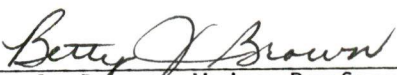
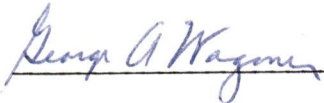


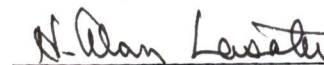
To the Graduate Council:

I am submitting herewith a thesis written by Kathryn Keeble Snodgrass entitled "The Relationship of Selected Academic and Work Experience Background Factors to Success of New Candidates on the 1978 Certified Professional Secretary Examination." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Business Education.

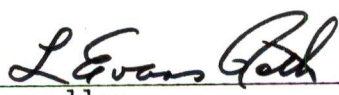

Betty J. Brown, Major Professor

We have read this thesis and
recommend its acceptance:


George A. Wagoner


H. Alan Lussati

Accepted for the Council:


Vice Chancellor
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THE RELATIONSHIP OF SELECTED ACADEMIC AND WORK EXPERIENCE
BACKGROUND FACTORS TO SUCCESS OF NEW CANDIDATES ON THE
1978 CERTIFIED PROFESSIONAL SECRETARY EXAMINATION

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Kathryn Keeble Snodgrass

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ABSTRACT

The problem of this study was to determine the relationship of selected educational background and work experience background factors to success of new candidates on the 1978 Certified Professional Secretary examination.

In May, 1978, 2,074 experienced secretaries were approved to take the 1978 CPS examination. For 1,828 of those secretaries, information was obtained from application blanks on file with the Institute for Certifying Secretaries in Kansas City, Missouri, concerning the number of years of education and the number of years of experience for each candidate. Education ranged from two years of high school to master's degree, and work experience ranged from 1 to 40 years. Various statistical techniques were used to study the relationships among these educational and work experience background factors and scores on the six parts of the CPS examination.

Amount of formal education was found to be related to performance on the CPS examination. Amount of education seemed to have the least effect on Part V, Communications and Decision Making, where judgmental decisions were required along with the production of typewritten work.

Amount of work experience was not found to be related to performance on Parts I, II, III, IV, and VI of the CPS examination. This finding reflects the academic orientation of most of the examination. Amount of work experience was, however, found to be related to performance on Part V, Communications and Decision Making.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Statement of the Problem	2
Analysis of the Problem	2
Importance of the Study	4
Definition of Terms	6
Scope and Limitations	7
Organization of the Study	7
II. REVIEW OF RELATED LITERATURE	9
Background and Description of CPS Program	9
History of the Institute for Certifying Secretaries . .	9
Present Institute activities	13
Eligibility for taking CPS examination	14
Description of the examination	17
Benefits of the CPS rating	21
Related Research	22
Examination study materials	22
Stevens, 1959	22
Validity of CPS examination	23
Lambert, 1956	23
Maliche, 1957	24
Zaugg, 1961	26
Relationship of rating to job performance	28
Gamm, 1973	28
Hines, 1977	31
Characteristics of CPSs	33
Lockwood, 1954	33
Lee, 1970	35
Treece, 1971	37
Benefits of the CPS rating	39
Lovely, 1964	39
Jackson, 1965	41
Hodapp, 1967	42
Waugh, 1970	43
Paulios, 1973	44
Factors related to CPS examination performance	45
Montgomery, 1969	46
Craig, 1969	48
LaBarre, 1974	50
Summary of studies related to present study	51
Summary	54

CHAPTER	PAGE
III. METHODS OF PROCEDURE	55
Nature and Sources of Data	55
Procedure	55
IV. RESULTS OF THE STUDY	59
Relationships among Education, Experience, and Number of Sections Passed	59
Relationships among Education, Experience, and Raw Scores on Individual Sections	61
Relationships among Seven Groups of Candidates Passing From 0 to 6 Sections of the 1978 CPS Examination	71
Relationships among Education, Experience, and Rank among Those Candidates Not Passing Each Section	75
Relationships among Groups Based on Amount of Education Using Mean Number of Sections Passed	86
Relationships among Groups Based on Amount of Education Using Mean Raw Scores on Each Section	87
Comparisons among Five Educational Groups Based on Passing or Not Passing Each Section	92
Intercorrelations among Scores on Six Parts of Examination	96
V. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS	99
Major Findings	99
Comparison with LaBarre Study	105
Conclusions	106
Recommendations for Further Study	107
BIBLIOGRAPHY	109
VITA	113

LIST OF TABLES

TABLE	PAGE
I. Predictors Selected for Regression Equations (Lo-Barre Study)	52
II. Analysis of Variance on Relationships Among Education, Experience, and Number of Sections Passed	62
III. Analysis of Variance on Relationship Between Education and Raw Scores on Six Sections	63
IV. Analysis of Variance on Relationship Between Experience and Raw Scores on Six Sections	64
V. Analysis of Variance on Relationships Among Education, Experience, and Raw Scores on Six Sections	65
VI. Analysis of Variance on Differences Among Mean Scores of Seven Groups Based on Number of Sections Passed . . .	73
VII. Mean Scores on Individual Sections by Groups Based on Number of Sections Passed	74
VIII. Frequencies by Level of Education of First-time 1978 CPS Candidates	76
IX. Frequencies by Years of Experience of First-time 1978 CPS Candidates	78
X. Frequencies by Level of Education for Those Candidates Not Passing Each Section	79
XI. Analysis of Variance on Differences Among Mean Levels of Education Based on Ranking in Thirds of Those Candidates Not Passing Each Section	80
XII. Mean Years of Education by Groups Based on Ranking by Thirds of Candidates Not Passing Each Section	81
XIII. Frequencies by Years of Work Experience for Those Candidates Not Passing Each Section	84
XIV. Analysis of Variance on Differences Among Mean Years of Experience Based on Ranking in Thirds of Those Candidates Not Passing Each Section	85
XV. Mean Number of Sections Passed Based on Years of Education	88

TABLE	PAGE
XVI. Analysis of Variance on Differences Among Scores Based on Groupings by Years of Education	89
XVII. Mean Score on Each Section by Group Based on Years of Education	91
XVIII. Frequencies of Passing or Not Passing Parts I-VI of the 1978 CPS Examination	93
XIX. Pearson Correlation Coefficients Among Scores on Parts I to VI for 1978 Examination	97

CHAPTER I

INTRODUCTION

A member of the Institute for Certifying Secretaries once defined a professional secretary as one who is "highly motivated, highly skilled, highly ethical; and belongs to an organization of peers."¹ Today more than ever, "professionals" seem to be in great demand in all fields. The secretarial field is no exception, especially considering the increasing trend for all clerical workers to be labeled as secretaries, a phenomenon which has prevented many qualified personnel from entering the field. The shortage of qualified secretaries continues to be a problem in many cities, Dun's Review projecting as many as 600,000 unfilled openings by 1985.²

The goal of the Institute for Certifying Secretaries since 1951 has been "to upgrade the secretarial profession by encouraging secretaries to raise their own standards of professionalism."³ Its main focus has been to grant the Certified Professional Secretary rating to those secretaries who meet the standards for certification. As of the 1978 examination, there are more than 11,000 Certified Professional Secretaries internationally, and the number of candidates

¹Rita Huff, "The CPS Rating Does Pay," The Secretary, Aug.-Sept. 1977, pp. 8, 10, 12.

²Louise Kapp Howe, "Secretaries: Are Bosses Getting Their Message?" McCall's, Sept. 1978, pp. 93-96.

³Institute for Certifying Secretaries, "About the Institute for Certifying Secretaries," CPS Capstone, 1975, p. 4.

sitting for the exam each year is growing as national recognition of the CPS rating increases. Characteristics of successful CPS candidates will be of interest to those secretaries aspiring to CPS status.

I. STATEMENT OF THE PROBLEM

The problem of this study was to determine the relationship of selected educational background and work experience background factors to success of new candidates on the 1978 Certified Professional Secretary examination.

II. ANALYSIS OF THE PROBLEM

In order to determine the relationship of certain factors to success of new candidates on the 1978 Certified Professional Secretary examination, this study sought to answer the following questions:

1. Is there a relationship between number of years of formal education and the number of sections passed by each candidate?
2. Is there a relationship between the number of years of work experience and the number of sections passed by each candidate?
3. Is there a relationship between the number of years of formal education along with the number of years of work experience, taken together, and the number of sections passed by each candidate?
4. Is there a relationship between the number of years of formal education and the raw score on each section for each candidate?

5. Is there a relationship between the number of years of work experience and the raw score on each section for each candidate?
6. Is there a relationship between the number of years of formal education and the number of years of work experience, taken together, and the raw score on each section for each candidate?
7. Is there a difference among the seven groups of secretaries passing from 0 to 6 sections based on the mean score on each section?
8. Of those candidates who did not pass individual sections, is there a significant difference in years of formal education based on whether the person scored in the lower, middle, or upper third of those not passing each section?
9. Of those candidates who did not pass individual sections, is there a significant difference in years of work experience based on whether the person scored in the lower, middle, or upper third of those not passing each section.
10. Is there a difference among groupings of candidates based on number of years of education according to mean number of sections passed?
11. Is there a difference among groupings of candidates based on number of years of education according to mean score on each section?
12. Is there a difference among educational groups based on whether candidates did or did not pass individual sections?

13. What are the intercorrelations among scores made on the six parts of the examination?

III. IMPORTANCE OF THE STUDY

The CPS program has now been in operation for 28 years. As recognition of the rating grows, interest and support in the secretarial field as well as in colleges and universities offering secretarial programs is increasing. Secretaries are asking questions about how to prepare for the examination and about benefits of obtaining the CPS rating. Business educators are becoming more involved, as Bryce and Demuth indicated:

An awareness of the CPS rating as an academic and professional achievement appears to be on the increase in the academic community. A recent survey among colleges and universities shows that 35 percent of the schools which offer a review course for CPS candidates now include the course in the academic curricula as well as in their adult education programs.⁴

It can definitely be stated that the CPS examination is increasing in its popularity and will almost certainly continue to increase. It can also be stated emphatically that this is an opportunity for business educators if we are prepared to take advantage of it. The first step is to become familiar with the test and the topics which it encompasses. The convergence of secretaries to colleges and other evening schools in preparation for the CPS examination has opened a new door in adult education. Here is a challenging and rewarding opportunity for business educators to become more familiar with the business community and its techniques and procedures.⁵

⁴Rose Ann Bryce, "Certified Professional Secretary (CPS)," Journal of Business Education, Feb. 1977, pp. 232-233.

⁵Audrey S. Demuth, "An Emerging Demand in Adult Education," Journal of Business Education, Oct. 1976, pp. 24-25.

Some educators believe that there is no substitute for academic preparation for successful completion of the examination. Leonard Robertson made this comment in 1970 when he served as Dean of the Institute:

My observation is that, to a great extent, secretaries are preparing for the examination with short-cut review sessions when what they often really need is an intensive first course in the subject matter.⁶

Others feel that work experience is at least as important as formal educational background, as expressed by Dr. Herman Patterson, Dean of the Institute in 1975:

It appears that a degree of work orientation is built into the examination, evidenced by the fact that in 1975 approximately 17 percent of new, experienced secretaries passed all six parts on the first attempt, while less than 1 percent of the students passed all parts on the first attempt.⁷

Howard Jackson, an educator who holds CPS status, promotes the educational benefits to the secretary who studies for the exam while working full-time:

There is no substitute for preparation--many employers are enthusiastic about the CPS program because it gives the secretary an important educational goal as well as a professional challenge. Conscientious preparation for the examination provides the secretary an opportunity to elevate herself and improve her standards of performance--the keys to the executive suite.⁸

⁶ Leonard Robertson, "Goal of 15,000 CPSs in this Decade," The Secretary, Aug/Sept. 1970, p. 46.

⁷ Herman F. Patterson, "Certified Professional Secretaries Total 8,713," The Secretary, Aug/Sept. 1975, p. 20.

⁸ Howard Jackson, "Your Key to the Executive Suite," The Secretary, May 1967, p. 12.

With the growing interest in the CPS program and the increasing recognition which now accompanies the CPS rating, potential candidates will be interested in the characteristics of educational and work experience backgrounds of successful candidates. This information will be useful as a guideline for study and preparation by secretaries interested in obtaining the CPS rating as well as business educators teaching in secretarial programs.

IV. DEFINITION OF TERMS

The National Secretaries Association (International) (NSA) - an organization of secretaries established in 1942 to "develop standards which will professionalize the secretarial occupation."

Institute for Certifying Secretaries - an organization established in 1949 by NSA to (1) prepare and administer the annual CPS examination and (2) to promote the CPS program.

Certified Professional Secretary (CPS) - a person who has met experience and educational requirements as specified by the Institute for Certifying Secretaries and has passed the 12-hour CPS examination.

Formal Education - high school education or post high-school education received from a two-year or four-year college or university or from a private business school.

Success - Success was viewed in varying degrees in this study. Passing all sections of the CPS exam was considered success when compared to passing fewer than six sections. Passing a particular section was considered success when compared to not passing that particular section.

Of those candidates that did not pass a particular section, scoring in the upper third of those that did not pass was regarded as success when compared to scoring in the lower third that did not pass.

V. SCOPE AND LIMITATIONS

Only candidates taking the 1978 CPS examination were used for this study. The population was further limited to secretaries taking all sections of the examination for the first time. Only verified experienced secretaries were used; therefore, college seniors taking the exam before fulfilling work experience requirements were not used. Secretaries retaking the entire examination after not passing during the five-year limit were not used. In addition, secretaries who were approved to take the examination prior to 1978 but who did not actually take the examination until that year were not used, since additional information on education and experience after their approval could not be obtained. Only those secretaries for whom records could be provided by the Institute for Certifying Secretaries were used. Of the 2,074 candidates approved for the examination, records were not available for approximately 3 percent.

VI. ORGANIZATION OF THE STUDY

This study is divided into five chapters. Chapter I includes an introduction to the study, statement of the problem, analysis of the problem, scope and limitations, definition of terms, importance of the study, and the organization of the study.

Chapter II is related literature. This chapter contains the history and background of the Certified Professional Secretary program and research studies relating to the CPS program. Research included is a composite of all research studies related to the program since it was started in 1951.

Chapter III provides the nature and sources of data along with a description of the procedures used in the study.

Chapter IV is devoted to the analysis of data.

Chapter V includes findings of the study, conclusions of the study, and recommendations for further study. The Bibliography includes all references used in the study.

CHAPTER II

REVIEW OF RELATED LITERATURE

The chapter for related literature is divided into two sections. The first section deals with the history and background of the Institute for Certifying Secretaries and the Certified Professional Secretary examination itself. The second section is a review of the research relating to the Certified Professional Secretary examination.

I. BACKGROUND AND DESCRIPTION OF CPS PROGRAM

History of the Institute for Certifying Secretaries

The National Secretaries Association was established in 1942 with the overall purpose of the "elevation of the standards of the secretarial profession."¹ The definition of a secretary given by the National Secretaries Association follows:

An executive assistant who possesses a mastery of office skills, demonstrates the ability to assume responsibility without direct supervision, exercises initiative and judgment, and makes decisions within the scope of assigned authority.²

With the trend, however, toward using the job title "secretary" to refer to anyone who works in an office, some tangible measure was needed by which secretarial performance could be distinguished from strictly clerical or stenographic skills. Irene Place, the first Dean of the

¹William Mitchell, "The Certified Professional Secretary (CPS)," National Business Education Yearbook, 12 (1974), p. 245.

²Knoxville Keynotes (Knoxville Chapter, NSA, Newsletter), June/July, 1978.

Institute for Certifying Secretaries, discussed this problem in 1952, when she served as Dean:

Secretarial work is losing glamour. Too many routine stenographic and clerical jobs are being labeled secretarial, thus giving the top job of this occupational family a reputation of being uninteresting and deadened.³

A major goal of NSA has been the development of a program that would:

1. Identify somehow the personnel that are qualified to perform secretarial work at a high level.
2. Establish higher educational standards for secretaries, to be charting the way toward a more suitable preparation for opportunities that exist today, especially for those desirous of achieving top-level secretarial positions.
3. Upgrade secretarial personnel in the eyes of management throughout the country.
4. Define more clearly the status of secretarial work in the business structure and establish a differential between stenographic and secretarial work similar to the one recognized between bookkeeping and accounting.
5. Cause schools and colleges that train top-level secretaries to recognize the need in their programs for a broad core of knowledge about general business administration and management.⁴

This tangible measure was established in 1951 when the Institute for Certifying Secretaries administered the first Certified Professional Secretary examination.

At a 1945 address before the Cornhusker Chapter of NSA in Lincoln, Nebraska, Sterling F. Mutz, an attorney in Lincoln, suggested a certifying program for secretaries which would be similar to that of certain other professions. This suggestion was brought to the attention of the NSA Board of Directors, which began to investigate the feasibility of a

³Irene Place, "CPS and the National Secretaries Association," Journal of Business Education, 27, Jan. 1952, p. 211.

⁴Ibid., p. 209.

certifying program.⁵ In July, 1948, the Board of Directors arranged for a conference to discuss the possibilities. Among those to study a possible program were Dr. Frank T. Stockton of the University of Kansas and Lucille Hummel of the University of Tulsa. After several meetings, the Board of Directors requested that the University of Kansas serve as the cooperating educational institution for formulating certification standards and planning procedures for actually administering the exam. By 1949, the organization was formed and entitled the Institute for Certifying Secretaries. The Institute first consisted of five members of NSA, two members from business, and two members from education.

In March of 1950, Clifford C. James, Dean of Business, Industry, and Management at the University of Baltimore, presented these suggestions for improving the organizational structure of the Institute:

1. The Institute should expand from 9 to 20 members:
 - 6 members from NSA
 - 6 members from education
 - 6 members from management
 - president and immediate past-president from NSA
2. The Dean of the Institute, one of the education or management members, would be established as the head of the organization and would be elected annually by the members.

That plan was adopted by the Board of Directors in July of 1950.⁶ The same organizational structure is still in effect, with a Canadian associate, added in 1958, who converts the examination into applicable Canadian terminology, for a total of 21 members. In addition, the NSA representatives are now also required to be CPSs.

⁵"From Such a Seed," The Secretary, Oct. 1962, p. 4.

⁶Mitchell, p. 245-247.

The first examination was administered in 1951, when Irene Place was Dean of the Institute. The following procedure was used to compile the first CPS exam. First, studies of secretarial duties and tasks were summarized; as a result, areas for the examination were tentatively identified. Next, letters were sent to personnel administrators of 50 large organizations explaining the nature of the proposed test and asking for comments and suggestions. Finally, six areas were selected for the examination:

1. Stenography, to include grammar, spelling, composition, and transcription--3 hours.
2. Secretarial accounting (primarily interpretative)--2 hours.
3. General secretarial and office procedures--2 hours.
4. Principles of economics, management, and general business administration--1 hour.
5. Business law--1 hour.

6. Customer and inter-organization personal relationships--3 hours.

Specialists throughout the country were asked to contribute to the examination. The exam was then given on a trial basis to about 200 secretaries in Ohio and Michigan. The results were tabulated, and a final draft was prepared.⁷ A total of 281 candidates attempted the final examination at 15 centers, and 62 candidates were certified in 1951.

A formal resolution was presented and adopted at the 1952 NSA convention to establish the Institute in permanent form. The second

⁷Place, p. 209.

exam was administered in October of 1952, and the exams for 1953 and 1954 were also given in October. In 1955, the examination dates were standardized for the first Friday and Saturday in May of each year.

The CPS program became international in 1958 when it was first administered in Canada, at the request of Canadian NSA members. By 1973 the exam was available to foreign secretaries who wished to take either the United States or Canadian version of the examination. Also in 1973, the Canadian version was offered in French in Canada, and the United States version was offered in Spanish in Puerto Rico.⁸

Present Institute Activities

The 21 members of the Institute for Certifying Secretaries serve three-year terms. Qualifications for Institute membership include:

1. Deep interest in the secretarial profession.
2. Achievements and recognition in the member's field.
3. Leadership ability.
4. Willingness to devote time necessary for the very active
CPS program.

The basic objective of the Institute is "to upgrade the secretarial profession by encouraging secretaries to raise their own standards of professionalism." The two major goals of the Institute are (1) to prepare and administer the annual CPS examination; and (2) to promote the CPS program.

⁸Mitchell, p. 246.

The CPS examination is often referred to as an exam "for secretaries, by secretaries." The exam questions are actually prepared by CPSs under the direction of Institute members. New examination questions are added each year to those already proven valid and reliable. A committee composed of the six education members, two CPS members, two management members, four CPSs from the local area, the Canadian associate, an international NSA officer, and the Examination Consultant review the new questions and actually take the examination. Results obtained are studied, and then the entire examination is reviewed, item by item, and finalized.

To fulfill the goal of promoting the CPS program, Institute members often attend and conduct workshops, seminars, and conferences with management to support the idea that professional competence will be improved if secretaries prepare for and take the certifying examination. In addition, the Institute sponsors seminars annually to promote secretarial professional growth. Some examples include The Secretary in the Management Process, Interpersonal Communication, The Secretary in the Computer Age, and Career Growth for the Professional Secretary.⁹

Eligibility for Taking CPS Examination

The CPS program is open to both men and women. The applicant is not required to be a member of The National Secretaries Association (International) and does not have to be employed as a secretary at the

⁹"About the Institute for Certifying Secretaries," The Secretary, Oct. 1975, pp. 16-17.

time of application. Other requirements have changed considerably over the years. The following were requirements for eligibility when the exam was first administered in 1951:

1. The applicant had to be at least 25 years old.
2. If not a high school graduate, the applicant was required to have at least seven years of work experience.
3. High school graduates were required to have six years' experience.
4. Business or junior college graduates were required to have four years of experience.
5. College graduates were required to have three years' experience.¹⁰

The requirements for eligibility are quite different now, as can be seen from the following list of requirements now in effect:

1. There is now no age limitation.
2. The high school graduate must have a minimum of three years of work experience, with at least one year of continuous employment with one employer during the past five years.
3. If not a high school graduate, two additional years of secretarial experience for each year of high school not completed are required.
4. The applicant with two years of post-high school education must have two years of work experience, with one continuous year with one employer during the past five years.
5. The applicant with a four-year degree is required to have one year of accumulated verified experience during the past five years.
6. Business teachers with a college degree may take the exam with a minimum of twelve months of accumulated experience during the past ten years.
7. No period of less than three months of secretarial experience is counted for work experience requirements.¹¹

As of 1973, students who are to graduate by August 31 of a given year may take the CPS exam in May of that same year before completing experience requirements according to the following criteria:

¹⁰Place, p. 210.

¹¹Audrey Forman, "About the CPS Examination," The Secretary, 31, Oct. 1971, p. 16.

1. A person who completes a two-year certificate, diploma, or associate degree in an accredited school of business, a two-year college, a technical institute, or a four-year college and passes the CPS examination must complete two years of verified secretarial experience before certification.
2. A person who completes a bachelor's degree or advanced degree program and passes the CPS examination must complete one year of verified secretarial work experience before certification.¹²

The change in 1973 to give students the opportunity to take the examination at the end of their programs has helped to promote the CPS program and secretarial work as a profession for new secretaries entering the business world. Lillian Chaney of Memphis State University made this comment in 1976:

The CPS rating is widely recognized as a measure of the highest level of proficiency for the secretarial profession. The attainment of this coveted rating should be the goal of every student who plans to be a part of the secretarial world. An added incentive in recent years has been the granting of college credit by many colleges and universities to holders of the Certified Professional Secretary rating. This could prove to be quite an incentive to students completing programs at two-year colleges or technical institutes who plan to continue their formal education.¹³

Along with the push for students to try for certification, teachers of secretarial subjects are being encouraged to obtain CPS status. More and more educators are seeing the value of teachers having this rating when they encourage their students to do the same:

In these days of rapid change and heavy job competition, more and more secretarial applicants will hold the CPS key and certificate. These professionals will have more opportunities for employment as executive secretaries, from which point they

¹²CPS Capstone, (Institute for Certifying Secretaries), 1975, p. 2.

¹³Lillian Chaney, "Encourage Your Office Administration Students to Earn the CPS Rating," Balance Sheet, 57, April 1976, p. 292.

can show their worth to management through performance on the job. In the future many progressive business teachers are certain to hold this professional certificate and to encourage their students to work toward the CPS also.¹⁴

This trend is supported by other business educators:

As business teachers we should strive for the designation of CPS to be added after our name. We should be masters in our occupational area; the CPS rating attests to this mastery Attainment of the CPS rating should be as important to business teachers as attainment of degrees.¹⁵

A secretarial teacher may be qualified with educational degrees and even possess vocational certification, but I am convinced there is another important way to determine if a teacher is qualified in the secretarial area. The secretarial profession, not the education department of a college or a state, must determine and judge the standards of a qualified secretary.¹⁶

If a teacher herself has the CPS certificate, she can be counted on to be knowledgeable regarding the study program, the specified experience, and the necessary stamina to pass the many facets of this examination.¹⁷

Description of the Examination

The six parts of the examination now range from 75 to 120 minutes, and each test is made up of multiple choice questions, with the exception of the Communications and Decision Making Section, where the secretary is required to produce typewritten work. The multiple choice questions

¹⁴William D. Keller and Larry Jones, "Business Teachers--Become Certified Profesional Secretaries," Journal of Business Education, 48, Nov. 1972, p. 76.

¹⁵Dorothy D. Gudger, "B.S., M.S.--Why Not C.P.S.?" Balance Sheet, 55, Dec. 1973/Jan. 1974, p. 185.

¹⁶Patricia A. Tabor, "Secretarial Teachers: Are You Qualified?" Journal of Business Education, 52, Oct. 1976, p. 11.

¹⁷Sofrona L. Smith, "The Case for the CPS as a Terminal Designation for Teachers," Business Education World, 46, Jan. 1966, p. 23.

are prepared by Certified Professional Secretaries, under the direction of an educational member of the Institute and with the help of the Examination Consultant. Since the examination is made by secretaries, changes in the business world are reflected in the exam questions. Dr. Herman F. Patterson, of Memphis State University and a former Dean of the Institute, has commented on this effect:

It appears that a degree of work orientation is built into the examination, evidenced by the fact that in 1975, approximately 17 percent of new, experienced secretaries passed all six parts on the first attempt, while less than 1 percent of the students passed all parts on the first attempt.¹⁸

A statistical analysis of the difficulty for each item is kept and studied each year. Approximately 50 percent of the items are kept and used again. For this reason, the Institute does not make available copies of past examinations for study.

The Communications and Decision Making section, on the other hand, is rewritten each year, and this section is printed in the October issue of The Secretary magazine each year. The Communications and Decision Making section is written by a leading business educator in the United States, and it is tried out in two different parts of the country before it is used.

The complete examination is reviewed by the members of the Institute, item by item, before the final draft is approved.¹⁹ Following is a description of the scope of each of the six parts of the examination:

¹⁸Herman F. Patterson, "Certified Professional Secretaries Total 8,713," The Secretary, Aug./Sept. 1975, p. 20.

¹⁹Mina M. Johnson, "Standardization of Professionalism for the Secretary," Business Education Forum, 19, Dec. 1964, p. 24.

Part I - Environmental Relationships in Business

This part of the examination tests the principles of human relations and the understanding of self, peers, subordinates, and superiors. It focuses on the fundamentals of one's own needs and motivations, nature of conflict, problem-solving techniques, essentials of supervision and communication, leadership styles, and understanding of the informal organization.

Working time allowed is 120 minutes for objective multiple choice answers to 150 questions stated in this typical form:

The ultimate reason for implementing change in an organization is usually to improve

- a. financial situation
- b. the product
- c. production
- d. working conditions

Part II - Business and Public Policy

This section tests the major elements of business law involved in the secretary's daily work, particularly contracts and bailments, law of agency and sales, insurance, negotiable instruments, and real property. Public policy in the form of governmental regulatory legislation is also examined.

Working time allowed is 80 minutes for objective multiple choice answers to 100 questions stated in this typical form:

A person who is in possession of an instrument drawn, issued, or endorsed to him or to his order, to bearer, or in blank is referred to as a

- a. bailee
- b. holder
- c. payee
- d. possessor

Part III - Economics and Management

Three subject areas are included in this part: applied economics, principles of management, and elements of business operation. The management of personnel, finances, production, and marketing are examined.

Working time allowed is 80 minutes for objective multiple choice answers to 100 questions stated in this typical form:

American multinational corporations have had extra incentive to leave money abroad. With the dollar

shrinking in value, many of these managements have held on their local-currency profits as long as possible, hoping to:

- a. convert them into dollars at the highest possible exchange rate.
- b. decrease the cost of production.
- c. gain the confidence of local governments.
- d. speculate in local stocks.

Part IV - Financial Analysis and the Mathematics of Business

Some of the basic accounting procedures are tested in this part. The candidate is called upon to analyze and interpret financial reports and to analyze, transform, summarize, and interpret numerical data involved in business management.

Working time allowed is 120 minutes for objective multiple choice answers to 75 questions stated in this typical form:

The account Office Supplies had a debit balance of \$400 at the beginning of the fiscal year. During the year additional supplies were purchased at a cost of \$370. A physical count of the supplies inventory at the end of the year showed \$280 unused supplies remaining. The adjusting entry would be:

- a. Debit Office Supplies \$280; credit Office Supplies Expense \$280.
- b. Debit Office Supplies \$490; credit Office Supplies Expense \$490.
- c. Debit Office Supplies Expense \$490; credit Office Supplies \$490.
- d. Debit Office Supplies Expense \$280; credit Office Supplies \$280.

Part V - Communications and Decision Making

This part is a performance test presented as an in-basket exercise. The candidate is asked to establish priorities, describe actions to be taken, and specify how jobs are to be completed. Dictation and typewriting abilities are necessary, and skills are employed in editing, listening, composing, abstracting, judging work acceptability, and follow up.

Working time allowed is 120 minutes for subjective evaluations.

Part VI - Office Procedures

This part tests the administrative know-how of the secretary. It concerns the basic concepts of office management broken

down into organization and control of clerical services, work simplification, information management, control of the work environment, and records management. A rudimentary familiarity with electronic data processing is also examined. Other areas of knowledge tested are secretarial planning, communications, media, principles for writing original business communications, handling mail, library reference materials, executive travel, conferences and meetings, and duplication processes.

Working time allowed is 75 minutes for objective multiple choice answers to 100 questions stated in this typical form:

If your employer travels extensively or the amount of travel funds required is relatively large, a travel fund may be established at a local bank and drawn on by a

- a. bank money order.
- b. cashier's check.
- c. letter of credit.²⁰
- d. traveler's check.

Benefits of the CPS Rating

Upon certification, the new CPS is given a CPS certificate and wallet card. The certified secretary may now use the initials "CPS" after his/her name, similar to any other professional designation.

As recognition of the CPS rating increases, management is honoring the CPS rating in more tangible forms. To encourage secretaries to try for CPS status, the following programs are growing in acceptance:

- tuition-aid plans for preparatory studies and review courses
- books for self-study
- processing and examination fees paid by employer
- compensated time off for taking the examination.

The following practices, which occur after certification, also encourage candidates to strive for successful completion of the examination:

- automatic salary increases
- extension of maximum salary range in present position

²⁰CPS Capstone, p. 3.

--priority consideration for promotion as advanced positions open up. In addition to recognition given by management, as of 1974, 32 colleges or universities were giving up to 89 quarter hours of college credit for passing the examination.²¹ As of 1979, 165 colleges in the United States are giving college credit for CPS status.²²

Perhaps the greatest benefit, however, is the personal satisfaction derived by the secretary who achieves the CPS goal: the "confidence acquired from successfully passing the examination--knowing that the secretarial profession has recognized your skills and awarded you its most respected rating: Certified Professional Secretary."²³

II. RELATED RESEARCH

Research relating to the CPS program generally falls into six categories: examination study materials; studies of validity; relationship of CPS rating to job performance; characteristics of CPSs; benefits of the CPS rating; and factors related to CPS examination performance. Research conducted in each category will be reviewed in this section.

Examination Study Materials

Stevens, 1959.²⁴ The purpose of this study was to determine the adequacy of Certified Professional Secretary study materials listed in

²¹William Mitchell, "College Credit for the CPS," The Secretary, Jan. 1974, p. 38.

²²Statement by Edith Szathmary, Tennessee State Director of the CPS Service Committee, April 3, 1979.

²³"Why Not Be a CPS?" The Secretary, 32, June/July 1972, p. 51.

²⁴Eleanor M. Stevens, "Adequacy of Certified Professional Secretary Examination Study Materials in Northern Illinois University Library," Unpublished Master's Thesis, Northern Illinois University, 1959.

the Suggested Bibliography (1959) and found in the Northern Illinois University Library, DeKalb, Illinois. Quotations from Northern Illinois University library books which related to the Study Outline and which were listed in the suggested bibliography were recorded on index cards. A total of 11,089 quotations was found. Next, the number of cards for each item and sub-item of the six outline sections were tabulated to show strengths and weaknesses in coverage of Sections I through VI of the outline. Stevens discovered through this method the areas on the CPS study outline where the Northern Illinois University library was inadequate or helpful for someone preparing for the CPS examination.

None of her findings can be generalized to other libraries because of the nature of the study. However, this method would prove helpful for schools who sponsor or plan to sponsor CPS review courses, or for schools who encourage secretarial students to try for the CPS rating.

Validity of CPS Examination

Lambert, 1956.²⁵ John D. Lambert, Virginia Polytechnic Institute, attempted to (1) determine the validity of the Secretarial Accounting Section of the Certified Professional Secretary examination and to (2) construct a rating scale that could be efficiently used to measure competence in secretarial accounting.

A rating scale was developed from the outline of the accounting section of the CPS examination. The rating scale determined the job

²⁵ John D. Lambert, "A Validation Study of the Secretarial Accounting Section of the Certified Professional Secretaries' Examination," (Unpublished Master's Thesis, Virginia Polytechnic Institute, 1956).

level at which the CPS candidates performed their duties with respect to accounting knowledge. The levels used were appreciation, operation, interpretation, judgment, and construction.

The information for the study was gathered by Lambert through interviews with 29 employers of CPS candidates. To assign numeric values to the different job levels, Lambert asked each employer the salary that would be paid at each level of accounting knowledge. Each secretary was then given a weighted average score which was an estimation of annual salary according to accounting knowledge. Next the individual secretaries' ratings and their examination scores were correlated by the use of the Pearson Product-Moment coefficient of correlation formula.

The correlation between the scores on the accounting section of the examination and the employers' ratings was not significant at the .05 level. It appeared from this study, then, that there was no relationship between scores on the accounting section of the examination and secretarial competence in accounting. Lambert found that the rating scale used was a functional means of obtaining the information desired. If the rating scale devised by Lambert did not discriminate well between effective and ineffective job performance, however, the low correlations which Lambert found would be expected and may not accurately describe the relationship between CPS exam performance and job performance.

Maliche, 1957.²⁶ Eleanor Maliche, at the University of Michigan, attempted in her study to determine whether the human relations section

²⁶Eleanor Maliche, "Study to Validate the Human Relations Section of the Certified Professional Secretaries Examination," (Unpublished Doctoral Dissertation, University of Michigan, Ann Arbor, 1957).

of the CPS exam successfully differentiated secretaries who were successful in their personal relations on the job from those who were not successful. Fifty secretaries were used for this study and were selected from among the CPS candidates who were taking the human relations test in 1955. The sample represented four states and 25 industries. Employers' ratings were obtained in personal interviews based upon the content of the CPS human relations outline. The rating scale was intended to obtain the employer's judgment on how well his or her employee performed on the human relations factors that made up the CPS examination. The employer then rated how important he or she felt each of these factors was in the office. The two ratings were combined to give each employer a rating index for each employee. After interviewing the employer, the investigator talked with the secretary and administered the King Judgment Test, which is a measure of reasoning ability.

In this study, a passing score on the human relations test did not indicate a correspondingly high rating by the employer on human relations. Therefore, it appeared that the human relations test was not predictive of successful human relations performance on the job. However, employers interviewed still seemed satisfied with the human relations performance of their secretaries. In addition, a significant correlation ($r = .37$) was found between test performance and the investigator's ratings of behavior actually observed in the business environment.

A small positive relationship was shown between the human relations test performance and the King Judgment Test performance. A small

positive relationship also was found between the King Judgment Test and the investigator ratings; however, no such relationship was found between employer ratings and the King Judgment Test.

Since there was no significant correlation between the human relations test and rating of secretarial behavior performance, Maliche questioned whether the human relations test score should be included in the scoring of the CPS examination. She recommended, however, that it be included as part of the examination for its educational value. She also recommended that measurable human relations characteristics in top-level secretarial work be identified by studying top-level secretaries in their actual business environment, perhaps using the critical incident technique to avoid personal interpretations.

The fact that the employers seemed satisfied with the human relations performance of their secretaries would seem to indicate that perhaps the employers' rating scale did not discriminate well between good and poor performance. If so, the low correlations which Maliche found would not accurately describe the relationship.

Zaugg, 1961.²⁷ Margaret Zaugg, also at the University of Michigan, tested the validity of Part VI, Secretarial Procedures, of the examination. The sample for this study consisted of 184 secretaries, or 17 percent of those taking Part VI, not necessarily for the first

²⁷Margaret Zaugg, "A Study to Determine the Validity of Part VI, Secretarial Procedures, of the Certified Professional Secretaries Examination," (Unpublished Doctoral Dissertation, University of Michigan, Ann Arbor, 1961).

time. The population was representative of the entire country. The Horizontal Graphic Rating Scale was adapted for use in this study. The ideal performance of each duty was described, and a scale was provided for checking the quality of performance. In addition, the rater (employer) checked the importance of the duty. Correlations were obtained between

- score on Part VI and rating by employer
- amount of education and test scores
- years of experience as a secretary and test scores
- age and test scores

A Pearson Product-Moment correlation coefficient of .17 showed a negligible relationship between Part VI scores received by the sample and ratings given them by employers. Therefore, it cannot be said that a score on the test is an indicator of the quality of on-the-job performance. The investigator felt that the influence of subjective ratings of secretaries by employers may have been a major cause for the lack of relationship.

A correlation coefficient of .15 was found between the amounts of education of the secretaries and their test scores. Similarly, there was a slight relationship between education and ratings by employers. A correlation coefficient of .09 showed almost no relationship between experience and scores on Part VI. This finding was also true for years of experience and ratings by employers.

For this sample, some relationship was established between age and success on Part VI, the older secretaries performing better on the test

than the younger secretaries (correlation coefficient of .21). The same coefficient was obtained between age and employer ratings.

This study showed that a score for Part VI, Secretarial Procedures, did not necessarily indicate the quality of secretarial performance as rated by employers. If the range of scores by employers was narrow, however, low correlations between ratings and scores on Part VI would result when a stronger relationship may actually have existed. A secondary finding was that the amount of education, years of experience as a secretary, and age are not significant indicators of success as measured by the raw score on Part VI.

Relationship of Rating to Job Performance

Gamm, 1973.²⁸ Vera Gamm, at the University of Tennessee, conducted a study to (1) develop a performance specimen checklist to measure the performance of secretaries, and to (2) investigate the relationship between the secretaries' scores on the six parts of the 1972 CPS examination and their scores on the performance specimen checklist completed by their supervisors.

A performance specimen checklist was compiled containing examples of good and poor secretarial performance. Sources of performance specimens included Kosy's 1959 study of critical requirements for effective performance of private secretaries and personal interviews (by Gamm) with supervisors of secretaries in West Liberty, West Virginia,

²⁸Vera Gamm, "The Relationship of the 1972 Certified Professional Secretary Examination to a Performance Specimen Checklist," (Unpublished Doctoral Dissertation, The University of Tennessee, 1973).

and Knoxville, Tennessee. The final performance specimen checklist contained 80 items, 43 of which were examples of good performance and 37 of which were examples of poor or ineffective performance. At the end of the checklist was an overall rating form which included eight categories.

The performance specimen checklist was sent to 253 secretaries who took Part V (Communications and Decision Making) of the 1972 examination in Virginia, Kentucky, North Carolina, and Tennessee. The secretaries were to have their employers complete the checklist and overall evaluation. Checklists for 188 secretaries were returned; and 160, or 63 percent, were usable for the study. An overall performance score was obtained by subtracting the number of ineffective items from the number of effective items checked and then adding in the overall performance score.

Reliability of the checklist was tested by using the split-halves method and the Spearman-Brown Prophecy formula. An index of reliability of .918 was established for the checklist. In addition, the E-I (effective-ineffective) scores were correlated with the overall evaluation scores for internal consistency. Performance specimens with an estimated validity coefficient of less than .25 were removed from the checklist. The checklist in the final form consisted of 43 effective performance specimens and 19 ineffective items, for a total of 62 items. Only the 121 responding secretaries who took all six parts of the exam were used for the final comparison of the examination scores and the performance specimen checklist.

Forty secretaries were rated by two supervisors. To establish interrater reliability for the checklist, analyses of variance were computed and intraclass correlations obtained for the E-I score, the overall evaluation score, and the total performance score; correlations of .7725, .823, and .7879, respectively, were obtained, each of which was significant at the .01 level. Those correlations indicated that there was a high probability that more than one supervisor would rate a secretary at about the same level using the checklist from this study.

A correlation coefficient significant at the .0001 level between the overall evaluation and the E-I score indicated that the checklist was relevant. Therefore, the performance specimen checklist was a valid and useful instrument for evaluation of secretaries by their supervisors.

A multiple correlation coefficient of $-.0639$ was obtained when an attempt was made to predict performance checklist scores from the best combination of the CPS exam scores. The coefficient of $-.0639$ was not significant.

Only one significant correlation coefficient was found between the CPS test parts and the performance scores. The correlation between Part VI, Office Procedures, and the overall performance rating was significant at the .02 level. No significant correlation was found between the checklist and any other parts of the exam. Therefore, except for Part VI, there was no relationship between the CPS scores by section and job performance as measured by the performance specimen

checklist. If the range of performance scores was narrow, low correlations between performance ratings and raw scores would be expected and may not accurately describe the true relationship. The finding for Part VI was in conflict with the findings by Zaugg in 1961, which found no relationship between scores on Part VI and ratings of employee performance by employers.

Hines, 1977.²⁹ Betty F. Hines conducted a study at Virginia Polytechnic Institute and State University to answer the following questions:

1. Do CPSSs score higher than non-CPSSs when rated by their employers on the "ability to learn and perform" portion of the Wonderlic Job Performance Scale?
2. Do CPSSs score higher than non-CPSSs when rated by their employers on the "attitude" portion of the Wonderlic Job Performance Scale?
3. Is there a correlation between selected demographic factors of CPSSs and non-CPSSs and the 20 item scores on the Wonderlic Job Performance Scale?

This study used 63 CPSSs and a sample of 147 non-CPSSs who had never taken the examination selected from the Virginia division chapters of NSA. A demographic inventory sheet was administered for such information as marital status, age, membership status in NSA, educational level, type of business where employed, job title, pay, and tenure with the company. The Wonderlic Job Performance Scale, Primary Rating No. 2, was administered as the job performance evaluation instrument. It

²⁹Betty F. Hines, "The Relationship of the Certified Professional Secretary Rating to the Job Performance Ratings of Secretaries," (Unpublished Doctoral Dissertation, Virginia Polytechnic Institute and State University, 1977).

contains 20 behaviorally stated items, 13 of which measure "ability to learn and perform," and 7 of which measure "attitude." An average was computed for the "ability to learn and perform" items and the "attitude" items.

A t-test for independent samples was computed to test the difference between the means for the CPSs and non-CPSs on each of the 13 "ability to learn and perform" scores and the 7 "attitude" item scores, and the average of each group of scores. Pearson Product-Moment correlation coefficients were computed to determine whether there were relationships between the demographic items and each of the 20 item scores on the job performance scale.

The two groups were similar according to marital status. While 64.3 percent of the CPSs clustered in the 30-49 age range, the majority of the non-CPSs clustered in the 40-50+ age range. The percentages for each group in the level of education categories were similar. Four times more CPSs than non-CPSs were working in the finance, insurance, and real estate businesses.

The most common job title was "secretary." However, more CPSs than non-CPSs held the title of "executive assistant." No CPS earned less than \$8,000 a year, but the majority (52.5 percent) of the non-CPSs earned less than \$8,000 a year. Two-thirds of the CPSs indicated a salary of \$10,000+ a year. CPSs tended to earn higher salaries at earlier ages than non-CPSs.

There was no significant difference between the scores of the CPSs and non-CPSs on the "ability to learn and perform" portion of the

Wonderlic Job Performance Scale when rated by their executive supervisors. There was no significant difference between the scores of CPSs and non-CPSs on the "attitude" portion of the Wonderlic Job Performance Scale when rated by their executive supervisors.

There was a significant positive correlation between the pay ranges of both CPSs and non-CPSs in this study for 11 of the 13 "ability to learn and perform" rating scale item scores. It appeared that there was some relationship between pay and high job performance on this scale. Pay was the only variable for which a significant correlation was found.

Characteristics of CPSs

Lockwood, 1954.³⁰ Three years after the first CPS examination was given, Bonnie Allen Lockwood conducted a study at the University of Pittsburgh to identify some of the distinctive characteristics and duties of secretaries who had passed the Certified Professional Secretary examination.

The sample for the study included all secretaries certified up to the 1953 examination (185 secretaries) and a random sample of 204 secretaries who attempted the examination but had passed two or fewer parts. Age, number of jobs held, and salary level were obtained for each secretary from Institute files. A questionnaire was then mailed to the secretaries to obtain information about education, practical personal experience with financial matters, financial status, and

³⁰Bonnie Allen Lockwood, "A Study of the Characteristics and Duties of the CPS," (Unpublished Doctoral Dissertation, University of Pittsburgh, 1954).

social recreational and organizational activities. The job status of the secretaries in the two groups was determined by a work chart upon which secretaries were requested to record each hour each day for one week the most important duty performed during that hour.

The CPSs had an average of 2.66 years of higher education in contrast to an average of 1.27 years among non-passing secretaries. The CPSs had an average of 15.6 one-year courses in high school or after high school related to the exam in comparison to 12.8 for the non-certified secretaries. Only 39 percent of the CPSs took refresher courses for the examination compared to 48 percent of the non-certified secretaries. CPSs had an average of 14 years of experience compared with 17 years for the non-passing secretaries. There was no significant difference between the two groups regarding the number of different jobs held. The CPSs as a whole had more experience in the higher job classifications. No correlation was found between high financial obligations at home and success on the examination. There was a slight correlation between high social activity and success on the examination.

The CPSs in the study tended to make higher salaries at younger ages than did the non-passing secretaries. This same finding appeared again in the Hines study in 1977. A classification of duties for one week of both groups showed greater variety of work among the CPSs. A greater percentage of duties considered important by the secretaries fell into the executive secretarial level for the CPSs and the clerical level for non-CPSs.

The CPSs in this study showed a high degree of intelligence, accuracy, efficiency, and initiative. They were outstanding in the human relations area.

Lee, 1970.³¹ At the University of Northern Colorado, LaJuana Williams Lee conducted a study to see if personality characteristics of CPSs and non-certified secretaries were related to the aspects of their jobs from which they derived satisfaction. An attempt was also made to discover differences between the two groups of secretaries in such characteristics as age, education, marital status, and salaries.

All CPSs and members of NSA in Louisiana were asked to complete

- (a) a demographic inventory about their education, personal and professional information, and opinions about the CPS examination;
- (b) the Ghiselli Self-Description Inventory, which measures 13 personality traits;
- (c) the Minnesota satisfaction questionnaire.

Responses from 52 (96 percent) CPSs and 154 (85.6 percent) non-CPSs were obtained.

Thirteen personality dimensions from the Ghiselli inventory plus age, marital status, education, and salary were used as independent predictor variables, and 21 job satisfaction dimensions of the

³¹LaJuana W. Lee, "Personality Characteristics and Job Satisfaction of Certified Professional Secretaries and Non-Certified Secretaries," (Unpublished Doctoral Dissertation, University of Northern Colorado, 1971).

Minnesota questionnaire were used as independent criterion variables. The multiple linear regression technique revealed no significant relationship between personality traits or personality characteristics and job satisfaction of CPSs or non-CPSs.

The CPSs did not differ from non-CPSs in job satisfaction; however, older secretaries who received higher salaries tended to be more satisfied.

Chi square tests of independence revealed differences between CPSs and non-CPSs in this study on seven factors:

1. Length of time with present title (longer for CPSs)
2. Length of job with present firm (longer for CPSs)
3. Secretarial tenure (longer for CPSs)
4. Classifications of firms (CPSs worked for larger organizations).
5. Salary (higher for CPSs)
6. Education (more for CPSs)
7. Hours spent weekly in professional and civic organizations and leisure time activities (more for CPSs)

Overall, characteristics of the CPSs and top-level secretaries in the study tended to be similar, forming one group of top-level secretaries. This finding agrees with that in the Hines study where the non-CPS group was chosen from the National Secretaries Association members, a group which would tend to be higher level secretaries.

Following are the typical characteristics of this group of top-level secretaries, as determined by this study: 44 years old; married, probably with children; works for large industrial or

manufacturing firm (200-300 employees); present title, 6 years; present firm, more than 7 years; secretarial experience, more than 14 years; all jobs including secretarial, 17 years.

Treece, 1971.³² Malra Clifft Treece, at the University of Mississippi, attempted to determine the responsibilities of Certified Professional Secretaries in written business communication, and the areas in which they have experienced difficulty in fulfilling these responsibilities. A questionnaire was sent to all secretaries certified in 1963, 1966, and 1969 who were still alive and could be reached by mail (865 secretaries). This study was based on the 565 questionnaires which were returned. All states except Hawaii, Maine, New Hampshire, South Dakota, and Vermont were represented, as well as four Canadian provinces, Puerto Rico, and the District of Columbia.

More than 85 percent of the group had at least 11 years of experience, and more than 40 percent had more than 20 years of experience. More than 67 percent of the secretaries studied had some college education, although 32 percent had less than two years of college. Of 565 secretaries, 14.2 percent were college graduates. Almost half of the respondents had received no formal instruction in written business communication, and those who had had received it at the college level. Companies with more than 1,000 employees employed 40 percent of the

³²Malra Clifft Treece, "Written Communication Responsibilities and Related Difficulties Experienced by Selected Certified Professional Secretaries," (Unpublished Doctoral Dissertation, University of Mississippi, 1971).

secretaries. Manufacturing companies employed the largest number, 33.3 percent; and construction firms employed the fewest, 2.0 percent.

Out of the sample studied, 94.7 percent regularly wrote letters; 70.3 percent regularly wrote reports; and 82.7 percent regularly composed some kind of miscellaneous writing other than letters or reports.

There was no significant difference according to secretaries' experience and education as to the kinds of letters, reports, and miscellaneous material composed most often and least often. The amount of variety of business writing was not shown to be related to experience; however, the composition of reports seemed to be more related to secretarial experience than did the composition of letters. The results of this study did not indicate that the amount of variety of business writing increased in proportion to formal education.

The CPSSs working for companies with ten or fewer employees were more likely to compose a wide variety of material on a regular basis than were secretaries who worked for larger companies. Secretaries were shown to compose most in these types of companies: finance, insurance, real estate, and investments; wholesale and retail trade; and printing publishing agencies and public relations. Secretaries composed least often in construction and manufacturing firms, legal firms, and miscellaneous firms. Company departments or offices where secretaries were more likely to compose were office services, personnel, the office of the president, and public relations. Departments where secretaries composed the least were research and development and production or engineering, and legal departments and finance, accounting, or credit

departments. Editing and revising the writing of others was considered part of the regular employment responsibilities by more than half of the sample. Only 15.6 percent regularly dictated material to be transcribed by other persons.

A high percentage of secretaries with college educations stated that they were more prepared for business writing than did secretaries with only high school educations. A higher percentage of respondents who had had instruction in written business communication stated that they were very well prepared. Difficulties encountered at the beginning of the secretarial career were shown to be fewer for college graduates than for secretaries with less formal education. Courses in business communications taken in high school, college, or business school seemed to have little or no effect on reported difficulties.

The most often-mentioned areas of difficulty were:

- being able to write without wasting time
- avoiding trite expressions
- conciseness
- a psychological approach
- making the message accomplish its purpose.

Benefits of the CPS Rating

Lovely, 1964.³³ Yvonne Lovely conducted a study for the Institute for Certifying Secretaries when she served as Special Projects Chairman

³³Yvonne Lovely, "Analysis of a Questionnaire Returned by 1951-63 CPSs," (Unpublished Study, Institute for Certifying Secretaries, 1964).

in 1964. The purpose was to determine what values CPSs attached to the CPS rating and how those secretaries who had achieved certification felt they had benefited from CPS status. She mailed a questionnaire to 2,737 CPSs who certified between 1951 and 1963, and 1,077 questionnaires were returned.

Of the secretaries who responded, 65 percent were with the same company with which they were employed at the time of certification, and 42 percent were in the same position with the same employer, and 17 percent had received a promotion with the same employer. About 54 percent of the secretaries responding attributed a raise in salary, a promotion, special benefits, or a job offer from another employer to the CPS rating. On the other hand, 32 percent felt that the CPS rating had brought no recognition at all.

Regarding employers' attitudes, 67 percent held favorable attitudes toward their secretaries' attempts to pass the examination, and only 2 percent showed an unfavorable reaction when notified that their secretary was attempting the examination. When their secretaries were notified, 80 percent of the employers responded favorably; and only 1 percent responded unfavorably. The employers' attitudes improved as they became more aware of the content of the examination and of the objectives of the CPS program.

Jackson, 1965.³⁴ Howard Jackson at The Ohio State University attempted to identify benefits, both those that management derived from employing CPSs and those that management provided for CPSs, and the effect of the CPS rating on hiring policies, training programs, salaries, merit ratings, and promotions. Jackson surveyed executives rather than secretaries.

Jackson found that relatively few professional or financial benefits had been provided by management for CPSs at that time (1965). Publicity and promotion were found to be the major benefits provided. The majority of the firms studied did not pay the CPS a higher salary when first employed than other secretaries employed at the same level.

The CPS rating was considered more valuable by executives in hiring competent secretaries than in promoting secretaries to higher positions. While nearly half of the employers would favor the CPS for an executive secretarial position, only 5 percent would promote a CPS to an office manager or supervisor.

Jackson also found that more than one third of executives and more than half of personnel directors surveyed knew nothing about the CPS program. He concluded that additional publicity about the program was needed.

³⁴James Howard Jackson, "The Benefits Resulting from the Certified Professional Rating for Management and Executive Secretaries and the Effect of the Rating on Personnel Policies," (Unpublished Doctoral Dissertation, Ohio State University, 1965).

Hodapp, 1967.³⁵ Kathleen L. Hodapp, San Diego State College, attempted to determine whether or not it was advantageous for a secretary to earn the Certified Professional Secretary rating by surveying CPSs to find out what benefits had been gained by having CPS status. A mail questionnaire was sent to a random sample of 214 CPSs in California. The standard error of a sample percentage test was used to determine the area in which the true percentage of the population probably lies.

Hodapp found that as of 1967, few direct job benefits resulted from earning the CPS rating. Of the CPSs who had been given additional responsibilities since receiving the rating, between 24 and 45 percent felt that the rating was influential. Of the CPSs who had changed jobs since receiving certification, 30 to 62 percent felt that the CPS rating was helpful in acquiring new positions. Of the CPSs who were promoted after receiving the rating, 22 to 47 percent felt the rating was helpful. There were 42 to 59 percent of the CPSs who felt more secure in their jobs after having received the CPS rating; and at least 84.5 percent would seek other jobs with greater confidence as a result of certification.

According to Hodapp, participation in the CPS program has provided indirect advantages to secretaries. About 67 percent felt that participation had prepared them for assuming additional responsibility.

³⁵Kathleen L. Hodapp, "An Evaluation of the Certified Professional Secretary Program," (Unpublished Master's Thesis, San Diego State College, 1967).

Most (80 percent) felt that participation had helped to make them better secretaries. About 93 percent indicated that time spent preparing for the examination was worthwhile even if they had not passed it; 95 percent said they would try for the CPS rating again if they had it to do over. About 61 percent of the secretaries surveyed felt that their immediate employers thought favorably about the CPS rating. About 78 percent said that employers regarded the CPS rating as an interest in self-improvement. About 76 percent of the secretaries agreed that participation in the CPS program had better prepared them to assume more managerial duties. The majority of the CPSs surveyed were satisfied with the content of the examination.

A weakness of the program which showed up in this survey was management's lack of information about the CPS program. At least 94.3 percent of the CPSs felt that an effort should be made to better inform management about the objectives of the CPS program.

Waugh, 1970.³⁶ Virginia B. Waugh, Sacramento State College, conducted a study to analyze what influence, if any, the CPS rating has had on raising the status of the secretary in northern California. A questionnaire was mailed to CPSs in northern California who were certified by 1967 to obtain their reactions on the benefits they had received from having CPS status. Another questionnaire was mailed to the managers of the CPSs to determine how aware managers were of the

³⁶Virginia B. Waugh, "The Value of the Certified Professional Secretarial Certificate to Holders in Northern California," (Unpublished Master's Thesis, Sacramento State College, 1971).

Certified Professional Secretary program and how they felt about this achievement.

About one third of the secretaries who responded were doing some form of civil service or government work. The average number of years in secretarial work was 15.

A majority of the managers were aware of the CPS program and favored hiring CPSs, all other qualifications being equal. However, the managers surveyed indicated that managers nationwide generally were not aware of the program. Over half of the secretaries responding had heard of the CPS program through the National Secretaries Association.

Most of the CPSs surveyed felt that the examination was effective in measuring the qualities of a professional secretary. They stressed the importance of human relations in the secretarial field.

Only one secretary indicated that she did not feel the examination was worth the time and effort required to earn the certificate. All other respondents were very enthusiastic about passing the examination, both for the added self-confidence that helped them in their present job or in preparing them to apply for another position.

Paulios, 1973.³⁷ A similar study was conducted by Mary G. Paulios, Mankato State College, to determine whether Minnesota Certified Professional Secretaries received tangible recognition from their

³⁷Mary G. Paulios, "A Study of Selected Benefits Received by Minnesota Certified Professional Secretaries As A Result of Certification," (Unpublished Master's Thesis, Mankato State College, 1973).

employers as a result of having attained the Certified Professional Secretary designation. A questionnaire was mailed to 131 Minnesota CPSs. After permission was granted by these secretaries, a special questionnaire was mailed to their employers. Then a similar questionnaire was mailed to a matched group of Minnesota employers who had never employed CPSs.

The analysis showed that most Minnesota employers were in favor of self-improvement of their secretaries through the CPS program, but they were reluctant to give promotions, raises, or bonuses to secretaries as a result of their certification. It was recommended that secretaries continue to work toward CPS certification and that the National Secretaries Association, the Institute for Certifying Secretaries, businesspersons, schools, and secretaries themselves further publicize and promote the CPS program among employers. The same problem of lack of information about the CPS program for management was identified in the Lovely, Hodapp, and Waugh studies.

Factors Related to CPS Examination Performance

The following three studies are similar to the present one in that they relate certain background factors to success or failure on the CPS examination.

Montgomery, 1969.³⁸ George Frank Montgomery completed a study at the University of North Dakota to determine and analyze factors contributing to the certification of secretaries who successfully completed the 1967 Certified Professional Secretary examination and factors contributing to the failure of unsuccessful candidates. A questionnaire was mailed to a group of 311 secretaries who were certified in 1967 and 311 secretaries who passed none, one, or two sections of the exam (this group was selected by the Institute). The questionnaire obtained, generally, the following information: professional background, full-time work experience, and study habits. Pearson Product-Moment correlation coefficients were completed on all secretarial personnel as follows:

- (1) Between full-time educational pursuits (in years) and passing sections of the test
- (2) Between full-time work experience (in years) and passing sections of the test
- (3) Between full-time educational pursuits and full-time work experience

About 97 percent of the CPSs and 93 percent of non-certified secretaries were high school graduates. About 5 percent of the CPSs held two-year degrees, 13 percent held four-year degrees, and 3 percent held five-year degrees. Of the non-certified secretaries, 5 percent

³⁸George Frank Montgomery, "Study of Selected Determinants Contributing to the Professional Certification of Secretarial Personnel," (Unpublished Doctoral Dissertation, University of North Dakota, Grand Forks, 1969).

had two-year degrees, 4 percent earned four-year degrees, and 1 percent possessed five-year degrees.

The four post-secondary credit courses taken most frequently by CPSs were: business law, elementary accounting, shorthand and transcription, and economics. Non-certified secretaries took the following courses most frequently: business law, shorthand and transcription, elementary accounting, and business English.

Full-time work experience as executive secretaries or administrative assistants was indicated by 97 percent of the certified and 96 percent of the non-certified secretaries.

Most secretaries did not use the four general review books listed in the CPS bibliography: Secretary's Business Review, Business Review for Professional Secretaries, and Secretarial Study Guide, Volumes I and II. Certified secretaries used 38 books listed in the bibliography for review; non-certified secretaries used 28 books. The three books most frequently used by all secretaries were: Effective Secretarial Practices, Secretaries on the Spot, and Introduction to Business.

Certified secretaries read 30 magazines in preparation for the examination as compared to 26 for non-certified secretaries. Both groups used The Secretary and Today's Secretary most frequently. CPSs used nine newspapers in preparation for the examination as compared to eight newspapers by non-certified secretaries. The Wall Street Journal was mentioned most often.

CPSs used 36 books not on the bibliography as compared to 26 for non-certified secretaries. Books most often used by CPSs included

College Law for Business and Accounting for Non-Accountants. The most commonly used book for non-certified secretaries was Classical Economics.

Pearson Product-Moment correlations computed between full-time educational pursuits (in years), full-time work experience (in years), and full-time educational pursuits combined with full-time work experience and passing sections of the examination were not significant at the .05 level.

Craig, 1969.³⁹ Craig conducted a follow-up study at Northern Illinois University to parallel that of Lockwood. The purpose was to determine if the factors of (1) level of past work experience, (2) extent of higher education, (3) present age-salary status, and (4) present work level, which the Lockwood study found to be important in 1954, were still operative and could be considered as effective predictors of success on the Certified Professional Secretary examination. In addition, the study was to determine if the effect of assistance from the employer had any effect on success on the CPS exam. Success was defined as passing the examination (certification) as opposed to passing zero, one, or two sections only (non-certification).

A random sample of secretaries who took the 1968 examination was chosen. Two groups were used--117 secretaries who had been certified following the CPS examination and 417 candidates who had

³⁹Frances M. Craig, "Factors Affecting Performance on the Certified Professional Secretary Examinations," (Unpublished Master's Thesis, Northern Illinois University, 1969).

passed two or fewer than two sections. Replies were tabulated as to general background, educational background, and work experience background of the candidates. The biserial coefficient of correlation was used to determine the significance of the findings. This same statistical test was used in the 1954 Lockwood study.

A non-significant correlation was found between the level of past work experience and success in passing the exam, although there was some indication that experience in the job classifications of "secretary" and "executive secretary" was more valuable than other types of experience. Similarly, a non-significant correlation was found between present work level and success in passing the CPS examination, although employment in the job classification of "executive secretary" seemed desirable.

A non-significant correlation was found between the extent of higher education and success in passing the CPS examination.

A non-significant correlation existed between present age-salary status and success in passing the examination. While the certified secretaries made higher salaries at a younger age than the secretaries who failed to certify, the differences were so slight that they were insignificant. This finding is in conflict with that in the Lockwood, Hines, and Lee studies, where CPSs did make significantly higher salaries at younger ages.

A non-significant correlation was found between assistance by the employer and success in passing the examination.

LaBarre, 1974.⁴⁰ A study was completed by James E. LaBarre at the University of North Dakota to determine the relationship of selected personal and academic factors to candidates' performance on the 1973 Certified Professional Secretary examination.

A CPS Candidate Information Profile was completed by each of the 1,014 candidates registered to sit for the 1973 examination for the first time. The selected personal and academic factors consisted of 106 predictor variables contained in the profiles. Data regarding performance on the CPS examination were received for the 1,014 candidates from the Institute for Certifying Secretaries. Performance was based on the actual scores received on each of the six parts of the examination. A Pearson Product-Moment correlation was obtained to determine the linear relationship between predictor variables and the scores on the examination. Those variables with a relationship significant at the .01 level were then used for a multiple regression analysis. Using stepwise multiple regression analysis, comparisons of the selected predictors to candidates' information on each part of the CPS exam were made. Prediction equations based on the multiple regression analyses were used to predict future candidates' performance on the examination. It should be noted that some variables not significant at the .01 level (not considered in the multiple regression model by LaBarre) may have contributed to the multiple regression

⁴⁰James E. LaBarre, "The Relationship of Selected Personal and Academic Factors to Predictability of Performance on the Certified Professional Secretary Examination," (Unpublished Doctoral Dissertation, University of North Dakota, 1975).

equation when used in conjunction with other variables to predict performance on the examination.

The relationship between the predictors selected for inclusion in the prediction equations for each part and performance on each part were significant at the .01 level. Table I shows the best combinations of predictors for each part.

Thirty-eight variables were selected to predict certification (all six parts passed)/noncertification (less than 6 parts passed). These variables accounted for only 15 percent of the criterion variance.

High school grade point average was consistently the best predictor in the study. Collegiate grade point average was a significant predictor of performance on five of the seven analyses.

The employment status of candidates had little influence on the regression equations. Therefore, current employment status of candidates was not a significant predictor of performance.

Summary of Studies Related to Present Study

The Montgomery study found no significant correlations among full-time educational pursuits, full-time work experience, and passing sections of the test. The study is similar to the present one regarding correlations among education and work experience and passing sections of the test. However, the present study is more limited in scope since it does not attempt to relate study habits to success on the examination. The populations studied, in addition, are different. Only secretaries taking the exam for the first time were used in the present study, while Montgomery used secretaries who completed the

TABLE I
PREDICTORS SELECTED FOR REGRESSION EQUATIONS
(LO-BARRE STUDY)

Part	Predictors	Coefficient of Determination
I	High school office practice, high school GPA, non-collegiate business law, collegiate business law, collegiate psychology, and years elapsed since full-time attendance in school	35%
II	H.S. GPA, H.S. general business, H.S. and collegiate GPA, and collegiate accounting	32%
III	H.S. GPA, H.S. office practice, H.S. business Eng., noncollegiate GPA, and collegiate GPA	34%
IV	No. courses completed in college accounting, H.S. GPA, No. semesters completed of H.S. general business	32%
V	H.S. GPA, formal Review Session for Pt. I, age, collegiate accounting, hours of informal preparation for Pt. II, and years elapsed since full-time attendance in school	10%
VI	H.S. GPA, educational level completed, full-time secretarial positions held, attendance at formal review sessions of Part I, No. of semesters completed in H.S. office practice, and collegiate GPA	19%

examination as his population. Some of the secretaries in the Montgomery study, therefore, had prior exposure to the test in previous years, whereas the secretaries in the present study did not.

Craig found no significant correlation among extent of higher education or level of work experience and success on the examination. The Craig study is similar to the present one in that work experience and education are related to success on the examination. However, Craig used level of work experience, whereas the present study used amount, or number of years, of work experience. As with the Montgomery study, the population selected for the study differs from the present study.

Both the Montgomery and Craig study used the questionnaire method for obtaining data. Data for the present study were obtained directly from application blanks rather than from the secretaries themselves. Results in the present study may differ for that reason, since information was obtained for all secretaries in the sample and was not limited to the type of subjects who tend to respond to questionnaires.

LaBarre developed performance prediction equations based on the analysis of 106 predictor variables. Although the population for the LaBarre study was similar to the population for the present study, direct comparisons of results were difficult because of the vast differences in scope of the studies; that is, LaBarre used 106 predictor variables from a population of 1,014 secretaries, while the present study used two predictor variables from a population of 2,074 secretaries. Results from the correlations of predictors chosen for

the present study, nevertheless, were related to similar predictors in the LaBarre study.

Summary

This chapter has reviewed 17 studies on the CPS examination over a period of 25 years. Those studies have analyzed examination study materials, examination validity, relationship of the rating to job performance, characteristics of participants, benefits of success on the examination, and factors related to CPS examination performance. The present study has developed some of the hypotheses about success, particularly, and has expanded the knowledge base for the CPS examination.

CHAPTER III

METHODS OF PROCEDURE

I. NATURE AND SOURCES OF DATA

The data for this study were obtained from the Institute for Certifying Secretaries in Kansas City, Missouri. Since the number of years of formal education and work experience is required to prove eligibility for taking the examination, the information was obtained from application blanks. No personal contact with the candidates was necessary.

II. PROCEDURE

The following procedure was used in this study:

1. Secretaries taking all sections of the 1978 examination for the first time were used for this study. Only secretaries with verified experience were used; therefore, college seniors taking the exam before fulfilling work experience requirements were not included. In addition, secretaries retaking the entire examination after not passing within the five-year limit were not used. The population, therefore, included a total of 2,074 secretaries.
2. Fifty-seven out of the group of 2,074 took fewer than six sections and were eliminated from the analysis. Of the 2,017 that remained, application blanks were not available for 189.

The majority of the 189 persons were approved in a previous year. Therefore, 1,828 cases were used for the data analysis where the variables of education and experience were required. For those procedures not involving education and experience, 2,017 cases were used.

3. The number of years of formal, post-high school education and number of years of work experience of each candidate were obtained from the Institute for Certifying Secretaries in Kansas City, Missouri.
4. The relationship among formal education, work experience, and the number of sections passed by each candidate was determined through analysis of variance and multiple regression techniques.
5. The relationship among formal education, work experience, and the raw score on each section by each candidate was determined through analysis of variance and multiple regression techniques.
6. The population was divided into seven groups: those who passed no sections (Group I); those who passed one section (Group II); those who passed two sections (Group III); those who passed three sections (Group IV); those who passed four sections (Group V); those who passed five sections (Group VI); and those who passed six sections (Group VII). A mean score for each part was computed for each group, and an F-ratio was obtained to detect differences in the mean scores on each

part among the seven groups. The Scheffe method at the .05 level of significance was then used to find exactly where the differences existed.

7. For those candidates who did not pass individual sections of the 1978 examination, one-way analysis of variance was used to compare differences of formal education and work experience based on whether the candidate scored in the lower, middle, or upper third of those not passing each section. Individual sections were considered separately.
8. The population was divided into five groups according to amount of education as follows: Less than High School Diploma (Group I); High School Diploma (Group II); One Year of College (Group III); Two-Three Years of College (Group IV); Bachelor's or Master's Degree (Group V). The mean number of sections passed was computed for each group. An F-ratio was obtained to detect differences in the mean number of sections passed by each group. The Scheffe method was then used to detect exactly where the differences existed.

A mean score on each section also was obtained for each group. An F-ratio was obtained to detect differences in the mean scores on each part among the five groups. The Scheffe method was again used to find exactly where the differences existed.

9. The number passing each section within each educational division was computed. Then the chi-square test was used to make

comparisons among the five educational groups based on whether a candidate did or did not pass a particular section.

CHAPTER IV

RESULTS OF THE STUDY

In May, 1978, 2,074 experienced secretaries were approved to take the 1978 CPS examination. Fifty-seven out of this group took fewer than six sections and were eliminated from the analysis. Of the 2,017 that remained, application blanks were not available for 189. The majority of the 189 persons were approved in a previous year. Therefore, 1,828 cases were used for the data analysis where the variables of education and experience were required. For those procedures not involving education and experience, 2,017 cases were used.

Various statistical techniques were used to study the relationships among educational and work experience background factors and scores on the six parts of the CPS examination. Education ranged from two years of high school to master's degree level. Work experience in the sample ranged from 1 year to 40.

I. RELATIONSHIPS AMONG EDUCATION, EXPERIENCE, AND NUMBER OF SECTIONS PASSED

The relationships among education, experience, and the number of sections passed by each candidate were determined through analysis of variance and multiple regression techniques. Number of sections passed was considered an indicator of overall performance on the examination. Findings are presented as related to a hypothesis for each question this study answered.

Hypothesis 1: There is no relationship between number of years of formal education and the number of sections passed by each candidate on the 1978 CPS examination.

Hypothesis 1 was rejected at the .001 level of significance (F-value of 69.217 as compared to a needed F-value of 10.8). Education accounted for 3.7 percent of the variation in the number of sections passed ($r^2 = .037$). The significant F-value indicated that there was a definite relationship between the two variables, but the low coefficient of determination of .037 indicated that the relationship was not a strong one.

Hypothesis 2: There is no relationship between number of years of work experience and number of sections passed by each candidate on the 1978 CPS examination.

Hypothesis 2 could not be rejected at the .05 level of significance (F-value of .183 compared to a needed F-value of 3.84). Therefore, there was not a significant relationship between amount of work experience and overall performance on the examination when experience was considered by itself.

Hypothesis 3: There is no relationship among number of years of formal education, along with the number of years of work experience, considered together, and number of sections passed by each candidate on the 1978 CPS examination.

Hypothesis 3 was rejected at the .001 level of significance (F-value of 37.475 as compared to a needed F-value of 10.8). Partial F's for both education and experience were higher than the F-value when each variable was considered alone. It should be noted that the partial F for education was still significant at the .001 level (F-value of 74.760 as compared to required F of 10.8), and the partial F for experience was significant at

the .05 level (F-value of 5.561 compared to needed F-value of 3.84) when used as a predictor in conjunction with education. The contribution of experience added very little to the regression equation, however, since the coefficient of determination for both variables together was .039 as compared to .037 for education used alone.

Table II summarizes the relationships among education, experience, and the number of sections passed. Results shown apply to Hypotheses 1 through 3.

II. RELATIONSHIPS AMONG EDUCATION, EXPERIENCE, AND RAW SCORES ON INDIVIDUAL SECTIONS

The relationships among education, experience, and the raw scores on each section of the examination were determined through analysis of variance and multiple regression techniques. Results for Sections I through VI are summarized in Tables III-V. The coefficients of determination in each case were so small that they showed that the various factors included in the multiple regression equations had little or no influence as predictors. Because those coefficients were so small, the regression equations are not reported individually in this study.

Hypothesis 4: There is no relationship between the number of years of formal education and the raw score on each section for each candidate on the 1978 CPS examination.

Table III summarizes results for Hypothesis 4.

Part I - Environmental Relationships in Business. Hypothesis 4 was rejected at the .001 level of significance for Part I (F-value of 87.955 as compared to required F of 10.8). The coefficient of determination

TABLE II
ANALYSIS OF VARIANCE ON RELATIONSHIPS AMONG EDUCATION,
EXPERIENCE, AND NUMBER OF SECTIONS PASSED

Source	Simple		Multiple		
	r^2	F^a	R^2	Partial F^a	F^a
Education	.037	69.217***		74.760***	
Experience	.000	.183	.039	5.561*	37.475***

^aSimple F values and Partial F values have 1 and 1827 degrees of freedom. Multiple F has 1 and 1826 degrees of freedom.

*F-value significant at .05 level (> 3.84).

**F-value significant at .01 level (> 6.63)

***F-value significant at .001 level (> 10.8)

TABLE III
ANALYSIS OF VARIANCE ON RELATIONSHIP BETWEEN
EDUCATION AND RAW SCORES ON SIX SECTIONS

Part	Name	r^2	F^a
I	Environmental Relationships	.046	87.955***
II	Business and Public Policy	.008	14.545***
III	Economics and Management	.035	65.491***
IV	Financial Analysis	.035	66.991***
V	Communications and Decision Making	.007	13.616***
VI	Office Procedures	.038	72.126***

^aF-values have 1 and 1,827 degrees of freedom.

*F-value significant at .05 level (> 3.84).

**F-value significant at .01 level (> 6.63).

***F-value significant at .001 level (> 10.8).

TABLE IV
ANALYSIS OF VARIANCE ON RELATIONSHIP BETWEEN
EXPERIENCE AND RAW SCORES ON SIX SECTIONS

Part	Name	r^2	F^a
I	Environmental Relationships	.003	3.83998
II	Business and Public Policy	.001	1.913
III	Economics and Management	.001	2.206
IV	Financial Analysis	.000	.447
V	Communications and Decision Making	.007	12.448***
VI	Office Procedures	.003	5.138*

^aF-values have 1 and 1,827 degrees of freedom.

*F-value significant at .05 level (> 3.84).

**F-value significant at .01 level (> 6.63).

***F-value significant at .001 level (> 10.8).

TABLE V
ANALYSIS OF VARIANCE ON RELATIONSHIPS AMONG EDUCATION,
EXPERIENCE, AND RAW SCORES ON SIX SECTIONS

Part	Source of Variation	R ²	Partial F ^a	F ^b
I	Education Experience	.046	83.902*** .009	43.958***
II	Education Experience	.008	12.916*** .302	7.421**
III	Education Experience	.041	75.246*** 11.668***	38.771***
IV	Education Experience	.039	73.386*** 6.652**	36.925***
V	Education Experience	.018	21.337*** 20.165***	16.962***
VI	Education Experience	.038	66.945*** .176	36.135***

^aPartial F's have 1 and 1,827 degrees of freedom.

^bMultiple F's have 1 and 1,826 degrees of freedom.

*F-value significant at .05 level (> 3.84).

**F-value significant at .01 level (> 6.63).

***F-value significant at .001 level (> 10.8).

indicated that the amount of education accounted for 4.6 percent of the variation in raw scores on Part I. The relationship was statistically significant, but the low r^2 indicated that the relationship was weak.

Part II - Business and Public Policy. Hypothesis 4 was rejected for Part II at the .001 level of significance (F-value of 14.545 as compared to required F of 10.8). Although the relationship was statistically significant, education accounted for only 0.8 percent of the variation in the raw scores; thus, the relationship was extremely weak.

Part III - Economics and Management. Hypothesis 4 was rejected for Part III at the .001 level of significance (F-value of 65.491 as compared to required F-value of 10.8). Therefore, there was a relationship between education and the raw score on Part III; however, the relationship was not strong, as indicated by the coefficient of determination of .035.

Part IV - Financial Analysis and the Mathematics of Business. Hypothesis 4 was rejected for Part IV at the .001 level of significance (F-value of 66.991 as compared to required F of 10.8). Again, the r^2 of .035 indicated a weak relationship even though it was a statistically significant one.

Part V - Communications and Decision Making. Hypothesis 4 was rejected for Part V at the .001 level of significance (F-value of 13.616 as compared to required F of 10.8). The relationship, although statistically significant, was extremely weak, accounting for only 0.7 percent of the variation in raw score on Part V.

Part VI - Office Procedures. Hypothesis 4 was rejected at the .001 level of significance for Part VI (F-value of 72.126 as compared to

required F of 10.8). The coefficient of determination of .038 indicated that education accounted for 3.8 percent of the variation in raw scores on Part VI.

Hypothesis 5: There is no relationship between the number of years of work experience and the raw score on each section for each candidate on the 1978 CPS examination.

Refer to Table IV for a summary of results for Hypothesis 5.

Part I - Environmental Relationships in Business. Hypothesis 5 could not be rejected at the .05 level of significance for Part I (F-value of 3.83998 was just short of the required F-value of 3.84). There was no relationship, therefore, between the number of years of work experience and the raw score on Part I.

Part II - Business and Public Policy. Hypothesis 5 could not be rejected at the .05 level for Part II (F-value of 1.913 as compared to needed F-value of 3.84). There was no relationship, therefore, between amount of work experience in years and the raw score made on Part II.

Part III - Economics and Management. Hypothesis 5 could not be rejected at the .05 level of significance for Part III (F-value of 2.206 as compared to required F-value of 3.84). There was no relationship, then, between number of years of work experience and raw score made on Part III.

Part IV - Financial Analysis and the Mathematics of Business. Hypothesis 5 could not be rejected at the .05 level for Part IV (F-value of .447 as compared to required F of 3.84). The low F-ratio showed that there was no relationship between number of years of work experience and raw score made on Part IV. The F-value for Part IV, using experience as

a single predictor, was the lowest among the F-ratios for the six sections.

Part V - Communications and Decision Making. Hypothesis 5 was rejected at the .001 level of significance for Part V (F-value of 12.448 as compared to required F of 10.8). The relationship between years of experience and raw score on Part V, then, was statistically significant; however, the relationship was extremely weak, as indicated by the coefficient of determination of .007. The F-value for Part V of 12.448, using experience as a single predictor of raw score, was the highest among the six sections and the only one which was significant at the .001 level.

Part VI - Office Procedures. Hypothesis 5 was rejected at the .05 level of significance for Part VI (F-value of 5.138 as compared to a required F of 3.84). There was a significant relationship, therefore, between number of years of work experience and the raw score made on Part VI. Again, however, the coefficient of determination of .003 indicated that the relationship was extremely weak.

Hypothesis 6: There is no relationship among the number of years of formal education and the number of years of work experience, considered together, and the raw score on each section for each candidate on the 1978 CPS examination.

Refer to Table V for a summary of results for Hypothesis 6.

Part I - Environmental Relationships in Business. Hypothesis 6 was rejected at the .001 level of significance (F-value of 43.958 as compared to the required F of 10.8) for Part I. The partial F of 83.902 for education is significant at the .001 level, but the partial F

of .009 for experience is not significant. The multiple R^2 for the two variables taken together was .046, the same as the simple r^2 for education alone. Experience, then, added nothing to the regression equation when considered in conjunction with education. In fact, education was a better predictor of raw score on Part I by itself than with experience, as indicated by the higher F-value when it was used as a predictor alone.

Part II - Business and Public Policy. Hypothesis 6 was rejected at the .01 level of significance for Part II (F-value of 7.421 as compared to the required F value of 6.63). The partial F for education fell from 14.545 when used alone as a predictor to 12.916, still a significant value, when used with education. The non-significant F of 1.913 for experience used alone also fell to an even lower value of .302 when used with education to predict raw score on Part II. The multiple R^2 for the two variables taken together was .008, the same as the simple r^2 for education alone. Therefore, even though the multiple F value was statistically significant, education by itself was a better predictor of raw score on Part II than were education and experience together.

Part III - Economics and Management. Hypothesis 6 was rejected at the .001 level of significance for Part III (F-value of 38.771 as compared to needed F-value of 10.8). The partial F for education remained significant at the .001 level with a partial F-value of 75.246. The partial F for experience, which did not produce a significant F-value when used alone as a predictor, was significant at the .001 level when used in conjunction with education to predict raw score on Part III.

The relationship was still weak, with a multiple coefficient of determination of .041 as compared to a simple coefficient of determination for education alone of .035; nevertheless, experience did add to the regression equation when considered together with number of years of education.

Part IV - Financial Analysis and the Mathematics of Business.

Hypothesis 6 was rejected at the .001 level of significance for Part IV (F-value of 36.925 as compared to the needed F-value of 10.8). The partial F for education was 73.396, significant at the .001 level, as compared to 66.991 when education was considered alone. The partial F for experience of 6.652 was significant at the .01 level (F-value required of 6.63), as compared to the non-significant F of .447 when experience was considered alone. The multiple R^2 for education and experience taken together was .039, a slight improvement over the simple r^2 of .035 for education alone. Therefore, education and experience together were better predictors of raw score on Part IV than either variable alone, although the relationship was still a weak one.

Part V - Communications and Decision Making. Hypothesis 6 was rejected for Part V at the .001 level of significance (F-value of 36.135 as compared to the required F-value of 10.8). The partial F's for both education and experience increased from the simple F's when each variable was considered as a predictor by itself. The partial F for education was 21.337, and the simple F for education was 13.616, both values significant at the .001 level. The partial F for experience was 20.165, and the simple F for experience was 12.448, both values

significant at the .001 level. The coefficient of determination for the multiple regression model was .018, an improvement over both education and experience alone. Education and experience contributed about the same amount to the regression equation. The low R^2 value, however, still indicated a slight relationship.

Part VI - Office Procedures. Hypothesis 6 was rejected at the .001 level of significance for Part VI (F-value of 36.135 as compared to needed F of 10.8). The partial F of 66.946 for education, even though significant at the .001 level, was lower than the corresponding simple F when education was used as a predictor by itself. Similarly, the partial F for experience of .176, which was not a significant F-value, was lower than the simple F for experience by itself of 5.138, which was significant at the .05 level. Experience contributed nothing to the multiple regression model, as indicated by the .038 coefficient of determination, which matched that for the simple regression model of education alone.

III. RELATIONSHIPS AMONG SEVEN GROUPS OF CANDIDATES PASSING FROM 0 TO 6 SECTIONS OF THE 1978 CPS EXAMINATION

Mean scores on each section of the 1978 CPS examination were compared through F-tests for seven groups of secretaries as follows:

Group 1 - Passed 0 sections;

Group 2 - Passed 1 section;

Group 3 - Passed 2 sections;

Group 4 - Passed 3 sections;

Group 5 - Passed 4 sections;

Group 6 - Passed 5 sections; and

Group 7 - Passed 6 sections.

To detect exactly where those differences existed, the Scheffe method was applied. The sample size of the seven groups was unequal.

Hypothesis 7: There is no significant difference among the seven groups of secretaries passing from 0 to 6 sections of the 1978 CPS examination based on the mean score on each section.

Hypothesis 7 was rejected for each of the six parts of the exam at the .001 level of significance. The one-way analysis of variance results are summarized in Table VI for each of the six sections. The very large F-values in each case showed that groups of candidates passing from zero to six sections of the exam differed significantly (F-values significant at the .001 level) from one another on their performance on each section. The F-probabilities in Table VI indicated that the probability that mean scores of the seven groups differed from each other by chance alone was actually much less than .001 for all six sections.

Mean scores on each section by group are summarized in Table VII. The Scheffe test indicated that the mean score of each group differed significantly from the mean score of every other group for Part III, Economics and Management, and Part VI, Office Procedures. For Part I, Environmental Relationships, the mean scores for Groups 7 and 6 (6 and 5 sections passed, respectively) did not differ significantly, as indicated by the vertical line in Table VII under Part I. Similarly for Part II, the mean score for Groups 7 and 6 were not significantly

TABLE VI

ANALYSIS OF VARIANCE ON DIFFERENCES AMONG MEAN SCORES
OF SEVEN GROUPS* BASED ON NUMBER OF SECTIONS PASSED

Part	Name	F-Ratio**	F-Probability
I	Environmental Relationships	427.639	.0000
II	Business and Public Policy	358.770	.0000
III	Economics and Management	526.470	.0000
IV	Financial Analysis	260.992	.0000
V	Communications and Decision Making	132.293	.0000
VI	Office Procedures	376.930	.0000

*See pages 71-72.

**F-value of 10.8 required for significance at the .001 level.

TABLE VII
MEAN SCORES ON INDIVIDUAL SECTIONS BY GROUPS
BASED ON NUMBER OF SECTIONS PASSED

Group	N	Mean Score					
		I	II	III	IV	V	VI
6 Sections Passed	170	97.1 *	61.9	66.9	43.4	122.1	65.2
5 Sections Passed	239	95.3	59.9	63.3	38.2	104.7	61.6
4 Sections Passed	247	90.2	55.6	58.9	34.4	101.9	58.5
3 Sections Passed	286	85.6	53.1	55.4	32.0	98.0	55.5
2 Sections Passed	298	80.4	50.8	50.7	30.2	97.0	52.6
1 Section Passed	382	74.6	46.8	46.8	27.2	93.3	49.0
0 Sections Passed	395	67.6	42.3	42.5	24.6	74.5	45.3
	2,017						

*Means marked with common vertical lines do not differ significantly from each other by Scheffe test.

different. The vertical line under Part IV, Financial Analysis, in Table VII shows that the mean score of Groups 4 and 3 (3 and 2 sections passed, respectively) did not differ significantly from each other by the Scheffe test. For Part V, the three vertical lines in Table VII show that the mean scores for Groups 6 and 5 (5 and 4 sections passed, respectively), Groups 5, 4, and 3 (4, 3, and 2 sections passed, respectively), and Groups 4, 3, and 2 (3, 2, and 1 sections passed, respectively) did not differ significantly from each other.

IV. RELATIONSHIPS AMONG EDUCATION, EXPERIENCE, AND RANK AMONG THOSE CANDIDATES NOT PASSING EACH SECTION

Scores for 1978 candidates were divided into groups by level of education as follows:

- Group 1 - Less than high school diploma;
- Group 2 - High school diploma;
- Group 3 - One year of college (including business colleges);
- Group 4 - Two-three years of college; and
- Group 5 - Four-year college degree or master's degree.

Absolute and relative frequencies for each category are given in Table VIII.

Scores for 1978 candidates were divided into groups by years of experience as follows:

- Group 1 - One-two years of experience;
- Group 2 - Three-five years;
- Group 3 - Six-ten years;

TABLE VIII
FREQUENCIES BY LEVEL OF EDUCATION OF
FIRST-TIME 1978 CPS CANDIDATES

Level of Education	Absolute Frequency	Relative Frequency
Less than High School Diploma	20	1.1%
High School Diploma	1,110	60.7%
One Year of College	305	16.7%
Two-Three Years of College	236	12.9%
Bachelor's or Master's Degree	158	8.6%

- Group 4 - Eleven-fifteen years;
- Group 5 - Sixteen-twenty years; and
- Group 6 - Twenty-one - forty years.

Absolute and relative frequencies for each category are given in Table IX. These groupings by education and experience were used for the analyses from this point on.

Hypothesis 8: Of those candidates who did not pass individual sections of the 1978 CPS examination, there is no significant difference in years of formal education based on whether the person scored in the lower, middle, or upper third of those not passing each section.

Table X gives frequencies and percentages of candidates not passing each section by level of education.

To test whether differences in education level existed based on whether a candidate scored in the lower, middle, or upper third of those not passing each section, analysis of variance was used. F-values and F-probabilities for the six tests are summarized in Table XI.

Hypothesis 8 was rejected at the .001 level for Part I. Hypothesis 8 was rejected at the .01 level for Parts II, III, IV, and VI. The hypothesis could not be rejected for Part V, which had an F-probability of .116. Actual F-values and F-probabilities for each part are given in Table XI.

Table XII shows the mean number of years of education by group based on whether a candidate scored in the lower, middle, or upper third of those not passing each section. To find out exactly where differences did exist, the Scheffe test was applied.

TABLE IX
FREQUENCIES BY YEARS OF EXPERIENCE OF
FIRST-TIME 1978 CPS CANDIDATES

Years of Experience	Absolute Frequency	Relative Frequency
1-2	69	3.5%
3-5	655	35.8%
6-10	671	36.7%
11-15	269	14.7%
16-20	92	5.0%
21-40	73	4.0%

TABLE X
FREQUENCIES BY LEVEL OF EDUCATION FOR THOSE
CANDIDATES NOT PASSING EACH SECTION

	N	Part I Freq	%	Part II Freq	%	Part III Freq	%	Part IV Freq	%	Part V Freq	%	Part VI Freq	%
Less Than High School	20	15	75.0	13	65.0	16	80.0	15	75.0	12	60.0	15	75.0
High School Diploma	1,110	649	58.5	573	51.6	709	63.9	802	72.3	651	58.6	685	61.7
1 Year College	305	178	58.4	154	50.5	187	61.3	211	69.2	166	54.4	186	61.9
2-3 Years College	236	108	45.8	112	47.5	135	57.2	144	61.0	129	54.7	124	52.5
Bachelor's or Master's Degree	158	49	31.0	65	41.1	61	38.6	79	50.0	77	48.7	53	33.5
	1,829	999		917		1,108		1,251		1,035		1,063	

*Percentage of candidates not passing each section by level of education.

TABLE XI

ANALYSIS OF VARIANCE ON DIFFERENCES AMONG MEAN LEVELS
OF EDUCATION^a BASED ON RANKING IN THIRDS OF THOSE
CANDIDATES NOT PASSING EACH SECTION

Part	Name	F-Ratio	F-Probability
I	Environmental Relationships	9.188	.0001***
II	Business and Public Policy	3.052	.048*
III	Economics and Management	5.689	.004**
IV	Financial Analysis	4.363	.013**
V	Communications and Decision Making	2.156	.116
VI	Office Procedures	5.839	.003**

^aSee Table VII for groupings.

*F-value significant at .05 level.

**F-value significant at .01 level.

***F-value significant at .001 level.

TABLE XII
 MEAN YEARS OF EDUCATION BY GROUPS BASED
 ON RANKING BY THIRDS OF CANDIDATES
 NOT PASSING EACH SECTION

Group	Mean Years of Education					
	I	II	III	IV	V	VI
Upper Third	2.68	2.68	2.66	2.68	2.70	2.68
Middle Third	2.48*	2.64	2.58	2.56	2.59	2.52
Lower Third	2.41	2.49	2.43	2.49	2.55	2.45

*Means marked with common vertical lines do not differ significantly from each other by Scheffe test.

The vertical line in Table XII for Part I shows that the mean level of education for those who scored in the lower and middle third of those candidates not passing Part I, Environmental Relationships in Business, did not differ significantly from each other.

For Part II, Business and Public Policy, the Scheffe procedure could not find where significant differences among the three groups of candidates based on number of years of education occurred even though differences were indicated by the analysis of variance. This finding is shown in Table XII by the single vertical line.

The vertical lines under Part III, Economics and Management, in Table XII show that there was no significant difference in mean number of years of education between those candidates scoring in the upper and middle third of those not passing each section; likewise, there was no significant difference in mean years of education between those candidates scoring in the middle and lower third of those not passing that section. There was a significant difference, however, between mean years of education of those candidates scoring in the upper and lower thirds of those not passing Part III.

The vertical lines under Part IV, Financial Analysis and the Mathematics of Business, of Table XII show that there was no significant difference in mean level of education between those candidates scoring in the upper and middle third of those not passing that section; likewise, there was no significant difference in means years of education between those candidates scoring in the middle and lower third of those not passing that section. There was a significant difference, however,

between mean years of education of those candidates scoring in the upper and lower thirds of those not passing Part IV.

For Part V, Communications and Decision Making, there were no significant differences among the three groups of candidates based on number of years of education. This finding is shown in Table XII by the single vertical line.

The vertical lines under Part VI, Office Procedures, of Table XII show that there was no significant difference between those candidates who scored in the upper and middle third of those candidates not passing that section based on years of formal education; likewise, there was no significant difference in mean years of education between those candidates scoring in the middle and lower third of those not passing that section. There was a significant difference, however, between mean years of education of those candidates scoring in the upper and lower third of those not passing Part VI.

Hypothesis 9: Of those candidates who did not pass individual sections of the 1978 CPS examination, there is no significant difference in years of work experience based on whether the person scored in the lower, middle, or upper third of those not passing each section.

Table XIII gives frequencies and percentages of candidates not passing each section by years of experience.

To test whether significant differences in amount of work experience existed based on whether a candidate scored in the upper, middle, or lower third of those candidates not passing each section, analysis of variance was used. F-values and F-probabilities are summarized for the six tests in Table XIV.

TABLE XIII

FREQUENCIES BY YEARS OF WORK EXPERIENCE FOR
THOSE CANDIDATES NOT PASSING EACH SECTION

Experience	N	Part I		Part II		Part III		Part IV		Part V		Part VI	
		Freq	%*	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
1-2 Years	69	26	37.7	32	46.4	32	46.4	40	58.0	35	50.7	28	40.6
3-5 Years	655	367	56.0	327	49.9	425	64.9	458	69.9	401	61.2	386	58.9
6-10 Years	671	356	53.1	342	51.0	406	60.5	461	68.7	385	57.4	393	58.6
11-15 Years	269	153	36.9	122	45.4	155	57.6	190	70.6	132	49.1	155	57.6
16-20 Years	92	52	65.5	47	51.1	48	52.2	55	59.8	41	44.6	53	57.6
21-40 Years	<u>73</u>	<u>46</u>	<u>63.0</u>	<u>46</u>	<u>63.0</u>	<u>42</u>	<u>57.5</u>	<u>47</u>	<u>64.4</u>	<u>41</u>	<u>56.2</u>	<u>48</u>	<u>65.8</u>
Total	1,829	999		917		1,108		1,251		1,035		1,063	

*Percentage of candidates not passing each section by years of experience.

TABLE XIV

ANALYSIS OF VARIANCE ON DIFFERENCES AMONG MEAN YEARS
OF EXPERIENCE^a BASED ON RANKING IN THIRDS OF
THOSE CANDIDATES NOT PASSING EACH SECTION

Part	Name	F-Ratio	F-Probability
I	Environmental Relationships	.067	.936
II	Business and Public Policy	.902	.406
III	Economics and Management	.920	.399
IV	Financial Analysis	.293	.746
V	Communications and Decision Making	1.643	.194
VI	Office Procedures	.607	.545

^aSee Table VIII for groupings.

*F-value significant at .05 level.

**F-value significant at .01 level.

***F-value significant at .001 level.

Hypothesis 9 could not be rejected for any of the six sections. It can be concluded, therefore, that there was no significant difference for Parts I to VI among years of work experience based on whether candidates scored in the upper, middle, or lower third of those not passing each section.

V. RELATIONSHIPS AMONG GROUPS BASED ON AMOUNT OF EDUCATION USING MEAN NUMBER OF SECTIONS PASSED

The population was divided into five groups according to years of education as follows:

Group 1 - Less than high school diploma;

Group 2 - High school diploma;

Group 3 - One year of college (including business college);

Group 4 - Two-three years of college;

Group 5 - Bachelor's or Master's degree; and

see Table VIII, page 76, for frequencies of candidates in each group. The mean number of sections passed was computed for each group. An F-ratio was then obtained to detect differences in the mean number of sections passed among the groups. Next, the Scheffe method was applied to detect exactly where differences existed.

Hypothesis 10: There is no significant difference among mean number of sections passed based on groupings of candidates by number of years of education.

Hypothesis 10 was rejected at the .001 level of significance (F-value of 17.000 as compared to the required F of 4.62, with 4 and ∞ degrees of freedom). There was, therefore, a significant difference

among candidates grouped by years of education based on the mean number of sections passed.

Mean number of sections passed by groups based on level of education are shown in Table XV. The vertical line in the table shows that, according to the Scheffe test at the .05 level of significance, there was no significant difference among the first four groups, ranging from Less than High School Diploma to Three Years of College, based on mean number of sections passed.

VI. RELATIONSHIPS AMONG GROUPS BASED ON AMOUNT OF EDUCATION USING MEAN RAW SCORES ON EACH SECTION

A mean score on each of the six parts was computed for each of the categories of education. An F-ratio was then obtained to detect differences in the mean scores on each part among the five groups. Again, the Scheffe method was applied to detect exactly where differences existed.

Hypothesis 11: There is no significant difference among mean scores of candidates based on groupings by number of years of education.

Hypothesis 11 was rejected at the .001 level for Parts I, III, IV, and VI. Hypothesis 11 was rejected at the .01 level for Parts II and V. Exact F-values and exact F-probabilities are shown in Table XVI. There was a significant difference, therefore, among the mean scores of candidates on each section based on groupings by number of years of education.

TABLE XV
MEAN NUMBER OF SECTIONS PASSED BASED ON
YEARS OF EDUCATION

Group	Mean
Less Than High School Diploma	1.70 *
High School Diploma	2.33
1 Year of college	2.45
2-3 Years of College	2.81
Bachelor's or Master's Degree	3.57

*Means marked with common vertical line do not differ significantly from each other by Scheffe test.

TABLE XVI
ANALYSIS OF VARIANCE ON DIFFERENCES AMONG SCORES BASED ON
GROUPINGS^a BY YEARS OF EDUCATION

Part	Name	F-Ratio	F-Probability
I	Environmental Relationships	23.048	.0000***
II	Business and Public Policy	4.099	.003**
III	Economics and Management	17.601	.0000***
IV	Financial Analysis	15.951	.0000***
V	Communications and Decision Making	3.867	.004**
VI	Office Procedures	17.763	.0000***

^aSee Table VII for groupings.

*F-value significant at the .05 level.

**F-value significant at the .01 level.

***F-value significant at the .001 level.

To detect exactly where these differences existed, the Scheffe method was applied. Mean scores by group are shown in Table XVII along with the results of the Scheffe test.

Under Part I in the table, Environmental Relationships, the vertical lines show that there was no significant difference between the mean scores for those candidates with Less than a High School Diploma and those with a High School Diploma, no significant difference between the mean scores for those candidates with a High School Diploma and those with One Year of College, and no significant difference in the mean scores of those candidates with One Year of College and those with Two-Three Years of College. There was a significant difference between the mean score for those with a Bachelor's or Master's Degree and the score for every other group. Under Part II, Business and Public Policy, the single vertical line shows that the Scheffe procedure could find no significant differences among any of the five educational groups, ranging from Less than High School Diploma to Master's Degree, even though the F-test indicated that differences did exist. The vertical line under Part III, Economics and Management, shows that there was no significant difference among the mean scores for the first four educational groups, ranging from Less than High School Diploma to Three Years of College. For Part IV, the Scheffe procedure could find no significant differences among the mean scores for any of the five educational groups, as shown by the vertical line under Part IV. Similarly, the vertical lines for Part V, Communications and Decision Making, show that the Scheffe procedure indicated no significant differences among the means for any

TABLE XVII
MEAN SCORE ON EACH SECTION BY GROUP^a BASED
ON YEARS OF EDUCATION

Group	Mean Score					
	I	II	III	IV	V	VI
Less Than High School Diploma	72.5	* 49.0	50.0	30.0	87.1	49.8
High School Diploma	80.8	51.1	52.1	30.5	94.2	53.0
1 Year College	81.7	51.3	52.6	31.3	97.5	53.4
2-3 Years College	84.6	51.5	53.8	32.9	97.8	55.2
Bachelor's or Master's Degree	90.1	54.0	59.0	35.7	100.0	58.5

^aSee Table VIII, page 76, for groupings.

* Means marked with common vertical line do not differ significantly from each other by Scheffe test.

of the five educational groups, ranging from Less than High School Diploma to Master's Degree. For Part VI, there was no significant difference among the mean scores for the first four educational groups, ranging from Less than High School Diploma to Three Years of College.

VII. COMPARISONS AMONG FIVE EDUCATIONAL GROUPS BASED ON PASSING OR NOT PASSING EACH SECTION

To make comparisons among the five educational groups based on whether the candidates did or did not pass a particular section, the chi-square test was used. Frequencies for passing or not passing for each of the five categories along with the calculated chi-square values are shown in Table XVIII.

Hypothesis 12: There is no significant difference among the five educational groups based on whether candidates did or did not pass individual sections.

Hypothesis 12 was rejected at the .001 level for Part I, Environmental Relationships in Business (Chi-square of 54.7). There was a significant difference, therefore, among the five educational groups based on whether candidates did or did not pass Part I. The more education a candidate had, the more likely the candidate was to pass Part I.

Hypothesis 12 could not be rejected for Part II, Business and Public Policy (Chi-square of 8.449). The null hypothesis, therefore, could not be rejected; that is, there was no significant difference among the five educational groups based on whether candidates did or did not pass Part II.

TABLE XVIII

FREQUENCIES OF PASSING OR NOT PASSING
PARTS I-VI OF THE 1978 CPS EXAMINATION

N = 1,829

		Less Than High School	High School Diploma	1 Yr. College	2-3 Yrs. College	Bachelor's or Master's	Total
PART I	NOT PASSED	15 Percent	649 65.0	178 17.8	108 10.8	49 4.9	999 54.6
	PASSED	5 Percent	461 55.5	127 15.3	128 15.4	109 13.1	830 45.4
Chi Square = 54.70 Df = 4 Significant (.001)							
PART II	NOT PASSED	13 Percent	572 62.4	154 16.8	112 12.2	65 7.1	916 50.1
	PASSED	7 Percent	538 58.9	151 16.6	124 13.6	93 10.2	912 49.9
Chi Square = 8.449 Df = 4 Not Significant							

TABLE XVIII (continued)

		Less Than High School	High School Diploma	1 Yr. College	2-3 Yrs. College	Bachelor's or Master's	Row Total
PART III	NOT PASSED	Number Percent	709 64.0	187 16.9	135 12.2	61 5.5	1,108 60.6
	PASSED	Number Percent	401 55.6	118 16.4	101 14.0	97 13.5	721 39.4
Chi Square = 41.339 Df = 4 Significant (.001)							
PART IV	NOT PASSED	Number Percent	802 64.1	211 16.9	144 11.5	79 6.3	1,251 68.4
	PASSED	Number Percent	308 53.3	94 16.3	92 15.9	79 13.7	578 31.6
Chi Square = 38.809 Df = 4 Significant (.001)							

TABLE XVIII (continued)

		Less Than High School	High School Diploma	1 Yr. College	2-3 Yrs. College	Bachelor's or Master's	Row Total
PART V	NOT PASSED	Number Percent	651 62.9	166 16.0	129 12.5	77 7.4	1,035 56.6
	PASSED	Number Percent	459 57.8	139 17.5	107 13.5	81 10.2	794 43.4
Chi Square = 6.91759 Df = 4 Not Significant							
PART VI	NOT PASSED	Number Percent	684 64.4	186 17.5	124 11.7	53 5.0	1,062 58.1
	PASSED	Number Percent	426 55.6	119 15.5	112 14.6	105 13.7	767 41.9
Chi Square = 51.172 Df = 4 Significant (.001)							

Hypothesis 12 was rejected at the .001 level for Part III, Economics and Management (Chi-square of 41.339). There was a significant difference, therefore, among the five educational groups based on whether candidates did or did not pass Part III. The more education a candidate had, the more likely the candidate was to pass Part III.

For Part IV, Financial Analysis, Hypothesis 12 was rejected at the .001 level of significance (Chi-square of 38.809). A significant difference did exist, then, among the five educational groups based on whether candidates did or did not pass Part IV. The more education a candidate had, the more likely the candidate was to pass Part IV.

Hypothesis 12 could not be rejected for Part V, Communications and Decision Making (Chi-square of 6.918). The null hypothesis, then, was accepted; that is, there was no significant difference among the five educational groups based on whether a candidate did or did not pass Part V.

For Part VI, Office Procedures, Hypothesis 12 was rejected at the .001 level of significance (Chi-square of 51.172). There was a significant difference among the five educational groups, therefore, based on whether candidates did or did not pass Part VI. The more education a candidate had, the more likely the candidate was to pass Part VI.

VIII. INTERCORRELATIONS AMONG SCORES ON SIX PARTS OF EXAMINATION

Table XIX shows the intercorrelations among all the scores on the 1978 CPS examination. Intercorrelations among sections ranged from .28 to .71. A relatively high correlation of .71 was found between scores

TABLE XIX
PEARSON CORRELATION COEFFICIENTS
AMONG SCORES ON PARTS I TO VI
FOR 1978 EXAMINATION

N = 2,017

Part	I	II	III	IV	V	VI
I	1.00	.58	.71	.46	.29	.65
II		1.00	.62	.51	.31	.55
III			1.00	.55	.29	.65
IV				1.00	.28	.45
V					1.00	.33
VI						1.00

on Part I, Environmental Relationships, and Part III, Economics and Management. This indicated that the two sections apparently tested some of the same competencies; that is, the content tested by the two sections may be overlapping.

CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the relationship of selected educational background and work experience background factors to success of new candidates on the 1978 Certified Professional Secretary examination. Twelve null hypotheses were tested. Major findings are summarized here.

I. MAJOR FINDINGS

1. Is there a relationship between the number of years of formal education and the number of sections passed by each candidate?

A significant relationship was found between the number of years of formal education and the number of sections passed by each candidate on the 1978 CPS examination; however, the coefficient of determination indicated that the relationship was weak.

2. Is there a relationship between the number of years of work experience and the number of sections passed by each candidate?

No relationship was found between the number of years of work experience and the number of sections passed by each candidate on the 1978 examination.

3. Is there a relationship between the number of years of formal education along with the number of years of work

experience, taken together, and the number of sections passed by each candidate?

A significant relationship was found between the number of years of formal education along with the number of years of work experience, considered together, and the number of sections passed by each candidate on the 1978 CPS examination. When experience was added to the regression equation, the coefficient was increased by only .002. Therefore, experience added little to that equation.

4. Is there a relationship between the number of years of formal education and the raw score on each section for each candidate?

A significant relationship was found between the number of years of formal education and the raw score on each of the six parts of the 1978 CPS examination. The coefficients of determination in each case, however, were so small that the regression equations were of no practical use in predicting scores on the examination.

5. Is there a relationship between the number of years of work experience and the raw score on each section for each candidate?

No relationship was found between the number of years of work experience and the raw scores on Parts I, II, III, and IV of the 1978 CPS examination. A significant relationship was found between the number of years of work experience and the raw scores on Part V, Communication and Decision Making, and Part VI, Office Procedures. For Parts V and VI, however, the coefficients of determination were too small to be of practical use in predicting scores on the examination.

6. Is there a relationship between the number of years of formal education and the number of years of work experience, taken together, and the raw score on each section for each candidate?

A significant relationship was found between education and work experience considered together and the raw score on Part I, Environmental Relationships in Business. Education level alone, however, was just as good a predictor as education and experience considered together. A significant relationship was also found between education and experience considered together and the raw score on Part II, Business and Public Policy; however, education was actually a better predictor by itself than it was with experience. For Part III, Economics and Management, a significant relationship was found between education and experience and raw score. In this case, the two variables together predicted raw score better than did either variable alone. The same relationships were found for Part IV, Financial Analysis and the Mathematics of Business, and for Part V, Communications and Decision Making. A significant relationship was found between education and experience, considered together, and the raw score on Part VI. Education, however, was a better predictor than were education and experience considered together. Again it should be noted that even though significant relationships were found, the multiple coefficients of determination in each case were too small for the regression equations to be of practical use in predicting raw scores on the examination. Since the range of years of education (7 years) was small, however, low correlations would be expected. The true relationship

between education and success on the examination, therefore, may be stronger than what the actual correlation coefficients indicated.

7. Is there a difference among the seven groups of secretaries passing from 0 to 6 sections of the 1978 CPS examination based on the mean score on each section?

For all six parts, a significant difference was found among the performances (mean scores) of seven groups of candidates passing from zero to six sections of the examination. For Part III, Economics and Management, and Part VI, Office Procedures, the mean score of each group differed significantly from the mean score of every other group. For Part I, Environmental Relationships, and Part II, Business and Public Policy, the mean scores for Groups 7 and 6 (6 and 5 sections passed, respectively) did not differ significantly. On Part IV, Financial Analysis, the mean scores of Groups 4 and 3 (3 and 2 sections passed, respectively) did not differ significantly from each other. On Part V, Communications and Decision Making, no significant differences were found between Groups 6 and 5 (5 and 4 sections passed, respectively) or among Groups 5, 4, and 3 (4, 3, and 2 sections passed, respectively) or Groups 4, 3, and 2 (3, 2, and 1 section passed, respectively).

8. Of those candidates who did not pass individual sections, is there a significant difference in years of formal education based on whether the person scored in the lower, middle, or upper third of those not passing each section?

A significant difference in years of formal education based on whether a candidate scored in the lower, middle, or upper third of those not passing was found for every section except Part V, Communications and Decision Making. For Part I, Environmental Relationships in Business, no significant difference was found between the middle and lower third in mean years of education. For Part II, Business and Public Policy, the Scheffe procedure could not discern where any significant differences existed even though differences did exist (indicated by the analysis of variance). For Part II, Economics and Management, no significant difference was found between the upper and middle third; likewise, the mean years of education for the middle and lower third were not significantly different. For Part IV, Financial Analysis and the Mathematics of Business, no significant difference was found between the upper and middle third or between the middle and lower third. For Part VI, Office Procedures, no significant difference was found between the upper and middle third or between the middle and lower third.

9. Of those candidates who did not pass individual sections, is there a significant difference in years of work experience based on whether the person scored in the lower, middle, or upper third of those not passing each section?

No significant difference in years of work experience was found based on whether a person not passing scored in the lower, middle, or upper third of those not passing for Parts I-VI.

10. Is there a difference among groupings of candidates based on the number of years of education according to mean number of sections passed?

A significant difference was found among mean number of sections passed based on groupings of candidates by number of years of education. No significant difference was found among mean number of sections passed for those candidates with Less Than High School Diploma through Three Years of College.

11. Is there a difference among groupings of candidates based on number of years of education according to mean score on each section?

The mean score for each educational group was significantly different from the mean score of every other educational group for all six sections. For Part I, Environmental Relationships, no significant difference was found between mean scores for those candidates with Less Than a High School Diploma and those with a High School Diploma, between mean scores for candidates with a High School Diploma and those with One Year of College, and between mean scores of those candidates with One Year of College and those with Two-Three Years of College. The mean score for those with a Bachelor's or Master's Degree and the mean scores for every other educational group were significantly different, however, on Part I. For Part II, Business and Public Policy, the Scheffe procedure could not locate exactly where differences occurred. No significant differences were found among the first four educational groups for Part III, Economics and Management, ranging from Less Than a High School

Diploma to Three Years of College. For Part IV, Financial Analysis, and Part V, Communications and Decision Making, the Scheffe procedure did not indicate where differences existed. On Part VI, Office Procedures, no significant differences were found among the first four educational groups ranging from Less Than a High School Diploma to Three Years of College.

12. Is there a difference among educational groups based on whether the candidates did or did not pass individual sections?

For Parts I, III, IV, and VI, a significant difference was found among educational groups based on whether the candidates did or did not pass those sections. No significant difference was found among groups of candidates by education for Parts II and V.

13. What are the intercorrelations among scores made on the six parts of the examination?

Intercorrelations among sections ranged from .28 to .71. The relatively high correlation of .71 between scores on Part I, Environmental Relationships, and Part III, Economics and Management, indicated that the two sections apparently tested some of the same competencies.

II. COMPARISON WITH LaBARRE STUDY

In the present study, work experience was not as important as education in success on the 1978 exam. The LaBarre study showed the same kind of relationship between these two types of backgrounds. Only on Part VI did his study identify full-time work experience as a

significant predictor of success. On Parts I and V, years elapsed since full-time attendance in school was a significant predictor. LaBarre's study would seem to indicate that work experience could contribute to success, but that assumption cannot be verified by his findings.

Education appeared as a factor for success on the CPS exam in the present study. In the LaBarre study, education was a part of the factors that were most significant in predicting success on the six parts of the exam. In his study, college accounting courses were predictors for success on Parts II, IV, and V. High school grade point average and collegiate grade point average were significant predictors for success for all parts of the exam. On each part a specific high school, college, or CPS review course was a significant predictor. These findings show that educational experiences of CPS candidates are a factor in their success on the exam. The findings of the present study reinforce the findings of the LaBarre study, since education was a stronger influence on success on the examination than work experience.

III. CONCLUSIONS

The following conclusions were made from the findings of this study:

1. Amount of formal education is related to performance on the CPS examination. Amount of education seems to have the least effect on Part V, Communications and Decision Making, where judgmental decisions are required along with the production of typewritten work. (Hypotheses 1, 3, 4, 6, 8, 10, 11, 12)

2. Amount of work experience is not related to performance on Parts I, II, III, IV, and VI of the CPS examination. This finding reflects the academic orientation of most of the examination. Amount of work experience is related to performance on Part V, Communications and Decision Making. (Hypotheses 2, 3, 5, 6, 9)

IV. RECOMMENDATIONS FOR FURTHER STUDY

As a result of this research, the following recommendations are made for further study:

1. Research should be conducted to analyze Parts I, II, III, IV, and VI and to make recommendations for building more work orientation into the examination.
2. Since there is a relationship between years of education and performance on the CPS examination, research should be conducted to find out exactly what kinds of education contribute most to success (business colleges, post-secondary vocational schools, four-year colleges and universities, etc.).
3. Follow-up studies should be conducted to find out how CPS status has helped secretaries professionally.
4. Follow-up studies should be conducted to find whether secretaries who achieve CPS status pursue further college education after certification.
5. Candidates with a high school diploma and no college should be studied to find out how they prepare for the CPS examination

and how successful they are on the examination; recommendations should be made as to how persons can best prepare for the examination in lieu of formal college course work.

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