

Characteristics that Assist Future Public Accountants Pass the CPA Exam on Fewer Attempts

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CPAs employed as public accountants were surveyed to determine what characteristics differed among subjects who passed the CPA exam on the first, second or three or more attempts. Identifying these characteristics may assist persons pursuing careers in public accounting to pass the CPA exam more quickly. The characteristics examined of these three groups were GPA, SAT score, graduate degree, AACSB accreditation, age, and classroom or self-study CPA review program. All data were gathered from persons who had passed the CPA exam prior to the 2003 testing format changes. The results of this study found that almost two-thirds of practicing CPAs surveyed passed the CPA exam on the first or second attempt and had significantly higher GPA and SAT scores, were significantly more likely to possess a graduate degree and to have graduated from an AACSB accredited institution than CPAs who passed the exam on three or more attempts. Survey subjects were also grouped into those who passed the CPA exam on the first attempt and those who had passed on the second attempt. However, no significant differences were found concerning any of the characteristics of interest between persons who had passed the CPA exam on the first or second attempts.

INTRODUCTION

Future practicing CPAs, as well as educators and business schools, have an interest in exam candidates passing the Uniform Certified Public Accountant Examination (CPA exam) in as few attempts as possible. For future CPAs who would pursue careers in public accounting, passing the exam on fewer attempts will result in great savings of time, effort, and money. For educators and business schools, their students passing the CPA exam on fewer attempts would confirm their pedagogical design success.

Many studies have been conducted investigating the characteristic of persons who have sat for the CPA exam under the old testing format, which allowed testing twice a year (Ashbaugh and Thompson, 1993; Brahmasrene and Whitten, 2001; Marts et al., 1988; Pustorino, 1996; Shafer et al., 2003; Smith, 1992; Whitten and Brabmasrene, 2002). Unfortunately, this huge bi-annual

subject database, useful for determining characteristics and passing rates of successful examination candidates on a demanding nationwide standardized exam, can no longer be obtained, at least not as it was for the past 40 years due to changes in the CPA testing format that went into effect in 2003.

Under the new testing format, each part of the examination can be taken separately (not all at once) and may be taken at the convenience (within a fairly broad timeframe and at many testing sites) of the candidate (Burke and D'Aquila, 2004; Churyk and Mantzke, 2005; Handel, 2003; Holder and Mills, 2001). This new testing format seems to be less difficult than the old testing format. Prior to 2003, all four parts of the CPA exam had to be taken at once and a candidate had to pass (score greater than 75%) at least two parts and "condition" (score at least 50%) the other parts in order to receive credit for any parts passed. At one time under the old testing format, the CPA exam was nineteen and a half hours long, given over three days, and only offered at a relatively few examination sites. The old CPA exam testing format resulted in a very low first-time passing rate, that varied from state to state, but averaged from 10% to 20% (Brahmasrene and Whitten, 2001; Shafer et al., 2003; Whitten and Brahmasrene, 2002).

This study was conducted under the assumption that the characteristics necessary to be successful on the CPA exam or to be successful as a public accountant really have not changed because of the new testing format and that the rigorous design of the old testing format will better reveal characteristics that contribute to passing the CPA exam on fewer attempts. Therefore, this study is based on data collected from persons who sat for the CPA exam before the new exam format was in effect.

Whereas this study has replicated some elements of previous studies that have attempted to identify characteristics of successful CPA exam candidates (grades, SAT scores, advance degree, etc.), the database for this study was gathered with a unique design (Ashbaugh and Thompson, 1993; Brahmasrene and Whitten, 2001; Lindsay and Campbell, 2003; Marts et al., 1988; Ponemon and Schick, 1988; Whitten and Brahmasrene, 2002). Studies prior to the one described here obtained databases or surveyed recent candidates pertaining to one or more bi-annual sittings of the CPA exam to determine what characteristics contributed to passing all four parts of the exam on the first attempt and/or what characteristics contributed to conditioning the exam (Ashbaugh and Thompson, 1993; Brahmasrene and Whitten, 2001; Lindsay and Campbell, 2003; Marts et al., 1988; Ponemon and Schick, 1988; Whitten and Brahmasrene, 2002). In other words, successful candidates (passed or conditioned) were compared to unsuccessful candidates (failed all or only passed one part) in order to identify success characteristics.

This study only surveyed persons who passed the CPA exam and were employed in public accounting and so this study has the added dimension of obtaining information regarding the number of attempts needed to pass the CPA exam. Because of this design, this study not only provides insight into CPA exam success characteristics, but how those characteristics influence how quickly the exam is passed. Also, how quickly the CPA exam is passed may influence the likelihood of pursuing a future career in public accounting.

METHOD

An on-line survey was sent to a sample of CPAs employed in public accounting located across several eastern, southern, and mid-western states. One hundred and eighty responses were received, a response rate of 18% percent. Respondents were asked on what attempt was the CPA exam passed, year passed, highest degree held when passed, self-study or classroom review

course, was the business college AACSB accredited, name of college and location, their SAT or ACT score, age when CPA exam was passed, and overall college GPA. These data were collected before the recent testing format changes were made to the Uniform CPA Exam (as explained above). The accuracy of the college's AACSB accreditation status was verified with information provided by the AACSB to determine if the school was accredited when the respondent attended. ACT scores were converted using the College Entrance Examination Board, New York, 1999, conversion scale that transforms the composite ACT score to its equivalent SAT score.

RESULTS

Initially, survey subjects were divided into three groups. These groups were persons who passed the exam on the first attempt, second attempt, and three or more attempts. However, preliminary analysis revealed no significant differences between persons who passed the exam on the first or the second attempt. The fact that there was no significant difference in any of the characteristics of interest between persons who passed the exam on the first or second attempt is puzzling until one considers the former CPA exam testing format (as described above). Persons passing the exam on the second attempt are more likely to have "conditioned" the exam (passed two or three sections of the exam on their first attempt) than persons requiring three and more attempts to pass the exam. This results in the characteristics of persons passing the CPA exam on the first or second attempts to be more similar to one another than to the characteristics of persons passing the CPA exam on the third and more attempts. As a result of these findings, survey subjects who passed the exam on the first or second attempts were combined and compared to survey subjects who passed the CPA exam on three or more attempts.

Descriptive statistics of the sample are given in Table 1. The means and standard deviations for the full sample and two groups derived from the sample based on the number of attempts needed to pass the CPA exam are reported. There are significant differences between those who took one or two attempts compared to those who took three or more attempts to pass the CPA exam with respect to average GPA, number of attempts to pass the CPA exam, average SAT score, highest attained degree, and if the school was AACSB accredited. The group who passed in one or two attempts had higher GPAs and SAT scores, were more likely to have a masters degree, and graduate from an AACSB accredited school than the group who passed the CPA exam after three or more attempts. The two groups did not significantly differ on the age when the CPA exam was passed and if they prepared for the CPA exam through self-study as opposed to a classroom preparation course.

For the members of the group that passed the CPA exam on the first or second attempt, 49% passed on the first attempt while 51% passed on the second attempt, an average of 1.5 attempts. For those who passed the exam on three or more attempts, almost 55% passed on the third attempt, but the average number of attempts needed for this group to pass the CPA exam was 3.9 attempts. As noted, the difference between the groups for the average number of attempts to pass the CPA exam, 1.5 compared to 3.9, is statistically significant. Also, of the total number of practicing CPAs that responded to the survey, almost two-thirds (114 of 180 respondents) passed the CPA exam on one or two attempts.

TABLE 1
DESCRIPTIVE STATISTICS: TOTAL SAMPLE, PASSED IN 1 OR 2 ATTEMPTS
SUBGROUP, AND PASSED IN 3 OR MORE ATTEMPTS SUBGROUP

| Variable | 1 | 2 | 3 | Significant Difference Between Column 2 and 3 Means |
|---------------------------------------|-------------------|-------------------------------------|--|---|
| | Total | Passed CPA In 1 or 2 Attempts | Passed CPA in 3 or more Attempts | |
| | N = 180 | N = 114 | N= 66 | |
| | | Mean <i>Standard Deviation</i> | | |
| Age Passed CPA | 25.7 4.9 | 25.9 3.45 | 25.4 3.26 | No |
| GPA | 3.38 .39 | 3.45 .40 | 3.26 .36 | Yes** |
| Number of Times To Pass CPA Exam | 2.39 1.42 | 1.51 .50 | 3.909 1.186 | Yes** |
| SAT Score | 1147.57 131.25 | 1164.39 128.27 | 1118.53 132.22 | Yes** |
| Bachelor's* Highest Degree | .78 .42 | .73 .45 | .86 .35 | Yes** |
| Self Study for CPA* (No classroom) | .57 .49 | .54 .50 | .62 .49 | No |
| AACSB Accredited* School | .73 .45 | .80 .40 | .61 .49 | Yes** |

*Proportions, **Significant at $p < .05$

The correlations in Table 2 show that for the entire sample of CPAs the number of attempts to pass the CPA exam was significant and negatively related to undergraduate GPA, SAT score, and graduating from an AACSB accredited college. This suggests that higher GPA and SAT score and attending an AACSB accredited school are characteristics associated with passing the CPA exam on fewer attempts. Significant positive correlations between the number of attempts to pass the CPA exam were found with preparing for the CPA exam by self-study and having a bachelor's as the highest earned degree. This implies that self-study may not be as effective in

preparing for the CPA exam as taking a classroom review course. The positive association between the number of attempts to pass and highest degree being a bachelor's degree indicates that having a bachelor's degree is associated with taking more attempts to pass the CPA exam compared to those with graduate degrees.

The association between college degree and the attempts needed to pass the CPA exam can be looked at by type of degree. Most respondents passed the CPA exam with a bachelor's degree as their highest degree, 78 percent of the sample. For those with a bachelor's degree, 59% passed the CPA exam on one or two attempts compared to 77.5% of master's degree holders who passed the exam on the first or second attempts. This identifies a difference between the groups of degree holders on the number of the attempts necessary to pass the CPA exam. If respondents went directly from the undergraduate to graduate degree program, as suggested by the age the CPA exam was passed, it delayed these students from taking the CPA exam until finishing the graduate degree. One argument is that obtaining the graduate degree contributed to passing the CPA exam on fewer attempts. Another possible argument is that going to graduate school delayed taking the exam, which if taken after completing their bachelor's degree, would still have resulted in fewer attempts to pass. This latter argument assumes that the graduate degree did not enhance the individual's success on the CPA exam. Rather, candidates' personal attributes, characteristics, or maturity were more important determinants of performance on the CPA exam than the graduate degree. Perhaps earning a graduate degree indicates individuals with a higher level of motivation and a stronger goal orientation. Arguably, such individuals might work harder towards significant goals such as passing the CPA exam than others without this level of drive. Also, graduate degree holders may have on average higher ability levels than undergraduate degree recipients. The negative, significant correlation between bachelor's degree and SAT score shows that bachelor's only degree holders have lower average SAT scores than graduate degree holders (Bachelor's average = 1132; Graduate degree holder average = 1201, $p < .05$). Higher ability may contribute to passing the CPA exam on fewer attempts.

TABLE 2
CORRELATIONS FOR ALL RESPONDENTS, N=180

| | GPA | Times | SAT | Degree | SelfRev |
|---------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Times | -0.256 <i>0.001</i> | | | | |
| SAT | 0.257 <i>0.001</i> | -0.175 <i>0.019</i> | | | |
| Degree1 | -0.177 <i>0.018</i> | 0.147 <i>0.049</i> | -0.219 <i>0.003</i> | | |
| SelfRev | 0.071 <i>0.346</i> | 0.150 <i>0.044</i> | 0.012 <i>0.870</i> | -0.003 <i>0.968</i> | |
| AACSB1 | -0.043 <i>0.568</i> | -0.176 <i>0.018</i> | 0.166 <i>0.026</i> | -0.147 <i>0.049</i> | -0.049 <i>0.510</i> |

Pearson Correlation and *P-Value*

To investigate the relationship between the number of attempts to pass the CPA exam (the dependent variable) and the study's independent variables, a logistic regression analysis was conducted and presented in Table 3. The dependent variable was a binary variable coded so that 1 identified those who took one or two attempts to pass the CPA exam and 0 for those who took three or more attempts. The independent variables entered were GPA, SAT, bachelor's degree (coded as 1, 0 for master's), self-review study for CPA exam (coded as 1, 0 for classroom review), and if the school was AACSB accredited (coded as 1, 0 for non-AACSB). Logistic regression hypotheses tests are similar to multiple regression testing. The test for the overall significance of the logistic equation is based on the G statistic, which for this model is significant at the .001 level. Hypothesis tests for individual independent variables are based on the estimated regression coefficients using the Z distribution.

TABLE 3
BINARY LOGISTIC REGRESSION RESULTS

| Variable | Value | Count |
|----------------|-------|-------------|
| Pass 1 or 2 | 1 | 114 (Event) |
| Pass 3 or more | 0 | 66 |
| | Total | 180 |

Logistic Regression Table

| Predictor | Coef | StDev | Z | P | Odds Ratio |
|-----------|----------|----------|-------|-------|------------|
| Constant | -5.035 | 2.087 | -2.41 | 0.016 | |
| GPA | 1.2270 | 0.4525 | 2.71 | 0.007 | 3.41 |
| SAT | 0.001216 | 0.001351 | 0.90 | 0.368 | 1.00 |
| Degree1 | -0.4566 | 0.4431 | -1.03 | 0.303 | 0.63 |
| SelfRev | -0.3888 | 0.3369 | -1.15 | 0.248 | 0.68 |
| AACSB1 | 0.9406 | 0.3704 | 2.54 | 0.011 | 2.56 |

Log-Likelihood = -107.270

Test that all slopes are zero: G = 22.036, DF = 5, P-Value = 0.001

Goodness-of-Fit Tests

| Method | Chi-Square | DF | P |
|-----------------|------------|-----|-------|
| Pearson | 172.410 | 171 | 0.455 |
| Deviance | 206.223 | 171 | 0.034 |
| Hosmer-Lemeshow | 4.049 | 8 | 0.853 |

Regression Analysis

Dependent Variable: Actual Number of times to pass CPA
Standardized IVs

The regression equation is:

$$\text{Times1} = 2.39 - 0.346 \text{ GPAstd} - 0.106 \text{ SATstd} + 0.092 \text{ Degstd} + 0.228 \text{ Revstd} - 0.222 \text{ AAstd}$$

| Predictor | Coef | StDev | T | P |
|-----------|---------|---------|-------|-------|
| Constant | 2.38889 | 0.09973 | 23.95 | 0.000 |
| GPAstd | -0.3456 | 0.1051 | -3.29 | 0.001 |
| SATstd | -0.1056 | 0.1066 | -0.99 | 0.323 |
| Degstd | 0.0924 | 0.1042 | 0.89 | 0.377 |
| Revstd | 0.2283 | 0.1004 | 2.27 | 0.024 |
| AAstd | -0.2221 | 0.1028 | -2.16 | 0.032 |

S = 1.338 R-Sq = 13.7% R-Sq(adj) = 11.2%

Analysis of Variance

| Source | DF | SS | MS | F | P |
|----------------|-----|---------|-------|------|-------|
| Regression | 5 | 49.266 | 9.853 | 5.50 | 0.000 |
| Residual Error | 174 | 311.512 | 1.790 | | |
| Total | 179 | 360.778 | | | |

The results show that GPA and AACSB accreditation were significant and indicated that both independent variables contribute significantly to the overall model.

While testing for the significance of individual regression coefficients is straightforward, it is difficult to interpret the relation between the independent variables and the probability that the dependent variable equals one because the logistic model is nonlinear. This relationship, however, can be interpreted using the odds ratio which is the impact on the odds of the dependent variable occurring given a unit increase in only one of the independent variables. For GPA, an increase in GPA of one unit, say from 2.5 to 3.5, means that someone with a 3.5 GPA is 3.41 times more likely to pass the CPA exam on one or two attempts compared to someone with a 2.5 GPA. For the independent variable AACSB accreditation, the odds that a person who graduated from an AACSB accredited school will pass the CPA exam on one or two attempts is 2.56 times more likely than a graduate of a non-AACSB school. Thus, survey subjects with higher GPAs and survey subjects who graduated from AACSB accredited schools were more likely to pass the CPA exam on the first or second attempts than those with lower GPAs and from non-AACSB schools.

DISCUSSION

The purpose of this research was to see if there are factors that are associated with passing the CPA exam on one or two attempts compared to taking three or more attempts to pass. A sample of practicing CPAs was surveyed to investigate this question. Significant mean differences were found in GAP, SAT scores, advanced degree, and AACSB accreditation for those who took one or two attempts to pass the CPA exam compared to those who took three or more attempts to pass the CPA exam. Also, almost two-thirds of practicing CPAs that responded to the survey

passed the CPA exam on one or two attempts, which seems to indicate that those who pursue careers in public accounting tend to pass the exam on fewer attempts.

A logistic regression analysis, with the dependent variable defined as passing the CPA exam on one or two attempts versus three or more attempts, reveal differences in the likelihood of passing the CPA exam on fewer attempts due to GPA and AACSB school accreditation. The logistic analysis shows that higher GPA and graduating from an AACSB accredited school significantly increases the chance of passing the CPA exam on fewer attempts.

The relationship of higher GPA with fewer attempts to pass the CPA exam can be understood in a straightforward way. Potential CPAs who have high GPAs would be expected to have a greater understanding of accounting that would in and of itself better prepare them for the CPA exam. If GPA indicates acquisition of accounting knowledge, an inverse relationship between number of attempts to pass the CPA exam, which under the old testing format was widely considered to be a “textbook” exam based on accounting knowledge, and GPA would be expected. GPA is an indication of success on tests during a student’s college career, so high GPA would be expected to correlate with fewer attempts to pass the CPA exam. These results support the line of reasoning: effort in school as reflected by GPA is associated with success on the CPA exam.

AACSB accreditation of the business school also had a significant association to passing the CPA exam on fewer attempts. What might account for the advantage that students who graduate from AACSB accredited schools have? The sample data does show that AACSB accredited colleges appear to attract better students as shown by the significantly higher SAT scores of students at AACSB accredited schools compare to non-AACSB schools. Could the fact that more able students attend the AACSB accredited business schools explain passing the CPA exam on fewer attempts? This argument is not supported by the logistic regression where SAT score was not significant. In fact, the difference between average SAT scores is larger for those who pass the CPA exam on one or two attempts versus three or more than between graduates of AACSB accredited schools versus non-AACSB schools. So the ability to attract potentially better students, as measured by SAT score, may not be as important an indicator of CPA exam success as attending an accredited business school.

If a potential student’s ability does not explain the better performance of AACSB accredited business school graduates, other factors associated with AACSB accreditation might be the cause. A possible argument might be that faculty at AACSB accredited colleges are more demanding of their students than professors at non-AACSB accredited colleges. Holding students to higher standards, regardless of grades awarded, would likely produce graduates who have a greater accounting knowledge base, thereby better preparing them for the CPA exam.

Another issue worthwhile to consider would be faculty quality. Perhaps, it may be assumed that AACSB accredited schools have a higher quality faculty based on the accreditation standards that apply. The argument could be made that higher quality faculty would lead to higher quality programs and to graduates better prepared to take the CPA exam, a factor aiding the passing rate advantage seen in the data for AACSB accredited school graduates. Incorporating measures that assess overall faculty quality in accounting programs might provide some test of this proposition.

An additional consideration might be to look at whether differences in personality traits of students have some role in explaining how AACSB accreditation affects performance on the CPA exam. If students at AACSB accredited schools have, for example, higher levels of the big-five personality trait conscientiousness, than students at non-AACSB accredited school, it could

contribute to their better performance on the CPA exam. Including relevant personal and environmental/situational factors might enhance our understanding of why schools that have AACSB accreditation contribute to better CPA exam performance. Differences in personality, motivation, and goal-oriented attitudes could perhaps explain how the person and institution contribute to performance on the CPA exam.

In conclusion, this study found that almost two-thirds of practicing CPAs passed the CPA exam on the first or second attempt and that GPA and AACSB accreditation appears to have had the greatest influence on these respondents passing the CPA exam on fewer attempts. Students who wish to pursue careers in public accounting should consider attending an AACSB accredited college and endeavor to receive high marks while attending. Our study also suggests that future research incorporating personality and additional measures of AACSB accredited school quality may considerably advance our understanding of AACSB accreditation's role.

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