secretarial functions-- administrative and correspondence.

Recommendations

The following recommendations have been determined as a result of the findings and implications of this study.

1. The traditional word processing system should be replaced by a semi-consolidated word processing system. The typing functions should be consolidated, while the balance of the secretarial workload is shared by administrative secretaries. Rather than reporting to the principals, secretaries--both administrative and correspondence--should report to secretarial managers.

2. Changes in job descriptions resulting from the implementation of a semi-consolidated word processing system should be as follows:

a. Two administrative secretaries responsible to the principals in the President's office--President, Vice President of Business, and Assistant Vice President of Business.

b. Two administrative secretaries responsible for the principals in the Provost's office--Provost, Vice Provost, and Assistant to the President for University Relations.

c. Two correspondence secretaries responsible for all typing and typing-related tasks.

3. One magnetic typewriter is feasible for the amount of typing completed in the two offices combined. A typewriter in the category of a stand-alone mechanical text editing device with a magnetic card or cassette recording medium should be installed. One worker should be designated as the operator of this equipment, and one worker should handle overflow work on an electric typewriter.

4. A central recorder dictating system should be installed. All material that can be dictated should be channeled to the central recorder via private wire.

5. Because of worker attitudes regarding this study, further study should be completed to test the reliability of the data collected in this survey.

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APPENDIX A

WORD PROCESSING QUESTIONNAIRE

(For Everyone Using a Typewriter)

YOUR NAME _____ IMMEDIATE SUPERVISOR _____

FOR WHOM DO YOU TYPE? _____

How long have you worked for this firm? _____ How long have you been on this job? _____

Is typing your primary job? _____ How much time? _____

Check the kind of typing you do:

___ Internal correspondence	___ Statistical typing
___ Spirit Masters	___ Off-set Masters
___ Form Letters	___ Checks
___ Copy to be Printed	___ Justified Copy
___ Billing	___ Stencils
___ Fill-ins	___ Copy from previously typed material

What kind of typewriter do you have? _____ What kind of transcriber? _____

Is your typewriter manual or electric? _____

Do you ever have to work overtime? ___ How often? ___ For how long? _____

In what form do you get your work? Longhand ___ Shorthand ___ Machine Dictation ___ Typed work ___

Is your work ever revised & returned to you for retyping? _____

Do you ever prepare rough drafts? _____

Do you ever type documents from a book of standard paragraphs or pages? _____

Are you allowed to erase on most of your work? _____

What is the normal deadline for the typing you do? _____

Do you proofread your own work? ___ If so how many hours a day on this? ___ If not, who does? ___

What are your other duties besides typing (please list all)

_____

_____

Suggestions

APPENDIX B

DEPARTMENT _____ **SUPERVISOR** _____

IBM

Typing Category Count

DOCUMENT DESCRIPTION	DOCUMENT ORIGIN (WHO) (WHERE)	EXTERNAL	LONGHAND				SHORTHAND				MACHINE DICTATION				SELF COMPOSED				COPY TYPE				REVISION				REPETITIVE
			Text	Stat	Forms	Other	Text	Stat	Forms	Other	Text	Stat	Forms	Other	Text	Stat	Forms	Other	Text	Stat	Forms	Other	Text	Stat	Forms	Other	
Welcome Letter	Foley	✓	16																								
Marketing Summary	Jones			11																							
Product Review Letter	Carey								10																		
Proposal - Smith Co.	Jones	✓									23																
Thank You Letter	Cust. Inquiry	✓													13												13
Preferred Vendor List	Wilson																			11							
Welcome Letter	Foley	✓																					14				

SELF COMPOSED — DOCUMENTS CREATED AND TYPED BY YOU

COPY TYPE — DOCUMENTS TYPED FROM PREVIOUSLY PRINTED OR TYPED COPY

REVISION — CHANGES TO PREVIOUSLY TYPED COPY REQUIRING RE-KEY-BOARDING

TOTALS

DOCUMENT DESCRIPTION	DOCUMENT ORIGIN (WHO) (WHERE)	EXTERNAL	LONGHAND				SHORTHAND				MACHINE DICTATION				SELF COMPOSED				COPY TYPE				REVISION				
			Text	Stat.	Forms	Other	Text	Stat.	Forms	Other	Text	Stat.	Forms	Other	Text	Stat.	Forms	Other	Text	Stat.	Forms	Other	Text	Stat.	Forms	Other	
		35																									
		36																									
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		48																									
		49																									
TOTALS		50																									

FOR IBM USE ONLY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
TYPING CATEGORY COUNT TOTALS																									
PRE-RECORDED TOTALS																									
SPECIAL REQUEST TOTALS																									

POSITION PROFILE

INSTRUCTION: The Position Profile asks that you separate your job responsibilities into two areas - Administrative Duties and Periodic Administrative Requirements. This Position Profile will describe your job responsibilities for this work week.

HOURS/WORK WEEK
Admin. _____ + Typing _____ = Total _____

ADMINISTRATIVE DUTIES	DESCRIPTION OF TASK	HOURS PER WEEK
COPYING/DUPLICATING		
SHORTHAND		
FILING		
TELEPHONE		
MAIL		
PROOFREADING		
OTHER DUTIES (DESCRIBE)		
TOTAL ADMINISTRATIVE HOURS/WEEK		

PERIODIC ADMINISTRATIVE/TYPING TASKS _____

SUGGESTIONS FOR IMPROVEMENT

SUMMARY QUESTIONS

REVISION % _____

CYCLES OF REVISION _____

VARIABLE % _____

VITA

Lynnette T. Nielson

Candidate for the Degree of

Master of Science

Thesis: An Analytical Study of Word Processing in Selected Adminis-
trative Offices at Utah State University

Major Field: Business Education

Biographical Information:

Personal Data: Born at Logan, Utah, December 26, 1950,
daughter of James Perry and Norma Meyers Thorne;
married M. Scott Nielson September 17, 1970; one child--
Brandon.

Education: Attended elementary school in River Heights, Utah;
graduated from Sky View High School, Smithfield, Utah,
in 1969; received the Bachelor of Science degree from
Utah State University, Logan, Utah, in 1973, with a major
in business education.

Professional Experience: 1973-74, taught as graduate assistant
in Business Education Department at Utah State University,
Logan, Utah.