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## Uniform Statistical Information Questionnaire Data: A Supplementary Report

Doyle Z. Williams

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UNIFORM STATISTICAL INFORMATION QUESTIONNAIRE DATA:  
A SUPPLEMENTARY REPORT

Prepared by  
Doyle Z. Williams

American Institute of Certified Public Accountants

## FOREWARD

This report is the culmination of the joint project undertaken by the National Association of State Boards of Accountancy (formerly the Association of CPA Examiners), the individual state boards of accountancy, and the American Institute of Certified Public Accountants to obtain information on the personal characteristics of CPA candidates.

This joint project was developed and carried through to completion under the guidance, assistance, and encouragement of the NASBA Committee on Uniform Statistical Information Questionnaire. An expression of appreciation is accorded to the members of the committee for their personal contributions to this joint effort.

This report was prepared by Doyle Z. Williams, Manager, Special Educational Projects, who is a member of the staff of the Institute's Examinations Division. His findings are well worth careful reading by anyone interested in the personal characteristics of CPA candidates.

William C. Bruschi  
Director of Examinations

April 1968

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## ACKNOWLEDGMENT

Grateful acknowledgment is extended to Mr. William C. Bruschi, Director of Examinations of the American Institute of Certified Public Accountants, and Dr. Robert D. North of the Psychological Corporation for their assistance in preparing this report.

Doyle Z. Williams

April 1968

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## SUMMARY OF CONCLUSIONS

The Uniform Statistical Information Questionnaire project has yielded data of considerable importance. The project has provided a more detailed and statistically valid profile of CPA candidates than has ever been available before. The data provide a basis for future comparisons of the changing characteristics and educational attainments of new entrants into the public accounting profession.

Without question, CPA candidates of the mid-1960's have more formal education than those at any other time in the history of the profession. While it is true that the quality of the candidates is improving, it is also true that the professional demands made upon CPAs are increasing.

The purpose of this study is to update and extend the findings of previous analyses of the data collected by the Uniform Statistical Information Questionnaire project (U.S.I.Q.). The conclusions reached in this supplementary report are summarized below.

1. Further study comparing May and November CPA examination candidates reveals no unexpected significant differences in the characteristics of the two national groups of candidates. Of minor importance, the May candidates in the sample group have a slight edge in their AICPA Orientation and Level II Achievement Test scores. Other characteristics of candidates are closely comparable for the two examinations.

2. The formal educational level of CPA candidates has increased substantially in the last two decades. In 1946, only 47 per cent were college graduates. For the November 1966 examination, 88 per cent of the candidates had attained this level of formal education and another 3 per cent were in the process of pursuing a college degree. The percentage of graduate degree holders has doubled since 1960. Despite these findings, only 14 states required at the time of this study a college degree for the CPA certificate with 13 other jurisdictions having adopted such a requirement to become effective at a future date. It seems that in view of these statistics, all states could require a college degree (or alternatively, require the candidate to be in his last semester of study for the degree) with little disruption in the number of qualified entrants into the profession.

3. The number of semester units of accounting studied at the college level by CPA examination candidates has undergone a significant decline since 1960. Further, there is no significant correlation between grades on each part of the examination and the number of units of undergraduate accounting courses studied by the candidates. Accordingly, it seems that the implementation of the findings of the Horizons for a Profession study concerning the attainment of basic accounting fundamentals with a breath of knowledge in other fields would not detract from the current level of performance on the CPA examination. The evidence points to the conclusion that the states which require an excessive number of accounting hours should take steps to reduce this requirement which in fact may dissuade many bright prospects from entering the profession.

4. There is only a negligible correlation between semester units of commercial law studied and grades on the law section of the CPA examination.



While recognizing that some study of commercial law is essential, it is questionable whether any states should continue to require more than six semester hours of commercial law for writing the CPA examination.

5. Residence review courses contribute to CPA examination success in practice and theory, and to a slightly lesser extent, in law and auditing.

6. SAT verbal scores are better predictors of law and theory grades than of practice and auditing scores. SAT mathematics scores predict performance in theory and practice better than in law and auditing.

7. The highest overall correlations of the study are provided by the relationship of Level II Achievement Test scores to the grades on the CPA examination.

8. Delaying the CPA examination for a number of years after college to gain experience with a CPA detracts from the candidate's performance in law and theory and makes no contribution to success in practice and auditing. Accordingly, candidates should be encouraged to take the CPA examination as close to the completion of their college work as possible. Taking the examination at this point in the candidate's career would improve performance on the examination.

9. Two thirds of the CPA candidates presently do not have formal mathematics courses beyond the level of college algebra.

10. There is evidence that candidates may tend to base their preparation for the CPA examination upon the minimum conditioning requirements of their states. It appears that by providing more stringent conditioning requirements, the preparation level of candidates would probably increase to their own benefit.

11. Finally, it is suggested that the U.S.I.Q. project be conducted for the candidates sitting for the May and November CPA examinations at regular intervals, perhaps every third or fourth year. A periodic profile of the characteristics of candidates is extremely valuable in assessing the impact of the profession's efforts to increase the quality of its recruits.

UNIFORM STATISTICAL INFORMATION QUESTIONNAIRE DATA:  
A SUPPLEMENTARY REPORT

I. NATURE AND SCOPE OF STUDY

The ever increasing demand for better qualified entrants into the public accounting profession is widely recognized. This spiraling need for personnel of greater capabilities places increasing weight upon the standards for admission of candidates into the profession. Certainly neither the public nor the profession gains from inappropriately low standards for admission into the certified public accounting profession.

While the CPA profession stands united concerning the need for appropriately high standards for the CPA designation, there is not always unanimity of opinion concerning the nature and timing of specific requirements for the certificate. The two most often debated requirements concern qualifying experience and formal education. These matters are presently under consideration by the Institute's Committee on Education and Experience Requirements for CPAs. This paper is concerned with the educational preparation and other factors related to performance on the CPA examination and the implications for the formulation of educational and regulatory policy.

An Overview of the Problem

The Uniform CPA Examination is used by all jurisdictions as a test of candidates' technical competence to practice as certified public accountants. While the CPA examination is universally accepted by the profession, there is varied opinion concerning the requirements for success on the examination. A review of the state regulations reveals that: (1) some states require a college degree, while others require only a high school education or its equivalent; (2) some states require as much as thirty semester hours of college work in accounting, while others require no formal course work in accounting; (3) some states require as much as three years of experience before completing the examination, while others require no qualifying experience to take the examination; (4) some states require a minimum of two parts of the examination to be successfully completed, with a minimum score of 50 per cent in the failed subjects for conditional credit, while others require only one part of the examination to be passed with no minimum score in the remaining parts for conditional credit; and (5) some states allow the substitution of experience for education and some the substitution of education for experience in sitting for the examination, and some states permit substitution in both directions.

Requirements to take the examination and requirements for obtaining the CPA certificate are generally accepted to be separate requirements. The reason then that some states choose to make certain requirements prerequisites for taking the examination while others permit the attainment of these same requirements after completion of the examination seems to be an attempt to improve the candidates' chances of success on the examination.

If it is granted that the chief reason for the diversity in requirements for taking the CPA examination is due to differences in opinion concerning the

factors which contribute to examination success, the solution seems self-evident: pinpoint those factors which in reality contribute to high examination performance. In the process it would seem that the factors which serve as a hindrance to examination success may also be brought to light. If the validity of these factors can be demonstrated to a reasonable observer, then appropriate action may be taken to gain jurisdictional uniformity in improving CPA examination performance. The result will be a worthwhile contribution to the entrance of new recruits into the profession. Improved CPA examination performance gained in this manner will contribute to meeting the staffing needs of the profession without weakening any existing professional safeguards for entrance into the ranks of certified public accountants.

### Survey of the Study

The basic source of data for this report is the Uniform Statistical Information Questionnaires (U.S.I.Q.) completed by certain candidates writing the five CPA examinations from November 1964 to November 1966. The May 1966 examination was used for an in-depth analysis.

The purpose of this study is to attempt to identify those characteristics possessed by CPA candidates which contribute to or detract from their performance on the CPA examination. A better understanding of these traits will point the way for appropriate action concerning examination requirements. The implications of this analysis for educational and regulatory policy are presented.

Another objective of this study is to determine if the data collected in the latter stages of the U.S.I.Q. project were significantly different from that obtained in the initial stages of the project. In reporting the results of previous findings, this study attempts to synthesize the research on what is known about CPA candidates and factors contributing to their examination performance.

### Limitations of the Study

This study is limited to data concerning CPA candidates. While this investigation does consider the matter of education and experience, the analysis is limited to these factors as related to CPA examination performance. The appropriateness of these requirements for the issuing of the CPA certificate is not considered.

## II. PREVIOUS RESEARCH

Prior to the late 1940's there is little published information concerning CPA candidates. The last two decades, however, have witnessed a stepped-up interest in the characteristics of CPA candidates and in factors contributing to their success.

Studies Prior to U.S.I.Q.

The most significant studies conducted prior to the U.S.I.Q. in the mid-1960's were published by Burton, Kane and Simons.

Norman L. Burton analyzed the characteristics of 1,200 candidates who wrote the November 1946 CPA examination. From his study, Burton concluded that:

If there is any moral to be derived from these data, it would seem to point to the importance of youth and education as factors in passing the CPA examination, with public accounting experience as a secondary significance.<sup>1</sup>

Robert L. Kane, Jr. reached a different conclusion concerning the value of experience in passing the CPA examination. In reporting on the results of a study of 1,814 candidates who wrote the May 1949 examination, Kane stated:

Insufficient experience in accounting work and too little education are revealed as the causes most likely to lead to failure in the Uniform CPA Examination....<sup>2</sup>

In evaluating Kane's conclusions, it should be noted that due primarily to the experience requirements in effect at that time only 14 per cent of all the candidates in Kane's study had no qualifying experience -- a factor noted by Burton in his analysis. Thus Kane's conclusions could have easily been influenced by sampling variations caused by the small subgroup of candidates in his sample possessing no experience.

Parenthetically, it should further be noted that both Burton's and Kane's studies were conducted two decades ago. A comparison of the content of the CPA examinations of that period with those of the mid-1960's reveals a significant upgrading in the level of the examination. Thus it would seem natural to expect there to be different factors that contribute to examination success today than was the case at the time of Burton's and Kane's studies.

A study subsequent to Burton's and Kane's analyses was conducted by Harry Simons at the University of California at Los Angeles. His study involved 253 students who were enrolled in the Advanced Accounting Problems course and who sat for the May CPA examination in the years 1950 to 1956. From his analysis, Simons concluded that a person would actually be handicapped if he postponed taking the CPA examination until he had a significant amount of public accounting experience. With respect to individuals who may choose to delay the examination

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<sup>1</sup> Norman L. Burton, "Basic Information Concerning Candidates Writing the Uniform CPA Examination," Challenges to the Accounting Profession (New York: American Institute of Certified Public Accountants, 1947), p. 73.

<sup>2</sup> "New Study Reveals Reasons for Failure to Pass Uniform CPA Examination," The Journal of Accountancy, LXXXIX (June 1950), p. 540.

while gaining experience, Simons commented:

Persons in this group will bring to the examination the products of accounting experience but such an advantage will be outweighed by their inability to demonstrate a fresh academic background and competence so vital to success on the examination.<sup>3</sup>

The comments of one other observer on the ingredients for examination success are of significance. Wilton T. Anderson once wrote:

Based on my experience as director of education of the American Institute of Certified Public Accountants it is my opinion that two basic requirements must be met by every candidate if he expects to succeed in passing the examination. These requirements are: an adequate intelligence level, and the study of accounting in a rigorous educational program usually in an academic setting. A third requirement must be met in case several months or a few years expire between the completion of formal accounting study and taking the examination. A candidate must review intensively for an extended period of time. It is my firm belief that practically every examination failure may be traced to the absence of one of the three requirements.<sup>4</sup>

It may be noted that work experience was not included by Anderson as a significant contributor to CPA examination success.

### The U.S.I.Q. Project

Description of the project. The Association of Certified Public Accountant Examiners (now the National Association of State Boards of Accountancy), the American Institute of Certified Public Accountants and the state boards of accountancy began in 1964 a systematic program to accumulate more extensive data for the development of statistics and other analyses concerning CPA candidates. Through the use of a U.S.I.Q., data were collected for five consecutive examinations from November 1964 through November 1966. The questionnaire sought information concerning the CPA candidates' age, sex, number of examination sittings, education, length and type of work experience, scores on AICPA Orientation and Level II Achievement Tests, Scholastic Aptitude Tests (SAT) from the College Entrance Examination Board series, and American

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<sup>3</sup> Harry Simons, "Success on the CPA Examination -- Product of Classroom or Practice?" The Accounting Review, XXXII (October 1957), p. 611.

<sup>4</sup> Letter to the CPA Examination Appraisal Commission reprinted in Report of the CPA Examination Appraisal Commission (New York: American Institute of Certified Public Accountants, 1961), p. 64.

College Tests (ACT). The November 1966 edition of the questionnaire also included questions concerning the candidates' formal education in mathematics and statistics.

After the grades of the CPA examination were reported to the state boards of accountancy, the state boards which administered the questionnaires to the candidates entered on the questionnaire the candidates' grades and information relative to the parts completed. After the completed questionnaires were received by the AICPA, candidates' scores on the AICPA Tests -- Orientation and Level II Achievement Tests -- were verified by the AICPA Testing Project Office. The SAT and ACT scores were also verified by the respective testing agencies.

The data were processed by computer so that three types of summaries were obtained. First, a state summary was obtained and provided to each cooperating state board. Second, a summary was obtained relating the traits of all candidates to examination status and to scores on the four parts of the examination. Third, except for the November 1964 examination, a summary was obtained relating the traits of candidates writing the examination for the first time to examination status and examination scores. The data concerning candidates writing the examination for the first time served a twofold purpose: It provided a profile of the most recent seekers of entrance into the CPA profession. And it provided a profile of examination performance unbiased by prior examination experience. In addition to the three primary tabulations, several special analyses were also made, including selected cross-relationships.

Statistics pertaining to participation in the U.S.I.Q. project are presented in Table 1. Not all candidates in the participating states returned questionnaires.

TABLE 1  
PARTICIPATION IN THE UNIFORM STATISTICAL  
INFORMATION QUESTIONNAIRE PROJECT

	Examination Date				
	November 1964	May 1965	November 1965	May 1966	November 1966
Number of examination candidates	17,200	15,200	17,194	15,227	16,809
Number of candidates who completed questionnaire	11,212	11,222	12,385	11,070	12,286
Percentage of participation	65%	74%	72%	73%	73%
Number of states participating	42	46	47	48	47

Studies of the U.S.I.Q. data. To date, there have been four published studies from the data collected by the U.S.I.Q. project. (These studies are presented in the Appendix.) However, these reports involved only the data collected for the November 1964 and May 1965 examination candidates, with one exception which included candidates writing the November 1965 examination.

The first study was published in March 1966.<sup>5</sup> This study reports on the characteristics of candidates who wrote the November 1964 examination and highlights the traits of typical candidates, identifies the chief characteristics of the best candidates, comments on causal factors associated with examination success, and presents information concerning the SAT scores of candidates.

The next report of the data collected by the U.S.I.Q. project was prepared by James A. Herbert.<sup>6</sup> In his study, Professor Herbert offers, among other things, a profile of the changing characteristics of CPA examination candidates at selected intervals from 1948 to 1965.

The third report on the U.S.I.Q. project utilized data concerning candidates writing the November 1964 and May 1965 examinations.<sup>7</sup> This study concludes that there is no material difference in the two groups of candidates. It also concludes that experience is not a major contributing factor to examination success. In addition, this study presents a comparison of the traits of the candidates from five states with average passing percentages ranking higher than the national average with those from five states with average passing percentages lower than the national norm.

The latest published study to date concerning characteristics of CPA examination candidates offers a detailed comparison of the characteristics of male and female candidates.<sup>8</sup> It concludes that women candidates appear to have lagged behind in the trend toward obtaining more college degrees and doing more postgraduate work, but for the college graduates, the women candidates have higher academic abilities than the men.

Each of these four studies utilizing U.S.I.Q. data has made a significant contribution to the profession's knowledge of the characteristics of the persons seeking entrance into the ranks of the public accounting profession. The subsequent sections of this report seek to update and further analyze through additional statistical techniques the data concerning CPA candidates and their performance on the examination.

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<sup>5</sup> William C. Bruschi, "CPA Candidates -- What Are They Like?" The Journal of Accountancy, CCXI (March 1966), pp. 78-80.

<sup>6</sup> James A. Herbert, "A Comparison of Selected Questionnaire Data for Current CPA Candidates and of Selected Personal Characteristics for Past CPA Candidates," Proceedings, 1966 Annual Meeting, Association of Certified Public Accountant Examiners, pp. 28-38.

<sup>7</sup> William C. Bruschi, "Report on Additional Analysis of Data Obtained From Uniform Statistical Information Questionnaires," Proceedings, 1966 Annual Meeting, Association of Certified Public Accountant Examiners, pp. 38-41.

<sup>8</sup> William C. Bruschi, "Are Women CPA Candidates Keeping Up With Men CPA Candidates?" The Woman CPA, XXIX (April 1967), pp. 3-4, 10.

III. THE EDUCATIONAL BACKGROUND OF CPA CANDIDATES

Differences Between May and November Candidates

The first issue which deserves attention concerns the difference, if any, between the May and November candidates. All data for candidates completing the U.S.I.Q. for the May 1964 through the November 1966 examinations were compared. Performance on the examination was also carefully studied. A similar analysis was made for the candidates sitting for the first time for the May 1965 through the November 1966 examinations.

In general, no significant differences were noted in the characteristics of May and November candidates, except as expected a greater percentage of the May candidates were in the process of completing their college work. Naturally, this difference carries over into the amount of experience the two groups of candidates possess, and to some extent, to their age differences.

It was reported in an earlier study that there may be a small difference in the AICPA Orientation and Level II Achievement Test scores between May and November candidates.<sup>9</sup> More recent data, as reported in Table 2, reveals some minor differences, but generally, the variations do not appear large enough to be significant.

TABLE 2  
ANALYSIS OF AICPA ORIENTATION AND LEVEL II ACHIEVEMENT TEST  
SCORES OF CANDIDATES WRITING THE CPA EXAMINATION  
FOR THE FIRST TIME IN 1965 AND 1966

<u>Orientation Test Percentiles</u>	<u>Cumulative Percentages</u>			
	<u>1965</u>		<u>1966</u>	
	<u>May</u>	<u>November</u>	<u>May</u>	<u>November</u>
90 and above	29%	19%	31%	31%
75 and above	49	40	54	48
50 and above	67	67	72	65
25 and above	79	86	82	82
Total group	100	100	100	100
<u>Level II Achievement Test Percentiles</u>				
90 and above	26%	24%	23%	21%
75 and above	48	48	49	45
50 and above	74	72	75	75
25 and above	89	88	89	88
Total group	100	100	100	100

<sup>9</sup> William C. Bruschi, "Report on Additional Analysis of Data Obtained From Uniform Statistical Information Questionnaires," op. cit., p. 39.



As the differences in the characteristics of the May and November candidates appear negligible, data from the May and November examinations may be used interchangeably, up to a point, for analysis purposes.

Changing Educational Preparation of CPA Candidates

There is considerable interest concerning the educational background of the persons seeking entrance into the public accounting profession. A knowledge of these characteristics is highly useful in assessing the profession's efforts to upgrade the quality of its recruits to meet the increasing demands of the profession.

Table 3 indicates significant changes in the age and amount of college work of candidates. The educational background of candidates has changed

TABLE 3  
PERCENTAGE ANALYSIS OF AGE AND EDUCATION OF CPA CANDIDATES  
FOR SELECTED NOVEMBER EXAMINATIONS

<u>Age</u>	<u>One or More Sittings</u>			<u>First</u>
	<u>1946</u>	<u>1960</u>	<u>1966</u>	<u>Sitting</u> <u>1966</u>
Under 25	6%	14%	38%	53%
25 - 30	26	43	32	28
31 - 35	25	19	13	9
Over 35	<u>43</u>	<u>24</u>	<u>17</u>	<u>10</u>
Total	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
<u>Education</u>				
High school graduate	8%	1%	--	--
Technical/business school or accounting correspondence	25	10	5%	5%
College -- less than degree requirements	20	12	7	8
College graduate -- other than accounting major	18	7	10	10
College graduate -- accounting major	25	66*	70	68
Postgraduate work completed	<u>4</u>	<u>4</u>	<u>8</u>	<u>9</u>
Total	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

\* Includes 11% pursuing postgraduate work.

Number of Semester Units of Accounting -- Undergraduate Level

Less than 21	12%	11%	13%
21 - 32 (21 - 31 for 1960)	40	57	58
Over 32 (over 31 for 1960)	<u>48</u>	<u>32</u>	<u>29</u>
Total	<u>100%</u>	<u>100%</u>	<u>100%</u>

substantially in the last two decades. In 1946, only 47 per cent were college graduates as compared to 88 per cent in 1966. The number of graduate degree holders has doubled since 1960.

At the beginning of 1967 only fourteen states required a college degree for the CPA certificate (thirteen other jurisdictions have enacted this requirement to be effective at future dates). Yet it is interesting to note that for the November 1966 examination, 88 per cent of all candidates had attained this level of education (an additional 3 per cent were enrolled in undergraduate programs). This paradox is probably due to the fact that the CPA examination is more in tune with the demands of the profession than are the statutes. It would seem that in view of the statistics, all states could require a college degree for possession of the CPA certificate without disturbing the number of qualified entrants into the public accounting profession. Such a requirement might do much to enhance the public image of the profession.

As part of the educational preparation of CPA candidates, the number of undergraduate units of accounting studied is of some significance. While the data in Table 3 concerning the number of units of accounting studied are not totally comparable, the trend is nonetheless enlightening. Clearly, there is a trend to less specialization in accounting as evidenced by the number of units of accounting studied on the undergraduate level. Such a trend is encouraging in light of the demands of the profession for broadly educated individuals.<sup>10</sup>

#### Units of Accounting Studied and Examination Success

Prior to the U.S.I.Q. project, there were no valid data relating the number of formal semester units of accounting studied at the college level to examination success. A knowledge of such a relationship is important in formulating specific accounting requirements for writing the examination. The U.S.I.Q. data provide new insight into the relationship of the amount of formal college accounting study and examination success.

Table 4 presents sample data concerning the units of accounting studied at the undergraduate level by candidates writing the May 1966 CPA examination. The percentage of candidates receiving no examination credit for each category is also presented. These data suggest that additional hours of accounting do not contribute to increased examination success. For example, 62 per cent of the candidates with 33 or more units of accounting did not receive credit for any part of the examination while only 58 per cent who had studied 16-20 units of accounting in college received no credit. Further, there appears to be no significant correlation between the number of semester

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<sup>10</sup> A study of 1965 accounting curricula disclosed that the arithmetic mean of the number of semester hours of accounting required in a 36 school sample was 26.8 as compared to 30.8 ten years earlier. See Robert H. Roy and James H. MacNeill, Horizons for a Profession (New York: American Institute of Certified Public Accountants, 1967), p. 165.

units of accounting studied at the undergraduate level and grades on each part of the examination.

TABLE 4  
PERCENTAGE ANALYSIS OF SEMESTER UNITS OF UNDERGRADUATE  
ACCOUNTING STUDIED BY CANDIDATES WRITING THE CPA  
EXAMINATION FOR THE FIRST TIME IN MAY 1966

<u>Number of Undergraduate Accounting Units</u>	<u>Per Cent of Candidates</u>	<u>Per Cent Receiving No Credit</u>
33 or more	30%	62%
27 - 32	40	61
21 - 26	21	58
16 - 20	4	58
15 or less	<u>5</u>	53
Total	<u>100%</u>	

The question naturally arises, however, as to whether the candidates with the greatest number of accounting units tend to be the less able candidates. The Chi-square test revealed no significant relationship ( $P = .5$ ) between SAT scores and the number of units of accounting studied on the undergraduate level.

It may be concluded from the evidence available that the CPA candidates with a considerable number of semester units of accounting at the undergraduate level do not out-perform the candidates with a minimum accounting background. An explanation of this phenomenon may be that some accounting courses contain much duplication of material and many ancillary accounting courses do not contain subject matter appropriate for the CPA examination. The subject matter of some college courses is at a routinely low level, such as machine and payroll accounting, while other courses are of a highly specialized nature, such as oil and gas and hospital accounting. Courses of either type are likely to contribute little to CPA examination success.

It appears that the findings of the Horizons for a Profession study in respect to a broad educational background with a knowledge of accounting basics can be implemented with little detriment to the present level of performance by CPA candidates. Further, it appears that those states which require an excessive number of accounting hours are not, in reality, contributing to the performance of their candidates on the CPA examination. In fact, such a requirement may be detrimental in attracting young people with broad perspectives into the profession.

#### Commercial Law Studied and Success on the Law Examination

In addition to accounting, CPA candidates are also required to have a knowledge of commercial law. Here, too, the amount of educational background varies among jurisdictions. Table 5 reports the amount of formal course work in commercial law by the candidates sitting for the examination for the first time in May 1966.

TABLE 5  
PERCENTAGE ANALYSIS OF UNITS OF COMMERCIAL LAW  
OF CANDIDATES WRITING THE CPA EXAMINATION  
FOR THE FIRST TIME IN MAY 1966

<u>Semester Units</u>	<u>Per Cent</u>	<u>Per Cent Receiving No Credit</u>
7 or more	24%	62%
4 - 6	50	60
1 - 3	24	62
None	<u>2</u>	66
Total	<u>100%</u>	

It seems that candidates with 1-3 units of commercial law do as well as those with 7 or more units and those with 4-6 units do even better than those with more units. It should be granted, however, that there probably is little cause and effect relationship between commercial law study and performance on non-law examination subjects. But a correlation coefficient between grades in commercial law and units of law studied yield a value of only .13 for this sample group of candidates. Thus, it may be concluded that there is a negligible correlation between units of law studied and law grades. It appears that requirements for more than six hours of commercial law do not contribute significantly to success on the law portion of the CPA examination.

#### IV. THE RELATIONSHIP OF CERTAIN OTHER SELECTED TRAITS TO CPA EXAMINATION SUCCESS

In addition to formal course work in accounting and commercial law, there are a number of other factors which should be considered in an analysis of CPA examination success. These factors include, among others, coaching course preparation, academic aptitude and achievement, and work experience.

##### CPA Coaching Course Preparation

Many candidates participate in various types of formal CPA coaching courses, including residence courses, staff courses, and correspondence courses. Table 6 provides the statistics for the candidates writing the May 1966 examination for the first time.

It should be noted that the relative performance percentages reported in Table 6 with respect to candidates receiving no examination credit may be influenced by sampling variations caused by the small number of candidates with a correspondence or staff review course. When an attempt was made to compare performance via various modes of review, holding AICPA and SAT test scores constant, the results were inconclusive due to the small number of candidates for which data were available.

TABLE 6  
 PERCENTAGE ANALYSIS OF FORMAL CPA COACHING COURSES  
 OF CANDIDATES WRITING THE CPA EXAMINATION  
 FOR THE FIRST TIME IN MAY 1966

<u>Type of Course</u>	<u>Per Cent of Candidates</u>	<u>Per Cent Receiving No Credit</u>
Residence	29%	51%
Correspondence	3	74
Staff	8	59
None	<u>60</u>	66
Total	<u>100%</u>	

Table 7 provides some measure as to the contribution of the residence review course to examination scores, holding SAT and AICPA Level II Achievement Test scores constant. It appears that residence courses contribute most to the candidates' performance in practice and theory and least in law and auditing. To illustrate, consider the candidates for whom SAT scores were available. On the average candidates who had taken a residence review course scored higher in all subjects than did the candidates who had not taken a review course of any type. The average scores were higher by 4.55 points in law; 4.85 points in theory; 3.54 points in auditing; and 5.64 points in practice. A similar pattern holds for candidates for whom Level II Achievement Test scores were available.

TABLE 7  
 DIFFERENTIAL MEAN SCORES OF CANDIDATES WITH RESIDENCE  
 REVIEW COURSE COMPARED TO GRADES OF CANDIDATES  
 WITHOUT A REVIEW COURSE WRITING THE CPA  
 EXAMINATION FOR THE FIRST TIME IN MAY 1966

<u>Average Verbal and Mathematical SAT Scores</u>	<u>Mean Score Differentials</u>			
	<u>Law</u>	<u>Theory</u>	<u>Auditing</u>	<u>Practice</u>
575 - 800	2.67	.10	-.06	2.64
535 - 574	5.18	5.65	4.49	7.08
485 - 534	4.32	1.64	2.94	8.20
445 - 484	5.59	9.32	7.33	7.13
200 - 444	4.49	7.47	3.02	8.78
$\bar{X}$	4.55	4.85	3.54	5.64
<u>AICPA Level II Achievement Test Percentiles</u>				
91 - 99	.45	4.62	-.35	-.22
81 - 90	4.74	3.81	-.14	5.14
65 - 80	Nil	2.81	-1.93	3.72
43 - 64	2.91	6.96	6.21	8.48
1 - 42	-1.14	3.42	-1.80	2.29
$\bar{X}$	1.19	4.32	.40	3.88

SAT Scores

In addition to formal preparation for the CPA examination there are other factors which may serve as predictors to examination success. SAT and the AICPA Level II Achievement Tests are widely used and therefore are of interest in predicting CPA examination performance.<sup>11</sup>

Certain statistics concerning SAT scores of CPA candidates have previously been reported.<sup>12</sup> However, later examinations have yielded a greater number of candidates who have taken the SAT tests. A percentage analysis of the SAT scores of candidates writing the CPA examination for the first time in May 1966 is presented in Table 8. It is readily noted that there is a positive relationship between SAT scores and success on the examination.

TABLE 8  
PERCENTAGE ANALYSIS OF CANDIDATES' SAT SCORES WRITING THE  
CPA EXAMINATION FOR THE FIRST TIME IN MAY 1966

<u>SAT Score</u>	<u>Verbal</u>		<u>Mathematics</u>	
	<u>Per Cent of Total Candidates</u>	<u>Per Cent Receiving No Credit</u>	<u>Per Cent of Total Candidates</u>	<u>Per Cent Receiving No Credit</u>
700 - 800	1%	*	9%	25%
600 - 699	10	20%	30	40
500 - 599	31	41	37	58
400 - 499	38	63	20	76
200 - 399	<u>20</u>	76	<u>4</u>	*
Total	<u>100%</u>		<u>100%</u>	

\* Number of candidates insignificant.

Table 9 presents the correlation coefficients of SAT scores and grades on the various sections of the examination. While there is a moderate correlation for each subject, the highest correlations of SAT Verbal scores are for theory and law. For the SAT Mathematics score, the highest degrees of correlation are for theory and practice.

In relating SAT scores to CPA performance, it must be realized that the SAT is taken prior to or near the beginning of the candidates' collegiate career while the CPA examination is usually taken near the end or even after his college studies. Therefore, a number of variables may become operative in the interlude.

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<sup>11</sup> ACT scores were not obtained in sufficient quantity to justify using them in statistical analysis.

<sup>12</sup> William C. Bruschi, "CPA Candidates -- What Are They Like?" op. cit., p. 80, and William C. Bruschi, "Report on Additional Analysis of Data Obtained from Uniform Statistical Information Questionnaires," op. cit., p. 41.

TABLE 9  
CORRELATION OF SAT SCORES AND GRADES ON THE CPA EXAMINATION  
OF CANDIDATES SITTING FOR THE EXAMINATION  
FOR THE FIRST TIME IN MAY 1966

<u>Subject</u>	<u>Verbal</u>	<u>Mathematics</u>
Law	.37	.31
Theory	.39	.40
Practice	.34	.40
Auditing	.33	.30

AICPA Level II Achievement Test Scores

Because the Level II Achievement Test is usually taken during the candidates' senior year of college work or after graduation, it is of interest to consider its relationship to CPA examination success. Table 10 presents a percentage analysis of the candidates who have taken the Level II Achievement Test prior to writing the May 1966 CPA examination.

TABLE 10  
PERCENTAGE ANALYSIS OF LEVEL II ACHIEVEMENT TEST SCORES  
OF CANDIDATES WRITING THE CPA EXAMINATION  
FOR THE FIRST TIME IN MAY 1966

<u>Level II Achievement Test Percentiles</u>	<u>Per Cent of Candidates</u>	<u>Per Cent Receiving No Credit</u>
90 - 99	23%	22%
75 - 89	26	50
50 - 74	26	63
25 - 49	14	81
0 - 24	<u>11</u>	87
Total	<u>100%</u>	

Table 11 presents correlation coefficients of the relationship of Level II Test scores to grades on the various subjects of the CPA examination.

TABLE 11  
CORRELATION OF LEVEL II ACHIEVEMENT TEST SCORES AND GRADES ON  
THE CPA EXAMINATION OF CANDIDATES WRITING THE EXAMINATION  
FOR THE FIRST TIME IN MAY 1966

<u>Subject</u>	<u>r</u>
Law	.32
Theory	.47
Practice	.50
Auditing	.31

It is noted that the lowest degree of relationship exists for law and auditing -- topics not included on the Level II Test. Much higher correlations exist in practice and theory. On the whole, Level II Achievement Test scores are a better predictor of CPA examination success than are SAT scores.

Work Experience -- An Addendum

Considerable attention has been given to the contribution of work experience to CPA examination success. While not reporting the specific statistical values, it was noted in a study of the candidates writing the November 1964 and May 1965 examinations that:

In general the data indicated that experience is not a major factor contributing to the candidates' success in passing the CPA examination....

For the total group of candidates experience with CPAs had a slightly negative correlation with performance on the auditing examination. This was the case even when the academic ability of the candidates, as measured by the SAT and Level II Achievement Tests, was held constant statistically for the sample groups that took these tests.<sup>13</sup>

As a further note to the above conclusion, Table 12 reports the correlation coefficients for the May 1966 examination.

TABLE 12  
CORRELATION OF WORK EXPERIENCE WITH CPAS AND GRADES  
ON THE CPA EXAMINATION OF CANDIDATES  
WRITING THE EXAMINATION FOR THE  
FIRST TIME IN MAY 1966

<u>Subject</u>	<u>r</u>
Law	-.20
Theory	-.20
Practice	.00
Auditing	-.03

Delaying the CPA examination for a number of years after college to gain practical experience certainly appears to be to the detriment of the candidate: Such a practice detracts from performance in law and theory, and makes no contribution to success in practice and auditing. Therefore, all jurisdictions should make it possible for the CPA candidate to take the examination near the time that

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<sup>13</sup> William C. Bruschi, "Report on Additional Analysis of Data Obtained From Uniform Statistical Information Questionnaires," op. cit., p. 39.



he completes his college course work in accounting, including during the semester in which the candidate plans to graduate. And the candidate should be encouraged to take the examination at this point in his career.

Mathematics and Statistics Background of Candidates

The Horizons for a Profession study presents a convincing case for strengthening the quantitative analysis ability of the beginning CPA. As a reference point for future comparisons concerning the profession's success in implementing the recommendations of the Horizons for a Profession study, the U.S.I.Q. for the November 1966 examination was revised to include questions concerning CPA candidates' educational background in mathematics and statistics. Selected aspects of these data are reported in Table 13.

TABLE 13  
 PERCENTAGE ANALYSIS OF SEMESTER UNITS OF MATHEMATICS AND  
 STATISTICS OF CANDIDATES WRITING THE CPA  
 EXAMINATION IN NOVEMBER 1966

<u>Semester Units in College</u>	<u>Per Cent of All Candidates</u>	<u>Writing Examination for First Time</u>	
		<u>Per Cent of Candidates</u>	<u>Per Cent Receiving No Credit</u>
<u>Algebra</u>			
7 or more	3%	4%	57%
4 - 6	18	20	60
1 - 3	53	49	62
None	<u>26</u>	<u>27</u>	61
Total	<u>100%</u>	<u>100%</u>	
<u>Finite Mathematics</u>			
7 or more	2%	2%	38%
4 - 6	6	8	58
1 - 3	20	22	56
None	<u>72</u>	<u>68</u>	62
Total	<u>100%</u>	<u>100%</u>	
<u>Calculus</u>			
7 or more	6%	9%	38%
4 - 6	9	11	50
1 - 3	15	15	50
None	<u>70</u>	<u>65</u>	65
Total	<u>100%</u>	<u>100%</u>	

<u>Semester Units in College</u>	<u>Per Cent of All Candidates</u>	<u>Writing Examination For First Time</u>	
		<u>Per Cent of Candidates</u>	<u>Per Cent Receiving No Credit</u>
<u>Probability</u>			
7 or more	1%	1%	58%
4 - 6	3	4	51
1 - 3	20	24	54
None	<u>76</u>	<u>71</u>	62
Total	<u>100%</u>	<u>100%</u>	

Statistics

7 or more	3%	3%	49%
4 - 6	25	28	58
1 - 3	60	59	60
None	<u>12</u>	<u>10</u>	73
Total	<u>100%</u>	<u>100%</u>	

It is noted that about one-fourth of the CPA candidates do not have more than three units of college algebra. Most curricula, however, do not require more than one course in algebra for advance study in mathematics. Further, many colleges permit students with a strong high school mathematics background to bypass the basic algebra course. Of far greater concern is the fact that approximately two-thirds of the candidates have not had formal mathematics courses beyond the level of college algebra.

The data for statistics appear somewhat more encouraging. However, there is considerable room for improvement even in this traditionally required subject area. One course in statistics is generally required which carries from one to four units of credit in the preponderance of colleges. The data suggest that the majority of CPA candidates have had only this one course. Considering the recent rapid expansion in the techniques of statistical analysis, it appears that a strengthening of this area is needed by the typical college graduate entering the accounting profession.

Conditional Credit

The regulations governing the awarding of partial or conditional credit on the examination varies with considerable latitude among the states. The most common rules which permit the retention of credit in the passed subjects include:

- A. The passing of at least two subjects or practice;
- B. The passing of at least two subjects or practice and a grade of not less than 50 per cent (or a variation thereof) in the subjects failed;

- C. The passing of at least two subjects;
- D. The passing of two subjects with not less than 50 per cent (or a variation thereof) in the subjects failed; and
- E. The passing of at least one subject.

It is difficult to measure statistically the impact upon CPA examination success of the two subjects versus one subject requirements. While there are numerous variables involved, Table 14 offers some tentative evidence involving 313 candidates -- 159 in state groups A, B, and C defined above and 154 in state group E.<sup>14</sup> This sample involves only candidates writing the CPA examination for the first time.

TABLE 14  
COMPARATIVE ANALYSIS OF PERFORMANCE OF CANDIDATES FROM STATES  
WITH DIFFERENT CONDITIONAL CREDIT REQUIREMENTS WRITING  
THE CPA EXAMINATION FOR THE FIRST TIME IN MAY 1966

<u>Subjects Passed</u>	State Groups*			
	A, B, and C		E	
	Per Cent of Candidates	Mean Level II Achievement Test Scores	Per Cent of Candidates	Mean Level II Achievement Test Scores
Candidates failing all subjects	41%	50	44%	55
Candidates passing one subject	11	69	21	69
Candidates passing two subjects	23	73	15	83
Candidates passing more than two subjects	<u>25</u>	90	<u>20</u>	82
Total	<u>100%</u>		<u>100%</u>	

\* See pages 17-18 above for description of state groups.

It is noted that a slightly higher percentage of candidates failed to pass any subjects in state group E (states requiring only one subject for conditional credit), than those in state groups A, B, and C (states requiring two subjects or practice). This is true even though group E candidates had higher mean Level II Achievement Test scores.

However, considering the areas where conditional credit requirements intertwine, it is noted that 21 per cent of the candidates in group E passed

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<sup>14</sup> Data were available for an insignificant number of candidates in state group D to be useful.

one part of the examination -- the minimum necessary for conditional credit. The percentage in state groups A, B, and C was only 11 per cent. The candidates' mean Level II Achievement Test scores were the same for these two sample groups.

In the states requiring two subjects (or practice) for conditional credit, 23 per cent passed two subjects as compared to 15 per cent of the candidates from the states requiring the successful completion of only one subject for conditional credit. If the differences in the candidates' capabilities, as evidenced by Achievement Test scores, were eliminated, undoubtedly the spread would be even greater.

This analysis points up the fact that examination performance may be influenced by conditioning requirements. Candidates in states requiring one subject are more likely to pass one subject than are those in other states. And, in turn, candidates in states requiring two subjects are more likely to pass two subjects than are their counterparts from states requiring only one subject. If this analysis is valid, then it seems that many candidates tend to gear their preparation to the conditional credit requirements. Thus, those states which require only one part for conditional credit might do well to reconsider their policy. Requiring two subjects for conditional credit, with minimum scores in failed subjects, would seem to raise the preparational level of the candidates benefiting the candidate and examination operations.

## V. CONCLUSION

In conclusion, it is highly important that future policy and regulations concerning the establishment of standards of admission into the public accounting profession be based upon as accurate current data as possible. It is dangerous to base policy decisions upon misinformation or upon data that are out-of-date.

The U.S.I.Q. project has yielded data of considerable importance. The project has provided a more detailed and statistically valid profile of CPA candidates than has ever been produced. Not only has this survey yielded data highly useful in the shaping of admission standards into the public accounting profession, but it has also produced valuable information useful in assessing the impact of the profession's efforts to increase the quality of recruits into its ranks.

From a practical standpoint, however, the value of every data collecting exercise must be weighed carefully against the cost and effort of obtaining such data. With these factors in mind, it is recommended that the U.S.I.Q. survey be conducted for the May and November examinations of every third or fourth year.

APPENDIX

# EDUCATION & PROFESSIONAL TRAINING

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## CPA Candidates—What Are They Like?

*The Uniform Statistical Information Questionnaire, reported on here by WILLIAM BRUSCHI, the American Institute's director of examinations, provides valuable information about the kinds of persons who are seeking admission to the profession. The results of this inquiry have implications for recruiting, education, legislation and other aspects of the profession's concerns. Part of this article was included in a paper presented to the annual meeting of the Association of CPA Examiners, September 18, 1965, Dallas.*

WHAT are the personal characteristics of CPA candidates? In a joint effort the state boards of accountancy, the Association of CPA Examiners and the American Institute of CPAs have begun an attempt to answer the question by accumulating statistics of the personal characteristics of CPA candidates. This report presents some simple analyses of the first data accumulated, which were contributed by many of the candidates who wrote the November 1964 Uniform CPA Examination.

This accumulation of data will also provide information for legislators making decisions regarding pending legislation, members of state boards evaluating the effectiveness of their regulations and administration, educators making decisions regarding curriculums, employers weighing the capabilities of staff members and their chances of passing the CPA examination and CPA candidates making career decisions. Over a period of years the accumulation of data will also indicate the trend in the caliber of young people seeking to enter the accounting profession. Those respon-

sible for the profession's recruiting activities may look to this trend as a measure of the effectiveness of their recruiting programs.

The method of accumulating the data has been simple. The Association of CPA Examiners' Committee on Examination Statistics, under the chairmanship of Professor James A. Herbert of Creighton University, Omaha, Nebr., developed an information blank called the Uniform Statistical Information Questionnaire. Co-operating state boards provided their candidates with these questionnaires which the candidates completed and returned to their state boards. The data pertained to such matters as age, sex, number of examination sittings, education, length and type of work experience, scores on Institute Orientation and Achievement Tests, College Entrance Examinations (Scholastic Aptitude Tests), American College Tests, etc. When the state boards received the candidates' advisory grades for the November 1964 CPA examination, they were entered on the questionnaires along with the candidates' ex-

mination status in the following manner: "passed all four parts at first sitting", "passed all subjects for which he was eligible but had previously failed one or more subjects"; "conditioned as a result of this sitting"; "failed to obtain conditional passing"; etc.

After the state boards completed their work on the questionnaires, they were forwarded to the Institute for processing on an IBM 1230 Optical Mark Scoring Reader which produced a punched card for each candidate. Next, these cards were turned over to a computer center for processing. In recent months a sizable amount of the time of the Institute's examinations division staff and its consultant psychologist, Dr. Robert D. North, has been given over to the processing of the questionnaires, the development of the computer programs, and the analysis of the computer outputs.

Forty-three of the 53 jurisdictions co-operated in this program for the November 1964 CPA examination by having their candidates complete the questionnaires. A total of about 11,300 questionnaires was obtained and processed. Since there were some 16,800 candidates who wrote that examination, about 67 per cent of the candidates participated in the project (not all candidates in the participating states returned questionnaires). Those state boards co-operating in the project received separate analyses of their candidates' data.

#### **Traits of Typical Candidates**

What are the general characteristics of the typical CPA candidate today? The answer is that he is a male about 28 years old and is sitting for the CPA examination for the second time. He is a college graduate with a major in accounting and a grade average of about B-. He has had about 30 semester hours of undergraduate accounting study, one course in business law and has done no graduate work. He has been out of college for at least three years and has had about three years of work experience with a CPA firm. There is a 50-50 chance that he has had formal CPA coaching course preparation, most likely in a residence course.

It was interesting to find that 3 per cent of the candidates are women and that they are approximately as successful as the men in passing the CPA examination.

If the above characteristics are

those of the typical CPA candidate, what are the traits of the best candidates, those who pass all four subjects of the CPA examination at their first sitting? Questionnaires were returned by 345 of these distinctive candidates (a greater number passed all four parts for the November 1964 examination but not all of them returned questionnaires).

A composite of these best candidates shows him to be a male college graduate who majored in accounting. He has had about 30 semester hours of accounting courses and has done no graduate study. In contrast to the typical candidate, he is less than 25 years old and has a B academic average. He has had two courses in business law, has been out of college less than two years, and has had about one year of work experience with CPAs. It is likely that he has taken a resident coaching course.

Apparently these highly successful candidates are younger, brighter, better prepared in commercial law, and have received more coaching than the typical candidate. They have had less work experience, probably because they passed the CPA examination early in their careers. In connection with special coaching for the CPA examination, however, it should be noted that 44 per cent of the candidates who passed all subjects at their first sitting did not have any formal CPA examination coaching preparation.

#### **Causal Factors Associated With CPA Examination Success**

The statistical analysis of the questionnaire data was designed to answer some questions about the causal factors associated with CPA examination success. Some tentative answers are possible in this pilot study.

Five states require their candidates to take the examination in two sittings: three subjects may be taken with no work experience but three years' work experience is required to sit for the fourth part which, under state law, is either Auditing or Accounting Practice. What is the effect of allowing candidates to take all four subjects at one sitting, rather than requiring two sittings three years apart?

Some 2,600 candidates in the group under study took all four subjects at their first sitting. Of these, 13 per cent passed all four subjects and 10 per cent passed three subjects for a total

of 23 per cent passing three or four subjects at one sitting. On the other hand, in the five states where candidates are required to have work experience before taking their final subject, only 15 per cent of the 563 candidates in the group passed the three subjects for which they were eligible. The advantage seems to be in favor of the candidates in the states that do not have experience eligibility rules. Whether or not the advantage could be attributable to differences in the caliber of the candidates from state to state has not yet been ascertained.

The candidates were asked to report their AICPA tests, College Board, and American College Test scores if they had taken these tests. Scores were obtained and verified for about 800 candidates on the AICPA Orientation Test, for some 1,500 on the AICPA Achievement Test, and for some 2,000 on the College Board tests. American College Test scores were not obtained in sufficient quantity to justify using them in the statistical analysis.

Of all the characteristics studied, the best predictors of CPA examination success have proved to be the AICPA Orientation and Achievement Tests percentile ranks. The Orientation, or aptitude, scores are particularly effective in predicting Auditing and Accounting Practice grades, while the Achievement Test has the edge for predicting Theory of Accounts and Commercial Law grades. For the candidates who passed all four subjects at their first sitting, the median percentile was about 92 on the Orientation Test and about 91 on the Achievement Test. In other words, more than half of the best candidates ranked in the top 10 per cent of the norms on these AICPA tests.

The College Board Scholastic Aptitude Test scores, and the Mathematics Test in particular, also showed a significant relation to success on the CPA examination. The median SAT mathematics score of candidates who passed all four subjects at their first sitting was equivalent to about the 82 percentile on the current college freshman norms. Their median SAT verbal aptitude percentile was about 75. It seems clear from this information that this sampling of the candidates passing the complete CPA examination at their first sitting were superior students in college. It should be recognized that College Board Test scores

were available for only 97 of the 345 candidates who passed all four parts at their first sitting.

Some work experience with CPAs apparently does help a candidate to pass the CPA examination. The median amount of this type of experience for candidates who passed all four subjects at their first sitting was about one year. Up to one year of government experience or work with non-CPAs also seems to help the candidates a little. Some teaching experience is also helpful—especially for the Accounting Practice examination.

In sum, an analysis of some general factors associated with CPA examination success showed that the principal factor was general scholastic ability and accounting knowledge, as indicated by the aptitude and achievement tests, and, to a lesser extent, by the candidate's academic grade average in college. It is reassuring, but certainly not surprising, to find that the successful CPA candidate is a bright young man who has attained mastery of the principles and procedures of accounting through effective training.

**Other Information  
Drawn From the Data**

What percentage of the candidates are college graduates? For many years there has been a concerted effort to upgrade the educational attainments of CPA candidates. A measure of the success of this effort may be found in the following data for about 11,000 candidates:

<u>Amount of education</u>	<u>Per cent of candidates responding</u>
Postgraduate degree holders	8
Attending graduate school	4
Bachelor's degree holders (no postgraduate study)	72
College graduates	84
Two to four years' college study	7
Less than two years' college study	3
Business school or corre- spondence course study	5
High school graduate, less than	1
Total	<u>100</u>

The recruiting efforts of the Institute, the state societies of CPAs, and

other accounting organizations have been generally directed in recent years toward arousing the interest of the better students in the study of accounting. An understanding of the need for this intensive recruiting effort of the better students may be obtained from the following analysis of the CPA candidates' Scholastic Aptitude Test scores:

	<u>Verbal test</u>	<u>Mathematical test</u>
Number of candidates	1,975	1,965
Median score of candidates	466	547
Percentile corresponding to median score based on norms for students entering college	59	61

These percentiles indicate that these samples of the candidates ranked above the national average for college entrants who took the College Board Aptitude Tests, but not markedly so. The fact that the sample group of candidates who passed all four subjects at their first sitting had SAT medians that were in the top quarter of the norms suggests that their substantial strength in academic aptitude gave them a marked advantage over CPA candidates in general. Some additional research is planned which will be directed toward a study of the relation between academic aptitude and success on the CPA examination.

**Plans for the Future**

The information presented in this report was derived from simple analyses of the data obtained from questionnaires prepared for one examination. These data will be subjected to additional study and mathematical analysis through the application of multiple and partial correlations. It is expected that these mathematical analyses will shed additional light upon the effect of education, experience, academic aptitude, etc., upon candidates' success in passing the CPA examination.



## **A COMPARISON OF SELECTED QUESTIONNAIRE DATA FOR CURRENT CPA CANDIDATES AND OF SELECTED PERSONAL CHARACTERISTICS FOR PAST CPA CANDIDATES**

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### **I. INTRODUCTION**

#### *Purpose of Report*

This report is presented primarily as a comparison of selected personal characteristics of current and past CPA candidates. At the same time it demonstrates the usefulness of the Uniform Statistical Information Questionnaire as a vehicle for accumulation of such data. It is anticipated that the comparison of present day candidates with earlier candidates will provide additional insight to all members of the profession as to the need for continued support of the American Institute of Certi-

fied Public Accountants' policy in regard to uniformity of criteria for determining qualifications for admission to the profession.

Candidates for the CPA certificate have been the subject of many studies over the years. Such research efforts have been sporadic in nature and generally confined to state boundaries, but nearly all have had as their ultimate objective the definition and analysis of one or more of the personal characteristics of the successful CPA candidate.

*Source of Data for Comparison*

In a joint effort, the state boards of accountancy, the Association of CPA Examiners and the American Institute of CPAs have recently launched a national program to accumulate more extensive data for the development of statistics and other analyses concerning the personal characteristics of CPA candidates. The foundation of the program rests on an information blank — the Uniform Statistical Information Questionnaire — devised by the ACPAE Committee on Examination Statistics and intended for periodic use over a span of several years. Its greatest advantage lies in the provision of detailed data that will be consistent and comparable over a series of examinations. This particular questionnaire, or its predecessor, has been used to collect source data from candidates sitting for several CPA examinations.

The latest edition of the questionnaire covers such source data as age, sex, number of examination sittings, education, length and type of work experience, scores on AICPA Orientation and Achievement Tests, Scholastic Aptitude Tests from the College Entrance Examination Board series, and American College Tests. All of these major classifications are, of course, further delineated in varying degrees so as to present a more complete profile. When the state boards receive the candidates' advisory grades, they enter the examination results on the questionnaire according to grades by subject and to the candidates' examination status.

Recently the Questionnaire has been used to accumulate data for most of the candidates taking the November 1964 and May 1965 Uniform CPA Examinations. The data have been summarized, in accordance with the classifications mentioned in the preceding paragraph,

for all reporting candidates sitting for the November 1964 examination. A distinction was made, however, in the May 1965 tabulations. One set of the 1965 data presented questionnaire information on all sample candidates sitting for the examination. The second summary provided questionnaire data for sample candidates sitting for the first time.

As a basis for the comparisons presented in this report, data available from the November 1960, May 1961, November 1948, May 1949, November 1949, and May 1950 CPA examinations have been utilized. This study has been limited to a comparison of data concerning age, education, experience, and number of sittings attempted, since comparability of factors could be achieved only in these areas. While each of the areas enumerated above have been defined in some detail, all such items were assigned within the categories of successful candidates and unsuccessful candidates. Comparisons of detailed percentage analyses for the various classifications within the successful and unsuccessful candidate categories for the selected periods are presented in Table 1. These percentage analyses are also summarized by major classifications and presented later in this paper as the appropriate items are being discussed. Additional details concerning the method and scope of the various surveys utilized as a source of data for this study are presented in Appendix A.

Implied in the above discussion of the questionnaire is the change required in processing techniques to handle the increased bulk of data so obtained. This change is further noted briefly in Appendix A as a transition from manual to computerized methods used for the fifteen-year, five year and present day reference periods.

TABLE 1.—Percentage analyses by age, education, experience and sittings for *successful candidates* in the samples

Candidate classifications:	CPA Examination Sittings			
	Nov. 48 May 50	Nov. 60 May 61	Nov. 64 May 65	First May 65
<i>Age</i>				
Under 25 .....	8.3%	16.5%	35.0%	71.0%
25-30 .....	36.8	49.2	34.4	19.2
31-35 .....	33.3	18.0	16.3	3.8
Over 35 .....	21.6	16.3	14.3	6.0
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
<i>Education</i>				
High school graduate.....	2.4%	0.0%	0.1%	0.0%
Technical/business school or accounting correspondence.....	15.5	6.8	2.3	.4
College—Less than degree requirements.....	14.6	6.9	6.2	8.3
College graduate—Other than accounting major.....	15.2	5.7	10.1	6.6
College graduate—Accounting major.....	43.0	56.7	66.4	64.9
Postgraduate work .....	9.3	23.9	14.9	19.8
Unknown				
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

*Experience*

No experience .....	7.1%	6.8%	a	a
Non-public accounting: .....	14.5	31.7	35.0%	43.4%
Private accounting .....	b	(23.9)c	(23.6)c	(24.4)c
Government accounting .....	b	(5.9)c	(9.0)c	(12.3)c
Teaching accounting .....	b	(1.9)c	(2.4)c	(6.7)c
Public accounting: .....	78.4	61.5	65.0	56.6
1-2 years .....	(27.0)c			
Less than 1 year.....		b	(15.1)c	(38.9)c
2-4 years .....	(30.2)c			
1-3 years .....		b	(30.6)c	(13.9)c
4-6 years .....	(11.9)c			
4-5 years .....		b	(11.2)c	(2.8)c
Over 6 years .....	(9.3)c			
6 or more years.....		b	(8.1)c	(1.0)c
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

*Total Sitzings*

1 .....	25.1%	9.6%	17.3%
2 .....	30.8	18.0	23.5
3 .....	20.6	18.7	20.4
4 .....	11.0	13.4	14.0
5 .....	6.5	11.7	9.0
6 or more.....	6.0	28.6	15.8
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

<sup>a</sup>"No experience" candidates not separately accounted for in these samples; included in "Less than 1 year" category.

<sup>b</sup>Data not given in the samples available.

<sup>c</sup>Detail data items total to percentage for major category.

*The Demand for Accounting Graduates*

The expansion of the business economy has resulted in an ever increasing demand for accounting graduates by public accounting firms, industry, and other employers. It is expected that the demand will continue, perhaps, even at an increasing rate as the potentialities of the newer management consulting services and the EDP processes are explored. Expansion of the attest function in the area of tax returns may also be a significant factor in the increased demand. Competition among the professional fields will also be keener as each endeavors to insure a source of supply of high quality, intelligent individuals. Each profession, of course, desires to perpetuate itself by attracting the best qualified entrants who are capable of continuing their professional education and development and of growing in stature.

The increasing demand for professional and technical talent has had the effect of creating a shortage of skilled and educated manpower. This shortage has been magnified somewhat since college graduates lately seem to be rejecting business as a vocation. Many with grades in the higher scholastic ranks have been going into

teaching while an increasing number of students are going on to graduate school.

The number of graduates earning degrees in business averages about ten per cent of all baccalaureate degrees awarded each year, while the number of accounting degrees earned generally runs about 20 per cent of that for business degrees. As shown in Table 3 below, the number of accounting degrees conferred began a slow upward swing in 1954 but has leveled off in recent years. An indication of a more marked upswing has been noted according to an estimate made by Frank S. Endicott, director of placement at Northwestern University and reported in the Education and Professional Training department of the June 1964 issue of *The Journal of Accountancy*. The number of accounting degrees to be conferred in 1970 will be in excess of 21,000. According to an article reported in the News Feature section of the March 1963 issue of the same periodical, it is noted that "a comparison between the number of college degrees earned in accounting and the number of CPA candidates reveals a fairly close correlation but with a time lag." The number of CPA candidates has been increasing steadily since 1957.

TABLE 2.—Accounting degrees conferred and number of May CPA candidates

Year	Accounting degrees conferred	Number of May CPA candidates
1951.....	11,276	10,335
1952.....	9,143	9,954
1953.....	7,949	9,251
1954.....	8,012	9,879
1955.....	8,462	9,226
1956.....	9,274	8,682
1957.....	10,497	9,590
1958.....	11,339	10,139
1959.....	11,706	11,349
1960.....	11,254	11,509
1961.....	10,632	12,382
1962.....	11,436	11,935
1963.....	11,974	13,110
1964.....	12,964	14,173
1965.....	—	16,800

Source: Adapted from "News Feature", *The Journal of Accountancy*, March 1963.

Although the number of CPA candidates has continued to increase in general, there is no evidence of a well-established rate. Rather, the pattern is one of fluctuation; there was a decrease of approximately 400 in 1962 while a surge of 2,700 CPA hopefuls was experienced in May 1965. In part this fluctuation may be due to changing educational policies and programs at the nation's collegiate business schools. The business and accounting curricula has been changed to reflect some of the recommendations made in the 1959 studies — "Higher Education for Business," by R. A. Gordon and J. E. Howell, financed by the Ford Foundation, and "The Education of American Businessmen," by Frank C. Pierson under a Carnegie Corporation grant. A more recent study, "Educating Tomorrow's Manager," issued in October 1964 by the Policy Committee of the Committee for Economic Development recognizes the progress made toward liberal education, emphasis on mathematics and quantitative analysis, and raising academic standards in the study of business. However, a 184-page report, "Man, Education and Work," issued in May 1964, by the American Council of Education, accuses the nation's colleges and universities of failing to meet modern vocational needs. Thus, in five years the pattern has gone full circle. The tapering off for accounting degrees conferred undoubtedly reflects the adaptation to a college program with fewer technical accounting courses. The increase in CPA candidates no doubt stems from those individuals majoring in other areas of business.

## II. PREDICTING SUCCESS IN THE CPA PROFESSION

### *Identifying "Success" Characteristics*

The many and vast changes in technology have levied a consequential need for the profession to remain flexible and adaptable to changing requirements within the

business environment. However, this poses the problem of predicting the likely success of the entrants to the profession. In the past, many studies have attempted to enumerate and define selected characteristics associated with successful CPA candidates. Because of the relatively limited communication and information systems then in effect, the number of candidates included has been necessarily small. By the same token, the areas included in such research have been restricted mainly to age, education, experience, number of sittings, and examination grades. It was previously recognized that these items did not present a complete picture and that they were not infallible in identifying "success" characteristics. Considerably more items are included on the present day Questionnaire so as to provide the basis for a more complete picture and to help establish other patterns and relationships useful in the evaluation of personnel entering the CPA profession.

One study concerning individuals who had pursued graduate or professional studies found that outstanding grades, resolution of occupational choice by the junior year of college, speed of completion of formal preparation, and early assumption of adult responsibilities, such as military service, marriage, and family formation, were indicative, but not a guarantee, of career success. The study found that education was a good, but still rough, screening device. Educational background and later performance did not have the close relationship that was expected. The researcher concluded that "the best guide to a man's worth is what he is able to produce."<sup>1</sup>

Another study concerning major factors affecting job prospects for accounting graduates found that a successful career in accounting depended to a significant extent on the individual's academic ability. The same study stressed the importance of quality of the accounting department at the educational institution at which the individual had been matriculated.<sup>2</sup>

A recent study made by Bell System management concerned the question: "To what extent does success in college predict success in the Bell System?"<sup>3</sup> They concluded that scholastic achievement — rank in graduating class — is the most important single indicator for predicting success and that the usefulness of that indicator could be improved by taking into account the quality of the college attended. Extracurricular achievement is less useful than the indicators mentioned above, while the earning of college expenses seemed to be of little or no significance.<sup>4</sup>

A 1956 study of Dartmouth graduates used annual income as the most reliable indicator of success.<sup>5</sup> In the study at hand, annual income is clearly not appropriate as an indicator or factor since the analysis concerns primarily CPA candidates. Rarely would one find one of these candidates occupying a high salaried position since, presumably, that individual would still be a neophyte trying to gain the required public accounting experience.

Some recruiting officers for CPA firms have been reported to rely upon grades, personality, appearance, and

extracurricular activities. Others have used tests plus structured interviews with more than one partner or recruiting member participating. It has been demonstrated that there is a rather high positive correlation between scores on intelligence tests and college grades.<sup>6</sup> Tests and college grades, however, do not indicate the individuals initiative, his need for achievement. Personality tests should be used with caution and reliance upon any kind of test scores alone is seldom, if ever, practicable.

In a study by Dr. Hackemann, identifiable personal characteristics for successful management personnel were enumerated. These included a strong drive or desire to succeed, willingness to expend much effort or energy to achieve goals, above average grades as students and in the upper one quarter class ranking, above average effective intelligence, and perception and sensitivity in regard to other people.<sup>7</sup> A doctoral candidate has been concerned with the prediction of professional competence, which includes such aspects as intelligence, motivation and sensitivity.<sup>8</sup>

New evidence of the validity of the AICPA Accounting Orientation Test and Level II Accounting Achievement Test has recently been made available in a report issued by Robert D. North.<sup>9</sup> Data for that study was also taken from the information furnished on the Uniform Statistical Information Questionnaire. Dr. North found that ". . . the chances of a candidates' being partially or completely successful on the CPA examinations apparently are about six to four in his favor if he ranks in the top tenth of the Orientation Test norms, but about seven to three against him if he ranks in the lowest quarter of those norms." He also found "by inference from . . . data, the odds for partial or complete success on the CPA examination seems to be about three to one in favor of a candidate who ranks in the top tenth of the Achievement Test norms and about three to one against a candidate who is in the lowest quarter of these norms." From his analysis, he concluded that "these findings indicate that about half of the candidates who rank in the top eight or nine per cent of the Orientation or Achievement Test norms are able to pass all four subjects at their first sitting." Dr. North feels that the "results of these . . . studies indicate that the AICPA Orientation and Achievement Tests have substantial value as indicators of potential success on the CPA examination and in the profession of public accounting."

In summary, it appears that the consensus lends credence to the use of scholastic achievement — rank in class — and quality of the college attended as characteristics identifying the potential success in the CPA profession. Though various kinds of tests and several interview techniques have been used in the way of intelligence and personality evaluations, few have been important as predictors of success. Recent investigations have confirmed the validity of an effective tool for the accounting profession, however. These concern the AICPA Orientation and Achievement Tests.

#### IV. COMPARISON AND EVALUATION OF DATA FOR SELECTED PERSONAL CHARACTERISTICS

##### *Coverage of Survey Data*

As noted previously in this report, the empirical data has been taken from selected, available studies containing considerably more detail. Due to the necessity of maintaining comparability among the factors selected it was possible to include in this comparison and evaluation of personal characteristics only that data pertaining to age, education, experience, and number of attempted sittings of the CPA candidates included in the samples. The comparisons are analyzed using the earlier, fifteen-year reference period as the base. In general, this includes all candidates in all of the samples and first-time candidates from the samples of the fifteen-year reference period and the May 1965 CPA examination. In an effort to portray the results of the analyses and, at the same time, provide an effective means of comparisons of the profiles of the successful sample CPA candidates, a four-tiered graph has been prepared. It shows percentages for classifications of age, education, experience, and sittings and is presented in the following illustration.

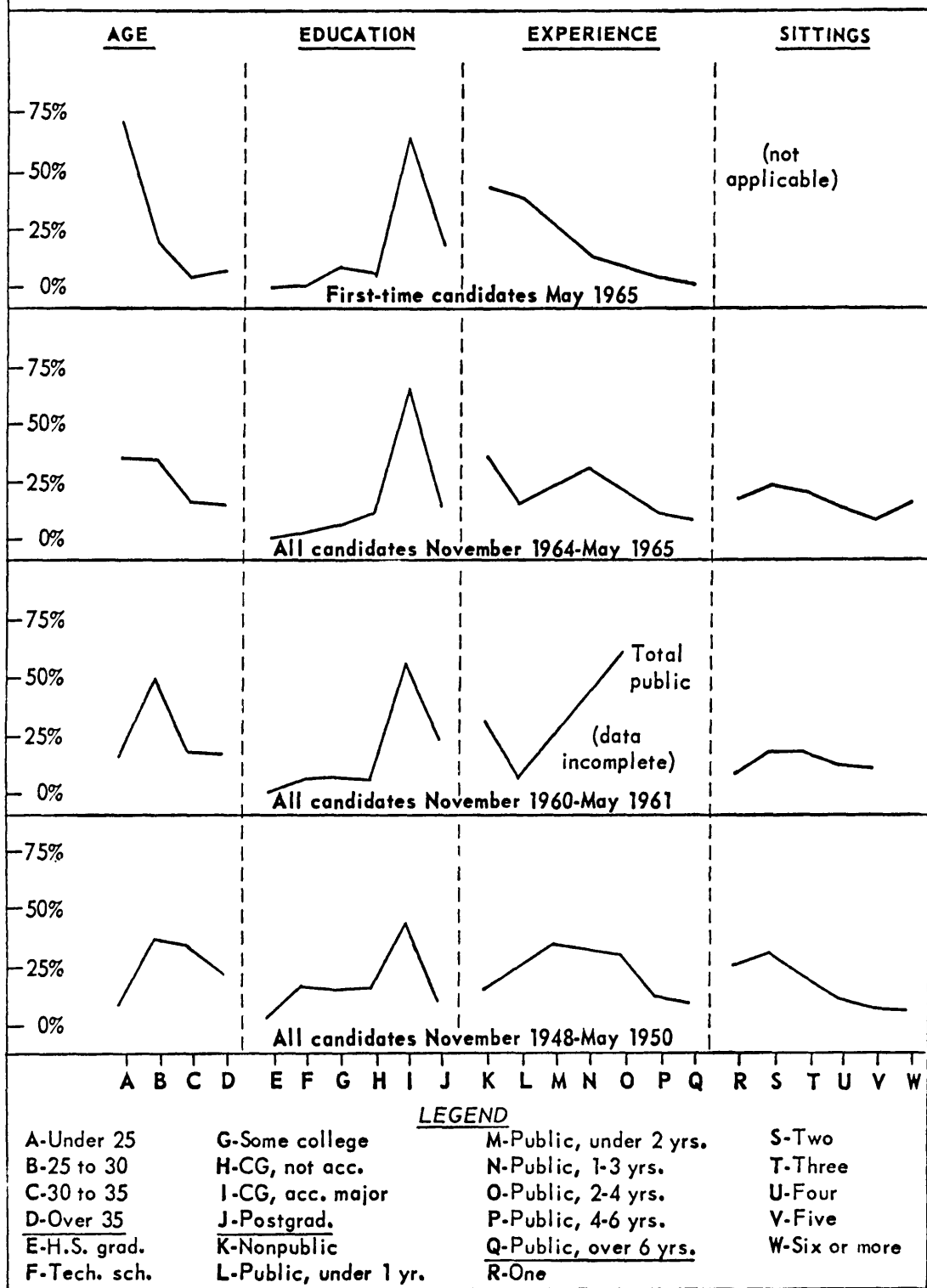
##### *Analysis of Age*

Although the profiles for the fifteen-year period and the five-year period are somewhat similar overall, it is readily apparent that the current period reflects a substantial change in the age pattern. The profiles of the current period for all sample candidates and first-time candidates are also similar except that the line plunges more drastically after the "Under 25" age bracket. This is not surprising in that it is expected that new candidates sitting for the first-time for the examination will be new in the profession and, most likely, just recently graduated from college. The 18 to 25 age group now numbers in excess of 20 million, which represents about a tenth of the total population<sup>10</sup> and more than a quarter of the labor force, and is a partial explanation for the increase in younger CPA candidates. The percentage of candidates "Under 25" within the successful category has been increasing through the years. In general, it has more than quadrupled while the percentage for the "Over 35" group within the successful candidate category has decreased about one-third. This would indicate that the successful CPA candidate is passing at an earlier age. He is winning this status earlier while the unsuccessful candidate appears to be forsaking the CPA certificate if he has not achieved it by age thirty.

##### *Analysis of Education*

While the patterns for the education profiles are quite similar for all periods, it should be noted that the "college graduate — accounting major" has increased dramatically within the category of successful CPA candidates. This type of individual represented 43 per cent of the successful candidates in the base period but today is in excess of 66 per cent, which is an increase of

FIGURE 1. Percentage profiles for classifications of age, education, experience and sittings of successful "sample" candidates



about 50 per cent. When considering this classification along with non-accounting majors, the total of college graduates has increased only about 25 per cent. The percentage of CPA candidates in the successful category with less than a college degree have decreased to about one-fourth of that of the earlier period. It is evident that the individuals with less than a college degree among the first-time successful candidates are also decreasing in number by about two-thirds. From the detailed analysis in Table 1, it can be seen that candidates who are only high school graduates are virtually non-existent among the successful candidates. Individuals attending the proprietary schools — technical, business, correspondence — are on the decrease among the number of current successful candidates since that category is less than one-fourth of the level in the base period. Individuals with less than degree requirements — which means from one-half to three and a half years of college — have decreased in number slightly. Currently, nearly 90 per cent of all successful candidates have at least a baccalaureate degree, while this is true for about 72 per cent of first-time successful candidates included in the surveys in the fifteen-year reference period. When all college graduates included in the fifteen-year successful samples are considered, they represent only about 68 per cent of the total successful candidates in the samples.

TABLE 3.—Percentage analyses by major education categories for *successful candidates* in the samples

	Nov. 48 May 50	Nov. 60 May 61	Nov. 64 May 65
<i>All Candidates Sitting</i>			
Not college graduate.....	32.5%	13.7%	8.6%
College graduate .....	58.2	62.4	76.5
Postgraduate work .....	9.3	23.9	14.9
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
<i>First-time Candidates Sitting</i>			
Not college graduate.....		28.1%	8.7%
College graduate .....		61.1	71.5
Postgraduate work .....		10.8	19.8
		<u>100.0%</u>	<u>100.0%</u>

Age and education may be compared with similar characteristics among AICPA members. In a recent survey, it was shown that over half of the then current members were in the 31 to 45 age bracket and more were 33 years old than any other single age. Of members age 25 or under, 15 of the 283, or five percent, did not have a college degree. Of these, only three had not attended any college. In the 26 to 30 age bracket, only six per cent did not have a college degree. It was noted that a relatively high proportion of the members

in the upper age brackets had acquired advanced degrees. The authors concluded that the "data indicate that legal requirements are lagging behind actual conditions in regard to candidates having college degrees before beginning the process of qualifying for a certificate."<sup>11</sup> They also noted that it was estimated that as many as 90 per cent of CPA candidates have a college degree, with 80 to 85 per cent of these having a major in accounting. These estimates and the facts of their survey are consistent with the findings of this report. The CPA hopeful most likely to be successful is less than 30 years old and has a college degree — with eight out of every nine having a major in accounting or post-graduate work.

*Analysis of Experience*

The experience percentage profiles do not have the same degree of similarity shown in the other data profiles. This is due, in part, to the great diversity of experience requirements levied by the various state boards, and in part, to the minor inconsistencies in data classifications for the various experience levels utilized in the respective samples. Whereas Table 1 in a previous section of this paper delineates the experience classifications actually used within the original surveys, the following table attempts to adjust for these differences and to summarize the information in the most meaningful manner.

Within recent years a larger share of the successful candidates appear to be coming from the non-public segment. The increase, however, is not as great as it seems. During each of the reference periods, the samples included many candidates who had both non-public and public accounting experience. In the studies covering the fifteen-year reference period, the candidates were classified only within the public accounting classification. In the later studies, however, candidates having more than one type of experience were given one tally within each of the appropriate classifications. As a consequence, the non-public accounting percentage of the fifteen-year period is understated in relation to that classification's current percentage. Similarly, the public accounting percentage figure of the two recent reference periods are understated in relation to the percentage figure for that classification in the earlier, fifteen-year reference period.

TABLE 4.—Percentage analyses by major experience categories for *successful candidates* in the samples

	Nov. 48 May 50	Nov. 60 May 61	Nov. 64 May 65
<i>All Candidates Sitting</i>			
Non-public accounting .....	14.5%	31.7%	35.0%
Less than 1 year experience *		6.8	15.1
Less than 2 years experience *	34.1		
Public accounting			
beyond above .....	51.4	61.5	49.9
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

	Nov. 48 May 50	May 65
<i>First-time Candidates Sitting</i>		
Non-public accounting .....	18.4%	43.4%
Less than 1 year experience <sup>a</sup>		38.8
Less than 2 years experience <sup>a</sup>	45.2	
Public accounting beyond above	36.4	17.8
	<u>100.0%</u>	<u>100.0%</u>

<sup>a</sup> Includes "No experience" candidates in samples of periods indicated.

The general pattern of experience levels of candidates indicate that experience is still important as a factor in the successful completion of the CPA examination. The training received in college does seem to facilitate preparation for the theory, practice and commercial law examinations, all of which more nearly correspond to the types of subject testing given in the educational institutions. There is some evidence that more candidates are using their academic training as a springboard to the CPA examination. The increased percentage figure for the non-public accounting area does suggest that more candidates are sitting for the examination without experience in public accounting. One reason for this may be the relaxed requirements in regard to substitutability of education for experience. Another reason may be that candidates view the acquisition of a CPA certificate as a ticket for entry to a higher-salary or higher-prestige bracket in another area of the business career field.

When all successful sample candidates having more than about one and a half years of experience are considered, it is evident that the percentages have shown a great degree of stability for the CPA hopefuls who have spent some time in the profession. It should also be noted, from Table 1, that the percentages for successful individuals with five or more years of experience in public accounting have remained quite stable. The facts presented in Table 1 and Table 4 suggest that the individuals with from two to five years of public accounting experience still constitute the majority of the successful candidates.

For the successful CPA hopeful, then, the chances are slightly better than seven in ten that he will be working in public accounting and within that classification the chances are about eight in ten that he will have more than one or two years of experience in the employ of a CPA.

#### *Analysis of Examination Sitzings*

The number of sittings attempted have shown the most marked difference in the patterns of the three periods.

TABLE 5.—Cumulative percentage analyses by number of sittings attempted for *successful candidates* in the samples

	Nov. 48 May 50	Nov. 60 May 61	Nov. 64 May 65
<i>Sittings Attempted</i>			
1 .....	25.1%	9.6%	17.3%
2 or fewer.....	55.9	27.6	40.8
3 or fewer.....	76.5	46.3	61.2
4 or fewer.....	87.5	59.7	75.2
5 or fewer.....	94.0	71.4	84.2

TABLE 5.—Cumulative percentage analyses by number of sittings attempted for *successful candidates* in the samples (Cont.)

	Nov. 48 May 50	Nov. 60 May 61	Nov. 64 May 65
<i>Sittings Attempted</i>			
6 or more.....	6.0%	28.6%	15.8%
5 or more.....	12.5	40.3	24.8
4 or more.....	23.5	53.7	38.8
3 or more.....	44.1	72.4	59.2
2 or more.....	74.9	90.4	82.7
1 or more.....	100.0	100.0	100.0

Just over 75 per cent of the successful candidates in the current sample period require four or fewer sittings to pass all subjects. A better record prevailed in the earlier period, however, since over 87 per cent of the candidates required only four or fewer sittings. At the same time, the percentage of successful candidates requiring six or more attempts has more than doubled. Fewer of the successful candidates are passing all parts of the examination on the first attempt. Whereas one-fourth of the successful candidates in the fifteen-year reference period passed all subjects at the first sitting, the current period shows that this percentage has decreased about one-third.

The inference to be drawn from these facts is that a larger number of successful candidates passed all examination subjects in fewer attempts in the past than in the current crop of applicants. The profiles for the three periods are almost identical in shape for up to five sittings. The upward swing of the tail covering the percentages for six or more sittings is a marked change from the fifteen-year base period. It suggests that candidates now seem more persistent in pursuing the goal of a CPA certificate since they are willing to sit more times in order to achieve success.

## V. STUDY RESULTS

### *Summary of Findings*

The analyses of age, education, experience and number of examination sittings have confirmed the usefulness of making comparisons of such characteristics. While drastic differences in these areas as between the current and past CPA candidates do not exist, the percentages derived do demonstrate that changes have occurred.

The successful CPA candidate today is younger than his counterpart in either the fifteen-year or the five-year reference period. He is more apt to be under 30 and in 99 per cent of the cases have more than a high school



education. The additional training culminates in a college degree about 85 to 90 per cent of the time. Yesteryear's successful candidates were not so well-educated nor were they as specialized in their training since fewer majored in accounting then. Experience levels have remained fairly stable for CPA hopefuls in that the ratios for successful candidates having two or more years work in public accounting are nearly equal in all periods. However, today there does seem to be an increasing number of CPA applicants with less than one year's experience and an increasing number working in other than the public accounting field. The current CPA candidate appears to be winning his certificate at an earlier age and to be more persistent in the number of sittings attempted until he passes age 30. If he has not achieved success by that time, he is most likely to move on to other endeavors.

#### *Conclusions — Past and Present*

From the comparative definition of a current and past CPA candidate given in the preceding section, one may conclude that the characteristics included in this study do offer good but limited boundaries for analysis purposes. In the past, these items offered the best avenues for investigation.

In past studies — from which selected data for this project were derived — Robert L. Kane Jr.,<sup>12</sup> utilized this same set of characteristics as well as some additional material concerning grades received on the examination subjects. His conclusions, as presented for his study of May 1950 CPA candidates, were:

- (1) Experience in public accounting up to a total of four years increases the candidate's chances of passing the CPA examination. This experience seems to be of greatest benefit in Auditing but of practically no benefit in Commercial Law.
- (2) An increased amount of education in general enhances the candidate's chance of success in the examination. This applies generally to those in each experience group.
- (3) A combination of a college degree and at least some experience in public accounting appears to be a very effective background for candidates taking the examination.
- (4) Most candidates who qualify for the CPA certificate succeed in passing all subjects on one of their first three attempts. The second attempt produces the highest number of successful candidates.
- (5) It appears that an increasing percentage of the candidates have completed a college course of study. However, these graduates benefit substantially by obtaining public accounting experience even though they may require less of such experience to pass the examination than is needed by non-graduates.

Some of the findings and conclusions of present day studies are set forth in a very recent article entitled, "CPA Candidates — What Are They Like?" and written by William C. Bruschi.<sup>13</sup> This article describes the use of the Uniform Statistical Information Questionnaire

and goes on to define the traits of today's typical candidates and some of the casual factors associated with CPA examination success. The conclusions reached by William C. Bruschi in that article were that "an analysis of some general factors associated with CPA examination success showed that the principal factor was general scholastic ability and accounting knowledge, as indicated by the aptitude and achievement tests, and, to a lesser extent, by the candidate's academic grade averages in college."

Just as there were no drastic differences in the profiles of the current and past successful CPA candidates, there are no major differences in the conclusions reached in the study at hand and the noted current and past studies. The percentage of college graduates among the successful CPA candidates probably shows the greatest change of any over the past, since the 1948-1950 period this figure was about 68 per cent whereas today it runs near 90 per cent. Experience remains helpful today especially for successful CPA candidates having more than two years of public accounting work. In the area of examination sittings, the conclusion that nearly all successful candidates qualify by passing all the subjects on one of their first four attempts seems more appropriate.

#### *Recommendations — Future*

While this study does not furnish evidence that any one of the cited characteristics is better than another in predicting candidate success, it is reassuring to learn that this same set shows considerable reliability over an extended period of time. The data concerning age, education, experience and sittings is useful in portraying patterns and in defining a typical candidate in those terms. And, some deductions may be made about the candidates' other traits and attributes.

Since it is apparent in the discussion of predictors of success of the profession that there is not common agreement with one professional field — much less between fields — the importance of the continued use of the Questionnaire as a vehicle for data collection cannot be overemphasized. In particular it should be useful in conjunction with correlation analyses and other mathematical and statistical approaches to evaluation of mass data.

This study provides the basis for several particular recommendations in regard to analysis, evaluation, and comparison of personal characteristics of CPA candidates. These recommendations are as follows:

- (1) Candidate data should continue to be obtained through adequate and reliable samples taken at each successive CPA examination.
- (2) Continued and expanded use of AICPA Orientation and Achievement Tests should be more aggressively promoted and their results correlated with Questionnaire data and examination results.
- (3) Additional studies covering different periods of time should be initiated and used to form a basis for analyses of changes, patterns and trends.

These recommendations are offered as a means toward

achieving a considerably greater degree of uniformity in the rules and regulations concerning qualifications for admission to the profession. Presentation of a united front and of consistent facts for all jurisdictions should go far in the effort to persuade authorities to reduce the diversity of requirements. The objective should be "one profession with one set of rules for all."

**APPENDIX A  
STRUCTURE OF THE SAMPLES  
USED IN THIS STUDY**

The survey used as basic sources for data concerning personal characteristics of CPA candidates covered three time periods. For purposes of this study, survey data obtained at the November 1948, May 1949, November 1949 and May 1950 CPA examinations were combined to form one reference point of approximately fifteen years ago. Another reference period of about five years ago was established by combining data from samples taken at the November 1960 and May 1961 CPA examinations. The present day comparison point was derived by combining data from tabulations of questionnaire information obtained from all participating candidates sitting for November 1964 and May 1965 CPA examinations and participating candidates sitting for the first time for the May 1965 CPA examination.

From Table 6 below, it is apparent that the surveys varied considerably in scope. Sizes of the individual samples were fairly consistent within each reference period and even between the two earlier periods. The average sample size for the first period was 2,005; for the second period, 2,727. The number of states and, consequently, the number of CPA candidates participating in the present day program demonstrates the current high degree of interest in accumulating data on all CPA hopefuls as well as on entrants into the profession. The availability and presentation of such data have been greatly facilitated by the development of the ACPAE questionnaire and an improved, related system for processing information of this nature.

TABLE 6.—Structure of samples used in this study

<i>Sample from Examination Dated</i>	<i>Candidates included in Sample</i>	<i>First-time Candidates included</i>	<i>Number of States</i>
November 1948.....	1,467	566	About ½
May 1949.....	1,814	839	About ½
November 1949.....	1,400	487	About ½
May 1950.....	3,341	1,220	About ½
	8,022	3,112	
November 1960.....	2,902	674	9
May 1961.....	2,553	666	8
	5,455	1,340	
November 1964.....	11,280	—	
May 1965.....	11,222	3,388	
	22,502	3,388	

The methods employed in surveys were, in general, similar in each case. The data was collected at state levels from participating CPA candidates and was forwarded for review and analysis under the direction of Institute personnel. Processing of the information included in the fifteen-year reference period was accomplished through manual procedures and techniques; that of the five-year reference period, through a combination of manual and mechanized (punched card) routines; and, that of the present day reference period, through manual, mechanized and computerized methods.

In order to allow the reader to make his own judgment concerning the methods and scope of the earlier research efforts, excerpts from the Kane study<sup>14</sup> covering the May 1950 examination are provided as being representative for each of his analyses:

"The four previous studies explored the results of the examinations given in November 1946, November 1948, May 1949 and November 1949.

". . . Two separate and distinct samples are involved for each of the examinations. The . . . samples consisted of . . . candidates who, according to their state boards, qualified for the CPA certificate as a result of the . . . examination. These will be referred to as successful candidates. The other . . . sample includes . . . candidates who failed to qualify in that examination even though they may have passed some subjects (then or in prior examination). These will be referred to as unsuccessful candidates.

"These data do not cover all the states using the examination, nor do they necessarily include all of the successful or unsuccessful candidates within a particular state, since all data sheets which were incomplete in any respect were excluded. Therefore, a direct comparison of the number of successful candidates with those who were unsuccessful is not valid as a measure of percentage of candidates passing. However, the relationship of various subgroups to group totals should be valid and significant as measures of differences between the successful and unsuccessful candidates.

"The classifications used in the present study are identical with those used in the prior studies. Therefore, it is possible to consolidate the results . . . This combination should serve to reduce the possibility of serious errors resulting from some of the problems encountered in using samples . . .

". . . certain limitations should be pointed out.

"All of the studies referred to have been based on data from only about one-half of the states and have not included more than a small per cent of the total number of candidates. It is possible that the states which have supplied the data used in these studies may not be representative of the national situation . . . Even for those states submitting data, it was not possible to include all candidates. In a number of instances, tabulation has shown that a part of the desired data was lacking, and as a result the candidate could not be included. Other data have been deleted because of apparent inaccuracies . . ."

In order to provide a valid comparison of current and

past CPA candidates, it was necessary to utilize only comparable factors or data items from each of the reference periods. Accordingly, this report is limited to analyses of data items concerning age, education, experience and number of sittings attempted. In addition, the fifteen-year reference point is used as the base period in order to maintain a chronological perspective and, more importantly, because the analyses of that data confines the examination status of the respective candidates to one of two classifications: successful or unsuccessful.

Data for five-year reference period was compiled from an earlier, ACPAE-developed uniform statistical information questionnaire. However, the questionnaire was not as extensive in nature as the present day information blank and minor differences from the earlier data were also noted, as explained in the tables accompanying this report. As one notable exception, the 1960-1961 data classified the examination status of the CPA candidates as follows: (1) passing all subjects at the first examination; (2) previously conditioned or failed now passing; (3) conditioned; or (4) failing. For the purpose of this paper, "successful" candidates within this time period of the samples included those receiving passing grades as defined in (1) and (2) above. All other 1960-1961 candidates were then labeled as "unsuccessful" in arranging the classifications presented in the accompanying tables.

The Questionnaire used for the 1964 and 1965 CPA examination data collection defined the examination status in the following manner: (1) passed all four subjects at first sitting; (2) passed three subjects — all for which he was eligible — at first sitting; (3) completed his remaining subject at first sitting; (4) passed all subjects for which he was eligible but had previously failed one or more subjects; (5) has been conditioned as a result of this sitting; or, (6) failing, not conditioned. In order to achieve comparability with the earlier studies, the 1964-1965 candidates were classified as "successful" if they achieved the status indicated in (1), (3) or (4) above. All other 1964-1965 candidates were consequently placed in an "unsuccessful" classification.

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## REPORT ON ADDITIONAL ANALYSIS OF DATA OBTAINED FROM UNIFORM STATISTICAL INFORMATION QUESTIONNAIRES

By William C. Bruschi, Director of Examinations  
American Institute of Certified Public Accountants

The project of accumulating statistics on the personal characteristics of CPA candidates has been a joint effort of the state boards of accountancy, the Association of CPA Examiners and the American Institute of CPAs. The statistics were accumulated by having CPA candidates complete questionnaires and return them to their state boards of accountancy. When the candidates' ex-

amination grades were available, the state boards entered the grades on the questionnaire and forwarded them to the Institute where the data were transferred to punched cards, processed by computer and analyzed. State boards cooperating in this project received computer print outs of their candidates' data.

A report was rendered at the 1965 Annual Meeting

of the Association of CPA Examiners on the initial analysis of the data obtained from the questionnaires. That report was published in the Annual Meeting Proceedings and was subsequently published in the March 1966 issue of *The Journal of Accountancy* as an article titled "CPA Candidates — What Are They Like?"

This is a report of the analysis of the data accumulated from the questionnaires completed by candidates who wrote the November 1964 and May 1965 examinations. Of the 16,813 November 1964 candidates, 11,280 completed questionnaires; 11,222 of the 15,211 May 1965 candidates completed questionnaires.

The analysis was pointed toward answering the following questions:

1. Are there any marked differences between the personal characteristics of candidates sitting for the May CPA examination and of those sitting for the November CPA examination?

2. What is the effect of work experience upon the candidates' success in passing the CPA examinations in Auditing and Accounting Practice?

3. Using the national average passing percentages on the CPA examination as norms, the average passing percentages of certain states typically are higher than the national norms whereas the averages of other states typically are lower. How do the personal characteristics of the candidates from these two diverse groups of states compare?

#### *Comparison of May and November Candidates*

With regard to the analysis of the data for any marked differences between the personal characteristics of candidates sitting for the November 1964 and for the May 1965 examinations, differences, if any, were quite small for practically all of the characteristics studied.

Those differences which might be large enough to be significant are the differences between the medians for the Institute's Orientation and Achievement Tests. The Orientation Test percentile median fell from 76 to 62 and the Achievement Test percentile median dropped from 75 to 70. These differences may indicate a slight lowering of the candidates' abilities that are measured by these tests. On the other hand, since there was little change in the candidates' SAT scores which are also an indication of the candidates' academic aptitudes, the differences in the Institute test scores may well be attributable to sampling variations. In the analysis of data from the questionnaires prepared by candidates taking subsequent examinations, attention will be focused on these test scores to determine whether or not there is a downward trend.

#### *Effect of Work Experience*

The answer to the second question regarding the effect of work experience upon the candidates' success in passing the CPA examination in Auditing and Accounting Practice was sought by means of controlling the candidates' aptitude and achievement characteristics as indicated by College Board Scholastic Aptitude Test Scores and the Institute's Orientation and Level II

Achievement Tests. To eliminate the effect of the experience gained in taking and retaking the CPA examination, the analysis was limited to candidates sitting for the examination for the first time.

In general the data indicated that experience is not a major factor contributing to the candidates' success in passing the CPA examination. The candidates' success seems to depend to a much greater extent upon his academic aptitude and college accounting training. This conclusion is based on the data that most of the highest grades were achieved by individuals with less than one year of experience but who ranked high on the tests.

For the total group of candidates experience with CPAs had a slightly negative correlation with performance on the Auditing examination. This was the case even when the academic ability of the candidates, as measured by the SAT and Level II Achievement Tests, was held constant statistically for the sample groups that took these tests.

#### *Comparison of High-and-Low-Ranking States' Candidates*

With regard to the third question posed, ten states were selected for study by comparing their average passing percentages on the CPA examination with the national average passing percentages for the ten examinations administered for the period 1960-1964. The data from five states with averages typically ranking higher than the national average and five states with averages typically ranking lower were selected for analysis. For discussion purposes these states will be termed high-ranking and low-ranking states, respectively. The personal data analyzed for these ten states were for the candidates who wrote the November 1964 CPA examination.

A readily understandable method of making comparisons of the personal characteristics of the candidates from the two groups of states is to develop profiles of typical candidates. These profiles are drawn from the statistical medians or modes, whichever is more appropriate, of the total candidates' data.

An analysis of the number of sittings for the candidates discloses that the typical candidate from the low-ranking states is sitting for his third time whereas the typical candidate from the high-ranking states is sitting for his second time. This relationship for number of sittings holds for all subjects in the examination. Apparently the typical low-ranking state candidate must sit more times before he completes the CPA examination.

Perhaps his greater number of sittings caused the typical low-ranking state candidate to have a median age of 29, two years older than the typical high-ranking state candidate. The typical low-ranking state candidate also has been out of college for a longer period than has the high-ranking candidate. The data cannot disclose whether this latter difference is due to the greater number of sittings or to a delay in deciding to sit for the examination. All ten states under study permitted their candidates to sit for the examination with no qualifying experience if they were college graduates.

With regard to education, the typical candidates of both groups of states are college graduates with majors in accounting and with a median of 29 hours of accounting course work. For those candidates who attended graduate school the typical low-ranking state candidate had slightly more accounting hours at the graduate level.

Differences in these typical candidates' educations appear in two areas. The typical low-ranking state candidate has had less college study of business law, an

average of one to three hours as compared to four to six hours for the high-ranking state candidate. The typical low-ranking state candidate probably has not had any formal CPA examination coaching course work whereas the typical high-ranking state candidate has had such coaching.

Changing from a comparison of the profiles of typical candidates to an analysis of the total number of candidates, the following percentage distributions were made for the data of the ten states being studied.

<i>Characteristics</i>	<i>Five High-Ranking States</i>	<i>Five Low-Ranking States</i>
<b>Education</b>		
Doctorate .....	0.3%	0.1%
Master .....	7.2	5.3
Law .....	1.5	0.9
	<hr/>	<hr/>
Total graduate degrees .....	9.0%	6.3%
	<hr/>	<hr/>
Accounting major .....	62.2	60.5
Business administration major.....	9.1	10.1
Other .....	2.7	2.5
	<hr/>	<hr/>
Total bachelor degrees.....	74.0	73.1
	<hr/>	<hr/>
Two or more years of college.....	7.9	9.2
Less than two years of college.....	2.5	3.7
Business school or accounting correspondence course.....	6.4	7.5
High school graduate or equivalent.....	0.2	0.2
	<hr/>	<hr/>
Total without college degrees.....	17.0	20.6
	<hr/>	<hr/>
Total .....	100.0%	100.0%
	<hr/> <hr/>	<hr/> <hr/>
<b>College status</b>		
Attending graduate school.....	4.6%	1.7%
Out of college.....	86.4	87.9
Attending college .....	4.5	4.6
Did not go to college.....	4.5	5.8
	<hr/>	<hr/>
Total .....	100.0%	100.0%
	<hr/> <hr/>	<hr/> <hr/>
<b>Formal CPA course preparation</b>		
Residence course .....	45.7%	20.6%
Correspondence course .....	8.9	17.5
Staff course .....	9.1	5.3
None .....	36.3	56.6
	<hr/>	<hr/>
Total .....	100.0%	100.0%
	<hr/> <hr/>	<hr/> <hr/>

An examination of the above data discloses that the advantage with regard to the amount of education rests with the high-ranking states. Of the high-ranking states' candidates, 83% are college graduates compared to 79.4% of the low-ranking states' candidates. Further-

more 13.6% of the high-ranking states' candidates have graduate degrees or are attending graduate school as compared to 8% of the low-ranking states' candidates with similar attainments.

In another analysis, striking differences were found in comparing the average scores of the candidates who took the College Board Scholastic Aptitude Tests and the Institute's Orientation and Level II Achievement Tests. A comparison of the median scores follows:

	<i>High-Ranking States</i>	<i>Low-Ranking States</i>
College Board SAT		
Verbal score .....	479	444
Percentile .....	63	52
Mathematical score .....	574	506
Percentile .....	66	46
Orientation Test		
Percentile .....	76	64
Level II Achievement Test		
Percentile .....	75	66

The above comparison suggest that, for those candidates who took these tests, the candidates of the high-ranking states were brighter and better trained in accounting. Since the College Board Scholastic Aptitude Tests are taken before the candidates enter college, the better SAT scores in the high-ranking states indicates that candidates in these states had an intellectual advantage before they began their college work. These comparisons, therefore, suggest the need for the stepping-up of efforts in the low-ranking states to attract bright high school students to the study of accountancy.

Other strong evidence of the part that academic aptitude and college training in accounting plays in the personal characteristics of successful candidates may be found in the following table.

**Average SAT, Accounting Aptitude and Achievement Scores of CPA Candidates Classified by Total Number of Sittings to Date**

	<i>Number of Sittings</i>							<i>Total Group</i>
	1	2	3	4	5	6	7	
<b>May, 1965</b>								
SAT average .....	514	501	501	481	471	447	437	501
Number of candidates.....	654	355	192	120	68	23	35	1,447
<b>November, 1964</b>								
SAT average .....	509	502	482	475	461	427	448	497
Number of candidates.....	653	399	220	111	54	17	24	1,478
<b>May, 1965</b>								
Orientation Test average percentile.....	66	58	62	61	58	61	47	61
Number of candidates.....	96	90	67	31	20	5	20	328
<b>November, 1964</b>								
Orientation Test average percentile.....	68	72	66	63	62	57	66	67
Number of candidates.....	242	145	97	54	31	19	29	617
<b>May, 1965</b>								
Level II Achievement Test average percentile.....	67	67	65	64	59	58	54	65
Number of candidates.....	442	335	199	128	81	47	67	1,298
<b>November, 1964</b>								
Level II Achievement Test average percentile.....	71	69	66	65	65	58	59	68
Number of candidates.....	539	278	204	100	48	37	41	1,247

The trend of steady decreases in the intelligence test scores as the number of sittings increases is clearly evident. The less intelligent the candidate is, the greater is his task of passing the CPA examination.

Mention was made in the beginning of this report of the organizations cooperating in the joint project that led to this report. Recognition should also be given to those individuals who have played a part in the project. The project has been under the policy guidance and

encouragement of the Association of CPA Examiners Committee on Examination Statistics. Members of the Committee are Carl Dechow, Jr., Chairman; Professor Lyle D. Dieterle, Indiana University; Professor Robin D. Koppenhaver, University of North Dakota; and Professor James A. Herbert, Creighton University, coordinator. Special recognition should be accorded to Dr. Robert D. North, Psychological Corporation, New York City, for his services as consultant.

## Are Women CPA Candidates Keeping Up With Men CPA Candidates?

William C. Bruschi, CPA

To determine if women CPA candidates are keeping up with men CPA candidates, the following questions must be asked: What are the trends in personal characteristics of CPA candidates? How do personal characteristics of women CPA candidates compare with those of men CPA candidates? An indication of some trends and a comparison of personal characteristics may be obtained from an analysis of the statistics compiled from questionnaires completed by some of the candidates who wrote the November 1965 CPA examination.

To obtain information regarding trends in candidates' personal characteristics and comparisons of women and men candidates, data regarding the accounting profession's neophytes were drawn from the questionnaires completed by 12,357 candidates, including 439 women candidates, who wrote the November 1965 CPA examination and from data on hand at the Institute compiled from questionnaires filled out by 1,467 candidates who wrote the November 1948 CPA examination. It was not possible to extract data solely about women candidates sitting for the November 1948 CPA examination.

Accumulating statistics on personal characteristics of candidates has been a joint effort of the state boards of accountancy, the Association of Certified Public Accountant Examiners, and the American Institute of Certified Public Accountants. The statistics were obtained by having candidates complete questionnaires regarding age, sex, education, etc.

At the Institute the data were transferred to punched cards, processed by computer and analyzed. The first report on these data was published in 1966.<sup>1</sup>

The first personal characteristic to be considered is the ages of the candidates. The trend is to a lower average age. The median age fell from 32 years in 1948 to 27 years in 1965. Women candidates, however, had a median age of 30 years in 1965, 3 years older than the men. Comparing average ages by using modes instead of medians, the trend to younger candidates is still evident. The modes, in spans of years, fell from 25-29 years in 1948 to under 25 years in 1965. The mode of the ages of women candidates was the same as the men's, under 25 years.

Probably the average age of the candidates has reached a plateau and will not fall any lower. A limiting factor to the decline in ages is the general requirement that the candidates be 21 years of age. Furthermore, since there is an increasing number of states requiring college degrees of their candidates (twenty-four states now have accountancy laws that require, or will soon require, a college degree), the average age of candidates may settle at 22 or 23 years, the average college graduation age. On the other hand, the movement to graduate school study of accounting may result in an average candidate age of 23 or 24 years.

### Education

The trend is for more candidates to have bachelor's degrees and postgraduate degrees.

<sup>1</sup> "What Are CPA Candidates Like?" by William C. Bruschi, *The Journal of Accountancy*, March 1966.

Women candidates, however, appear to be lagging behind the men in education, as shown in the following table:

<i>Amount of Education</i>	<i>Per Cent of Candidates</i>		
	<i>November 1948 All Candidates</i>	<i>November 1965 Men</i>	<i>November 1965 Women</i>
Postgraduate degree holders	•	7%	3%
Attending graduate school	•	5	3
Total with graduate education	4%	12	6
Bachelor degree holders (No postgraduate study)	52	75	58
Total college graduates	56	87	64
Two to four years' college study	*	6	14
Less than two years' college study	•	2	8
Total with college study but without degrees	16	8	22
Business school or correspondence course study	16	5	12
High school graduate	12	••	2
Total	100%	100%	100%

\* Data not available  
 •• Insignificant percentage. A total of 29 candidates out of 12,357 had only high school educations.

In comparing the 1948 and 1965 percentages, the trend to more education is obvious. The percentage of candidates who are college graduates increased from 56% to 87%, and those with postgraduate education increased from 4% to 12%. Candidates who were only high school graduates decreased from 12% to an insignificant percentage.

Because of the limitation of the 1948 data, other educational trends cannot be determined; but comparisons of women and men candidates can be drawn from the 1965 data. Only 65% of the women candidates are college graduates whereas 87% of the men are. A smaller percentage of women candidates have studied for postgraduate degrees; 6% of the women as compared to 12% of the men have attended graduate school.

Other findings are that a greater percentage of women (12%) than men (5%) attempted to prepare themselves for the CPA examination by proprietary business school or correspondence course studies. Also a greater percentage of women (2%) than men (less than 1%) are high school graduates only.

From data on the characteristics of the candidates who graduated from college, women and men candidates were found to have certain similar median educational characteristics: both have a college grade average of B; and both have the same amount of college study of business law, four to six hours. CPA examination coaching courses were taken by 54% of the women and 48% of the men.

No meaningful conclusions can be drawn from the data on the hours of accounting

study at the undergraduate level. The data for the women candidates show a mode of 33 plus hours and a median of 29 hours. On the other hand, for the men the mode is 27-32 hours and a median is 30 hours.

There are some differences in the educational characteristics of women and men candidates. In their postgraduate work women candidates had fewer hours of accounting study; women had a median of 19 hours of accounting study at the postgraduate level whereas the men had a median of 21 hours. The average woman candidate who attended college has been out of college for a shorter period than the average man; she has been out of college 1 to 2 years whereas the man has been out 3 to 5 years.

#### Comparison of Academic Aptitudes

Highly complimentary to women candidates is the information obtained from a comparison of the average scores of women and men candidates on the College Board Scholastic Aptitude Test and the Institute's Orientation and Level II Achievement Tests. The information, drawn from the following data, indicates that the average woman candidate has greater academic ability as measured by these tests than does average man candidate.

SAT Verbal	<i>Candidates</i>	
	<i>Women</i>	<i>Men</i>
Median	515	460
Percentile	62	57
Number	45	2,492



	<i>Candidates</i>	
	<i>Women</i>	<i>Men</i>
SAT Mathematical		
Median	57+	550
Percentile	81	61
Number	46	2,486
AICPA Orientation		
Median percentile	71	65
Number	15	641
AICPA Level II Achievement		
Median percentile	82	70
Number	42	2,105

Not all candidates took these tests; and the small number of women candidates taking them may cast some doubt on the statistical validity of the data for them. The Scholastic Aptitude Test rankings are based on all students taking the Tests who entered college. The Orientation and Achievement Test rankings are based on college students who took the Test in their senior year.

**Are Women CPA Candidates Keeping up with Men CPA Candidates?**

The answer to the question is not clear-cut. On the one hand, while the percentages of women candidates with college education and with postgraduate study are greater than the percentages for 1948 candidates, women candidates appear to have lagged behind in the trend toward obtaining more college degrees and doing more postgraduate work. On the other hand, the data for college graduates indicate that women candidates have higher academic abilities than the men.