

Usefulness of the Uniform Certified Public Accounting Examination for Assessment of Learning and Program Quality Determination at U.S. Institutions of Higher Learning

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Uniform Certified Public Accountant Examination (UCPAE) pass rates were examined at AACSB, ACBSP, and IACBE accredited institutions, and at institutions without separate business school accreditation. AACSB accredited institutions clearly outperformed their counterparts with ACBSP or IACBE accreditation, as well as schools with no additional business school accreditation. Extending this research stream, we found that Christian institutions achieved UCPAE pass rate results similar to those of AACSB accredited institutions. We also found that for-profit institutions significantly underperformed all groups analyzed in this study.

INTRODUCTION

Graduates of U.S. colleges and universities lack critical workplace skills in the areas of critical thinking, problem solving, and writing; and, the capability level of college graduates is deteriorating (Spellings, 2006). Some schools do a consistent job of preparing graduates for workplace success, others not so much. In order to provide students with decision useful information as to how a school will add value to a student's college experience, greater transparency is needed. To accomplish this, higher education institutions should employ and publicly report student learning assessment outcomes on nationally-normed tests, such as the Educational Testing Service's Major Field Test in Business (MFTB), the Future Business Leaders-Phi Beta Lambda's Comprehensive Business Examination (CBE), as well as success rates on professional certification exams (Porter, 2012; Spellings, 2006). The Uniform Certified Public Accountant Examination (UCPAE) is one exam that meets Spellings' criteria for assessing and comparing post-secondary institutional outcomes, and Lopez and Specht (2009) call for study of the computer-based UCPAE's potential for use as an assurance of learning (AoL) measure.

This study examines UCPAE pass rates at colleges and universities whose business school programs are accredited by The Association to Advance Collegiate Schools of Business (AACSB), the Accreditation Council for Business Schools and Programs (ACBSP), and the International Assembly for Collegiate Business Education (IACBE). Using test scores reported by the National Association of State Boards of Accountancy (NASBA), our study examines UCPAE pass rates for 72,453 graduates of 1,131 U.S. higher education institutions who took this exam during 2012. The present study builds on prior research by investigating pass rate performance by business school accreditation status, and extends this

research stream by examining UCPAE outcomes at both faith-based colleges and for-profit institutions. We also explore how student capability impacts UCPAE performance.

Our study finds a statistically significant performance advantage in favor of AACSB accredited schools when compared to ACBSP and IACBE accredited institutions. Importantly, ACBSP accredited institutions experienced a relative performance decline compared to AACSB accredited schools when compared to results reported in prior studies. When the AACSB, ACBSP, and IACBE groups were compared to faith-based colleges that are members of the Council of Christian Colleges and Universities (CCCU), there was not a statistically significant difference between the performance of AACSB accredited and CCCU member institutions, whereas CCCU member schools produced statistically significantly superior results when compared to the ACBSP and IACBE groups. Further, graduates of for-profit institutions produced a statistically significantly lower UCPAE average pass rate outcome (28.1%) when compared to the AACSB (49.2%), ACBSP (39.0%), IACBE (38.1%), CCCU (46.3%), and a group of schools with no separate business school accreditation (42.0%). While student quality was found to be one possible determinant of a successful UCPAE performance outcome, other factors such as instructional quality, academic rigor, and shorter course delivery timeframes were identified as likely contributors. Our results support Spellings' (2006) call for public disclosure of UCPAE pass rates in order to more fully inform a student's college selection decision, and we conclude that the UCPAE is useful as an AoL measure.

LITERATURE REVIEW

Accreditation Standards

AoL processes must be employed by U.S. colleges and universities in order to maintain accreditation with one of the six regional accrediting bodies (CHEA, 2013). In addition, programmatic accrediting organizations, specifically the AACSB, ACBSP, and IACBE, require evidence of AoL as part of their accreditation requirements.

As seen in Table 1, the intent of AoL standards is to promote continuous improvement in the quality of education provided by member institutions. In this regard, accrediting bodies normally require a minimum of two direct measures and two indirect measures for this purpose (AACSB, 2013; IACBE, 2013). Direct measures include selection of students based on capability, course-embedded assignments evaluated using a rubric, and widely used exams such as the MFTB or the CBE. Indirect measures consist of graduate, employer, alumni surveys or interviews, job placement data, focus group findings, and performance on licensing examinations (Kelley, Tong, & Choi, 2010; Weldy & Turnipseed, 2010). Accredited institutions must employ direct and indirect methods that provide information useful for improving curricular offerings consistent with the institutional mission.

Program Assessment Considerations

Porter (2012) concludes that the Collegiate Assessment of Academic Proficiency (CAAP), the Collegiate Learning Assessment (CLA), and the Proficiency Profile (PP) are valid assessment exams because "they have high content validity . . . , are correlated with SAT scores and grade point average (GPA) as expected, and they are highly correlated with one another at the school level, implying that they are all measuring the same construct" (p. 10). Research has found that CPA exam results are closely correlated with GPA and SAT scores (Boone, Legoria, Seifert, & Stammerjohan, 2006; Dunn & Hall, 1984; Reilly & Stettler, 1972), and Stout, Borden, German, and Monahan (2005) conclude that UCPAE pass-rate results are useful as a direct measure of accounting program performance.

Further, Spellings (2006) concludes that postsecondary educational institutions should use standardized tests as one component of their AoL program, and that test results should be made publically available in a reader-friendly format. Doing so allows student learning outcome comparison across institutional boundaries. Because of its uniform construction and application throughout the U.S., UCPAE pass rates should provide information useful to AoL purposes at higher education institutions. While use of UCPAE results may work very well for tracking longitudinal performance at individual institutions, as

Porter (2012) points out, caution is warranted when this data is used for inter-institutional comparisons because entering student capability is a biasing consideration.

TABLE 1
ACCREDITING BODY ASSURANCE OF LEARNING GUIDANCE

| <i>Accrediting Body</i> | <i>Location</i> | <i>Specific Guidance</i> |
|-------------------------|----------------------|--|
| CHEA | Para. 5 ^a | To confirm that accrediting organizations have standards that advance academic quality in higher education; that those standards emphasize student achievement and high expectations of teaching and learning, research, and service; and that those standards are developed within the framework of institutional mission. |
| AACSB | Std. 8 ^b | The school uses well-documented, systematic processes for determining and revising degree program learning goals; designing, delivering, and improving degree program curricula to achieve learning goals; and demonstrating that degree program learning goals have been met. Assurance of learning refers to processes for demonstrating that students achieve learning expectations for the programs in which they participate. Schools use assurance of learning to demonstrate accountability and assure external constituents such as potential students, trustees, public officials, supporters, and accrediting organizations that the school meets its goals. |
| ACBSP | Std. 4 ^c | Business schools and programs must have an outcomes assessment program with documentation of the results and evidence that the results are being used for the development and improvement of the institution's academic programs. Each business school or program is responsible for developing its own outcomes assessment program. |
| IACBE | Point 2 ^d | The academic business unit has developed and implemented an outcomes assessment process that promotes continuous improvement in its business programs and its operations, and is linked to the strategic plans of both the academic business unit and the institution. |

^a http://www.chea.org/pdf/Recognition_Policy-June_28_2010-FINAL.pdf
^b <http://www.aacsb.edu/accreditation/business/standards/2013/learning-and-teaching/standard8.asp>
^c http://c.ymcdn.com/sites/www.acbsp.org/resource/collection/EB5F486D-441E-4156-9991-00D6C3A44ED1/ACBSP_Standards_and_Criteria_2013_Rev_F.pdf
^d <http://iacbe.org/excellence-in-business-education.asp>

Paper-Based CPA Exam Research

Schick (1998a,b) posited that UCPAE pass rates should be used as an indicator of accounting program value. He further argued that such pass rates should be published so that students have decision useful information when selecting a program of study. Ponemon (1998a,b) disagreed, arguing that publishing outcomes (1) would limit the scope and content of accounting programs, and (2) that the CPA exam does not provide a comprehensive assessment because many accounting graduates do not seek to

obtain the CPA license; and thus may not obtain appropriate coursework for a non-CPA career in accounting.

Research exploring this question provides mixed results. Early studies found UCPAE pass rates were a useful indicator of program quality (Barilla, Jackson, & Mooney, 2008; Lindsay & Campbell, 2003; Marts et al., 1988). Specifically, Marts et al. (1988) focused on pass rates in 1985 and 1986, finding that graduates of institutions with AACSB accreditation performed significantly better than graduates of institutions that were not so accredited.

Lindsay and Campbell (2003) used 1997 UCPAE pass rates published by NASBA to examine AACSB accreditation as a predictor of first time candidate UCPAE passing success. They found that entering ACT score was a significant predictor of UCPAE success, whereas accreditation by the AACSB was not.

Barilla et al. (2008) examined UCPAE pass rates in the 1986 to 1996 and 1997 to 2004 timeframes. These time frames were separated due to a change in the paper-based exam format from 2.5 days prior to 1997 to two days from 1997 to 2004. This study compared AACSB, ACBSP, and IACBE pass rates. Results were tenuous, indicating that pass rates for AACSB-accounting accredited and ACBSP-business program accredited institutions were significantly higher than those of AACSB-business program only (no additional accounting accreditation) and IACBE-business program accredited institutions.

While studies found a tenuous CPA pass rate advantage favoring AACSB accredited institutions (Marts et al., 1988; Barilla et al., 2008), this advantage was less pronounced when the pass rates were normalized for the quality of students enrolled in a program as measured by SAT/ACT exam scores and student GPA (Boone et al., 2006; Marts et al., 1988). In addition, several studies found that student inputs, as measured by SAT/ACT scores and college GPA, are contributors to UCPAE pass rate success (Dunn & Hall, 1984; Lindquist & Smith, 2013; Reilly & Stettler, 1972).

Computer-Based CPA Exam Research

We found only one study that evaluated institutional accreditation compared to computer-based UCPAE first-time pass rates in a manner similar to methodology used in the paper-and-pencil research (Self, Weaver, Proctor, & Hicks, 2013). This study evaluated first-time, retake, and overall pass rates using a sample of institutions drawn from NASBA data for 2011. Results confirmed aspects of the paper-and-pencil research, finding that graduates of AACSB accredited institutions outperformed those from ACBSP institutions. This study also found that graduates of for-profit institutions produced the lowest pass rate among all institutions with students taking the UCPAE exam.

A related study examined UCPAE pass rate outcomes at minority schools (Self, Machuca, & Lockwood, 2014). Results found that, among minority institutions, those accredited by the AACSB statistically significantly outperformed those accredited by the ACBSP as well as those with no separate business school accreditation. There was no difference in performance between those without separate business school accreditation and those accredited by the ACBSP.

Lopez and Specht (2009) studied the impact of the computer-based exam on teaching methods employed at AACSB and non-AACSB accredited institutions both before and after the CPA exam format changed. They found that teaching methods and curriculum structure did not change in any significant manner at most institutions. They further found that 50% of the sample institutions reported that UCPAE pass rate data were used as a direct measure for AoL purposes.

Lindquist (2012) compared UCPAE outcomes at five large for-profit institutions that primarily offer their programs in an online environment, to five AACSB accredited schools that deliver an online accounting major in addition to their land-based, traditional delivery format. Results found that graduates of for-profit schools consistently underperformed their not-for-profit counterparts, in addition to performing well below the national average pass rate. Indeed, in the 2005 to 2009 timeframe, Lindquist reports that not-for-profit school UCPAE pass rate results were 30 times better than those of for-profit schools. He attributes this performance to a lack of AACSB accreditation among for-profit institutions as well as to instructional capability, noting that “for-profit schools are staffed primarily by adjunct instructors, often with questionable academic credentials” (p. 71).

Lindquist and Smith (2013) compared top schools' UCPAE pass rates before and after the transition from paper-and-pencil to the computer-based format. They found that first-time pass rates at top schools improved from an average of 63% to 72% following the CPA exam's transition to the present computer-based format. The factors identified as contributing to this UCPAE pass rate outcome improvement are entering student quality and institutional program quality (as measured by AACSB accounting program accreditation, the percentage of classes with 20 or fewer students, and the percentage of full-time faculty focused on the accounting program).

Finally, Bunker, Cagle, and Harris (2014) examined 2011 and 2012 NASBA reported UCPAE pass rates and found that schools with AACSB accredited accounting programs outperformed AACSB accredited business schools that did not have additional accounting accreditation.

The limited amount of research focused on computer-based UCPAE pass rates provides an opportunity to advance this stream of research in several ways. First, by examining computer-based UCPAE pass rates among AACSB, ACBSP, and IACBE accredited institutions as well as pass rates at institutions not accredited by one of these organizations. Second, by investigating first-time CPA pass rates at faith-based institutions that are members of the CCCU; and, third, by examining pass rates at for-profit institutions more deeply than the Self et al. (2013) study.

Computer-Based CPA Exam Attributes

The UCPAE is the examination that must be passed in order to obtain a CPA license. The AICPA states that:

The purpose of the Uniform CPA Examination is to provide reasonable assurance to Boards of Accountancy (the state entities that have statutory authority to issue licenses) that those who pass the CPA Examination possess the level of technical knowledge and the skills necessary for initial licensure in protection of the public interest. Public interest is protected when only qualified individuals are admitted into the profession. (AICPA, 2014a, para. 3).

Prior to 2004, this exam was administered twice per year using a paper-and-pencil format. Beginning in April 2004, the exam is currently offered during four, two-month testing periods each year and can be taken only in computer format. The test employs multiple-choice questions, simulations, and relational case studies in an effort to test higher level cognitive skills (Lopez & Specht, 2009). It is conducted over 14 hours in the areas of "Auditing and Attestation (AUD), Business Environment and Concepts (BEC), Financial Accounting and Reporting (FAR), and Regulation (REG)" (AICPA, 2014a, para. 5).

The AICPA cautions that pass rates for the computer-based exam should not be compared to the paper-and-pencil exam because of the significant change to the content, format, testing environment, and testing rules related to this exam (AICPA, 2014b). This caution was explored by Briggs and He (2012), who found that overall pass rates on the pre-2004 paper-and-pencil exam averaged 31 to 32 percent, whereas for 2004 through 2007, the overall average pass rate ranged from 43 to 47 percent. For 2012, NASBA (2013) reports an overall weighted-average pass rate of 48.9%. Given these changes, this paper investigates whether institutional UCPAE pass rate results achieved on the computer-based exam are consistent with research findings conducted using the paper-and-pencil exam.

Based on the literature presented above (Barilla et al., 2008; Marts et al., 1988; and Self et al., 2013), our first research question related to the computer-based UCPAE is:

RQ₁: Do AACSB accredited programs achieve higher UCPAE pass rates than ACBSP and IACBE accredited institutions, as well as institutions without additional business school accreditation (NoBSA)?

The CCCU is not an accrediting organization, but limits membership based on "their common mission, faith commitment, and emphasis on the liberal arts [which] create a campus ethos that is

intentionally focused on students' growth and development" (Schreiner & Kim, 2011, p. 327). In studies that compared CCCU graduates to private college graduates, both Schreiner (2003) and Schreiner and Kim (2011), found that CCCU member school graduates reported higher levels of student-faculty interaction, greater employment of an active-learning teaching style in classrooms, more timely evaluative feedback, maintenance of a more challenging academic environment, and greater levels of knowledge of a specific discipline/major (e.g., accounting or history). These are key components of quality educational practices that have a positive impact on student learning and growth. Based on this literature, the second research question is:

RQ₂: How do UCPAE pass rates at CCCU member schools compare to UCPAE pass rates at AACSB, ACBSP, IACBE, and NoBSA institutions?

A United States Government Accountability Office (USGAO, 2011) study found that, during the 2008-2010 timeframe, graduates of for-profit institutions experienced lower pass rates on nine different licensing exams than graduates of other types of higher-education institutions.¹ Further, two studies found that UCPAE pass rates for graduates of for-profit schools were well below pass-rates at both private and state not-for-profit schools (Lindquist, 2012; Self et al., 2013). Based on this literature, our third research question is:

RQ₃: How do UCPAE pass rates at for-profit schools compare to UCPAE pass rates at AACSB, ACBSP, IACBE, and NoBSA institutions?

The data collection and analysis methodology used to investigate the research questions is presented in the next section.

METHOD

We selected overall UCPAE pass rate as the dependent variable because Self et al. (2013) analyzed first-time, retake, and overall pass rates by accrediting body and there was consistency of results among all three pass-rate categories. Thus, using multiple pass rates would not enhance this study; therefore, we selected the all testing events pass rate because it is the most comprehensive of the three available published pass rates.

All testing events UCPAE pass rates for 2012 were obtained from the NASBA in Excel format. This file contained information used to develop the pass rate section of the *2012 Uniform CPA Examination: Candidate Performance* yearbook.² The use of NASBA data is consistent with prior studies (Boone, et al., 2006; Jackson & Mooney, 2008; Marts et al., 1988; Self et al., 2013), and obtaining pass rate data in this manner reduces the possibility of data entry error. Finally, NASBA reports pass rates for institutions that have five or more candidates taking the exam during a reporting period. Thus, schools with fewer than five candidates are not included in the database.

Our method improves upon the sample of 766 higher education institutions employed in the Self et al. (2013) study by including all 1,131 institutions (72,453 UCPAE candidates) having pass rates published by NASBA for 2012.

Our independent variables, drawn from prior studies, are (1) AACSB, ACBSP, and IACBE independent business school accrediting bodies (Barilla & Mooney, 2008; Self et al., 2013), and (2) for-profit institutions (Self et al., 2013). We extend this research stream by adding faith-based institutions that are members of the CCCU.

Accrediting status for AACSB, ACBSP, and IACBE schools, as well as for schools with CCCU membership, was obtained from each organization's website as of December 31, 2012. Institutions with for-profit charters were obtained from College Express ("Popular For-Profit," n.d.) and confirmed through a review of each institution's website. The NoBSA group included all institutions in the dataset that were not members of AACSB, ACBSP, and IACBE.

RESULTS

Research question one, asks: Do AACSB accredited programs achieve higher UCPAE pass rates than ACBSP and IACBE accredited institutions, as well as institutions with NoBSA? To investigate this question, we employed a Kruskal-Wallis H test. Our original intent was to analyze data using ANOVA in a manner similar to the Self et al. (2013) study. However, because our data were not normally distributed, did not have equal variances, and contained outliers, this technique, as well as other parametric methods, was considered inappropriate. To overcome these data complications, a non-parametric independent samples Kruskal-Wallis H test was utilized because this test does not require normality and minimizes the impact of outliers.³

We employed this test to determine if there were differences in UCPAE pass rates between accrediting bodies: AACSB (n = 469), ACBSP (n = 163), IACBE (n = 79), and NoBSA (n = 420). Distributions of the UCPAE pass rates were similar for all groups, as assessed by visual inspection of a boxplot. Median UCPAE pass rates were statistically significantly different between the business school accreditation groups, $\chi^2(3)$, 162.671, $p = .000$. Subsequently, post hoc pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons in order to identify differences between specific groups. Adjusted p-values are presented in Table 2. This post hoc analysis revealed statistically significant differences in median UCPAE pass rates between AACSB (Mdn = .4900) accredited institutions when compared to the ACBSP (Mdn = .4000), IACBE (Mdn = .4100), and NoBSA (Mdn = .4200) groups.

Research question two asks: How do UCPAE pass rates at CCCU member schools compare to UCPAE pass rates at AACSB, ACBSP, IACBE, and NoBSA institutions? To investigate this question, the CCCU membership group was considered an additional variable. As is seen in Table 2, the CCCU member UCPAE pass rate median (Mdn = .4700) is not statistically significantly different from that of the AACSB group (Mdn = .4900) or the NoBSA group (Mdn = .4200), but is statistically different from schools accredited by ACBSP (Mdn = .3950) and IACBE (Mdn = .4050). This provides evidence that CCCU member schools are performing at a level similar to AACSB accredited institutions, and statistically significantly better than schools accredited by the ACBSP or IACBE.

The third research question asks: How do UCPAE pass rates at for-profit schools compare to UCPAE pass rates at AACSB, ACBSP, IACBE, and NoBSA institutions? To examine this research question, we included for-profit institutions in the Kruskal-Wallis analysis. As seen in Table 2, the pairwise comparisons revealed that the for-profit institution median (Mdn = .2900) was statistically significantly different from that of the AACSB (Mdn = .4900), ACBSP (Mdn = .3950), IACBE (Mdn = .4050), and NoBSA (Mdn = .4200) groups. These findings are consistent with Self et al. (2013) and add support to this stream of research. Because there are five large for-profit institutions included in the ACBSP group, we removed the for-profit institutions and then compared the for-profit median UCPAE pass rate (Mdn = .2900) to that of the ACBSP group minus the for-profit institutions (Mdn .4000). The difference was statistically significant ($p = .041$).

To investigate whether quality of student inputs, as measured by SAT scores, impacts UCPAE pass rate results, we obtained the average SAT scores for institutions included in this study using Peterson's (2013) online search tool. As seen in Table 3, there is a statistically significant difference between the medians of AACSB accredited institutions and the ACBSP, IACBE, and NoBSA schools.⁴ Thus, consistent with findings by both Boone et al. (2006) and Marts et al. (1988), it appears that the capability of student inputs is one factor contributing to UCPAE pass rate success.

To determine if additional business program accreditation for CCCU member institutions influenced the results, a one-way ANOVA was conducted. The CCCU member institutions were split into four groups: IACBE (N = 10, M = .4490, SD = .1277), ACBSP (N = 19, M = .4663, SD = .1335), AACSB (N = 2, M = .5850, SD = .0495), and no additional accreditation (N = 26, M = .4588, SD = .1195). The differences between CCCU member institutions without additional accreditation and CCCU members with separate business program accreditation were not statistically significant, $F(3,53) = .690$, $p = .562$.

TABLE 2
RESULTS OF KRUSKAL-WALLACE H TESTS OF GROUP DIFFERENCES MEASURED ON
UCPAE PASS RATE

| Variables | | AACSB | ACBSP | IACBE | NoBSA | CCCU | FORPFT |
|-----------|----------------|---------|---------|---------|---------|---------|--------|
| AACSB | | 1 | | | | | |
| | | 0 | | | | | |
| | | 469 | | | | | |
| ACBSP | Test Statistic | 252.544 | 1 | | | | |
| | Sig (2-tailed) | .000* | 0 | | | | |
| | N | 163 | 163 | | | | |
| IACBE | Test Statistic | 258.459 | 5.915 | 1 | | | |
| | Sig (2-tailed) | .000* | 1.000 | 0 | | | |
| | N | 79 | 79 | 79 | | | |
| NOBSA | Test Statistic | 188.284 | 64.260 | 70.175 | 1 | | |
| | Sig (2-tailed) | .000* | .693 | 1.000 | 0 | | |
| | N | 420 | 420 | 420 | 420 | | |
| CCCU | Test Statistic | 61.561 | 190.982 | 196.896 | 126.723 | 1 | |
| | Sig (2-tailed) | 1.000 | .006* | .018* | .153 | 0 | |
| | N | 57 | 57 | 57 | 57 | 57 | |
| FORPFT | Test Statistic | 509.921 | 257.377 | 251.462 | 321.637 | 448.360 | 1 |
| | Sig (2-tailed) | .000* | .018* | .042* | .000* | .000* | 0 |
| | N | 22 | 22 | 22 | 22 | 22 | 22 |

*Significant at .95% CI (2-sided tests).

Note: The test statistic is the sum of the individual case differences and is reported as H. The larger the statistic, the larger the divergence between rank sums. The test statistic is the average rank of accreditation for the lowest ranked group from which is deducted each higher ranked pairwise group. Since all test statistic numbers calculate as negative, we report the absolute value reported by SPSS. The N for FORPFT (for-profit) schools is reported at 22, but there are only 12 individual organizations as two schools report multiple operating locations.

DISCUSSION

Our findings add support to prior research that found AACSB accredited schools outperformed those that were not so accredited (Marts et al., 1988; Self et al., 2013), but vary slightly from Barilla et al. (2008) who concluded that ACBSP and AACSB accounting accredited schools achieved higher pass rates than AACSB-business and IACBE-business accredited schools. Importantly, the present study (2012 pass rates) and the Self et al. (2013) study (2011 pass rates) employed UCPAE pass rate data from two consecutive years providing evidence of the sustainability of the AACSB performance advantage.

To further explore AACSB accreditation's impact on UCPAE pass rate outcomes, we conducted additional Kruskal-Wallis pairwise tests between a sample of AACSB schools with additional accounting accreditation and the remaining AACSB schools with business only accreditation, as well as the ACBSP, IACBE, and NoBSA groups. A statistically significant difference was found between the AACSB accounting accredited group and each of the other groups (all p 's = .000), providing evidence of superior levels of achievement associated with additional accounting accreditation among AACSB schools. This is consistent with Bunker et al. (2014) as well as with the Self et al. (2013) study that found statistically significantly lower performance associated with institutions that have separate ACBSP accounting program accreditation.⁵

TABLE 3
RESULTS OF KRUSKAL-WALLACE PAIRWISE COMPARISONS
MEASURED ON THE SAT SCORE VARIABLE

| Sample/Median SAT Score/Average Rank of Accreditation | N | Sample-to-Sample Comparison | Test Statistic | Adjusted Significance (2-sided) |
|---|-----|--------------------------------|-------------------|---------------------------------------|
| IACBE/1017/278.05 | 47 | IACBE-ACBSP | 27.974 | 1.000 |
| | | IACBE-NoBSA | 129.457 | .008* |
| | | IACBE-CCCU | 150.096 | .017* |
| | | IACBE-AACSB | 205.073 | .000* |
| ACBSP/1030/306.03 | 112 | ACBSP-NoBSA | 101.483 | .002* |
| | | ACBSP-CCCU | 122.122 | .020* |
| | | ACBSP-AACSB | 177.100 | .000* |
| NoBSA/1068/407.51 | 255 | NoBSA-CCCU | 20.639 | 1.000 |
| | | NoBSA-AACSB | 75.617 | .001* |
| CCCU/1070/428.15 | 57 | CCCU-AACSB | 54.978 | 1.000 |
| AACSB/1100/483.13 | 371 | | | |

*Significant at 95% confidence interval.

Note: Each row tests the null hypothesis that the sample-to-sample distributions are the same. The test statistic is the difference between the mean ranks of the two groups and the adjusted significance is the calculated significance modified for the Bonferroni correction which reduces the possibility of a Type I error. The test statistic is the average rank of accreditation for the lowest ranked group from which is deducted each higher ranked group. Since all test statistic numbers should be negative, we report them as absolute numbers for ease of readability. The acronyms set forth as variable names in this table are fully spelled out in the body of the paper.

Further, contrary to the Barilla et al. (2009) study, results of the present study provide evidence that UCPAE pass rates at ACBSP accredited schools are statistically significantly lower than those of AACSB accredited schools. Additionally, there is no statistically significant difference when the ACBSP group is compared to the IACBE and NoBSA groups. Thus, from a UCPAE pass rate perspective, this study provides evidence that no performance advantage accrues to those who obtain separate business school accreditation from either the ACBSP or the IACBE when compared to schools that do not have additional business school accreditation.

The reduced level of UCPAE pass rate performance at ACBSP schools since the Barilla et al. (2008) study may be attributable to the growth of this accrediting body from 43 schools reported in that study to 163 schools in the present study. Similarly, AACSB accredited institutions grew from 319 institutions in the Barilla et al. study to 469 institutions in our study. Relative performance changes may be the result of the AACSB maintaining rigorous accreditation standards when compared to the ACBSP, whose new entrants (including large for-profit institutions) contributed lower UCPAE test scores thereby pulling down the ACBSP average UCPAE pass rate.

Further, ACBSP added a separate accounting accreditation in 2009, and, as of August 2013, there were 11 accredited accounting programs (Viehland, 2014). The weighted average UCPAE pass rate for

this group was 29.6%, with for-profit institutions accounting for 84% for the total sections taken. This low UCPAE pass rate performance for accounting accredited programs is remarkable when compared to AACSB accounting accredited programs that achieved an average 2012 pass rate of 53.0%.

When the UCPAE pass rates of the three business school accreditation bodies were compared to the CCCU group, whose members have common missional characteristics, important differences were revealed. The results of our tests provide evidence that Christian schools that meet the requirements for CCCU membership achieve a UCPAE pass rate that is not significantly different from those schools with AACSB accreditation. This high-level performance is attributable to faculty at CCCU institutions employing an active learning approach in the classroom, additional faculty time spent with students outside the classroom than is the case at other institutions, faculty with workplace experience, and a Christian calling to steward student resources in a manner that is not common at other private and public institutions (Hahn, Fairchild, & Childs, 2014; Schreiner, 2003; Schreiner & Kim, 2011).

Finally, when institutions with for-profit charters were compared to the AACSB, ACBSP, CCCU, and NoBSA groups, a statistically significantly lower UCPAE pass rate outcome was identified, although there was no performance difference between for-profit and IACBE institutions. This finding of lower performance outcomes at for-profit institutions on the UCPAE is consistent with those of a USGAO (2011) study that found graduates of for-profit institutions, who took a professional licensing exam between 2008 and 2010, realized lower pass rates when compared to graduates from traditional not-for-profit programs. The lower UCPAE performance outcome at for-profit institutions is likely influenced to some degree by the capability of students attracted by these schools; however, it is also possible that performance outcomes at for-profit schools are attributable to instructional quality (Lindquist, 2012), academic rigor, and condensed course delivery timeframes commonly employed in online programs at these schools.⁶

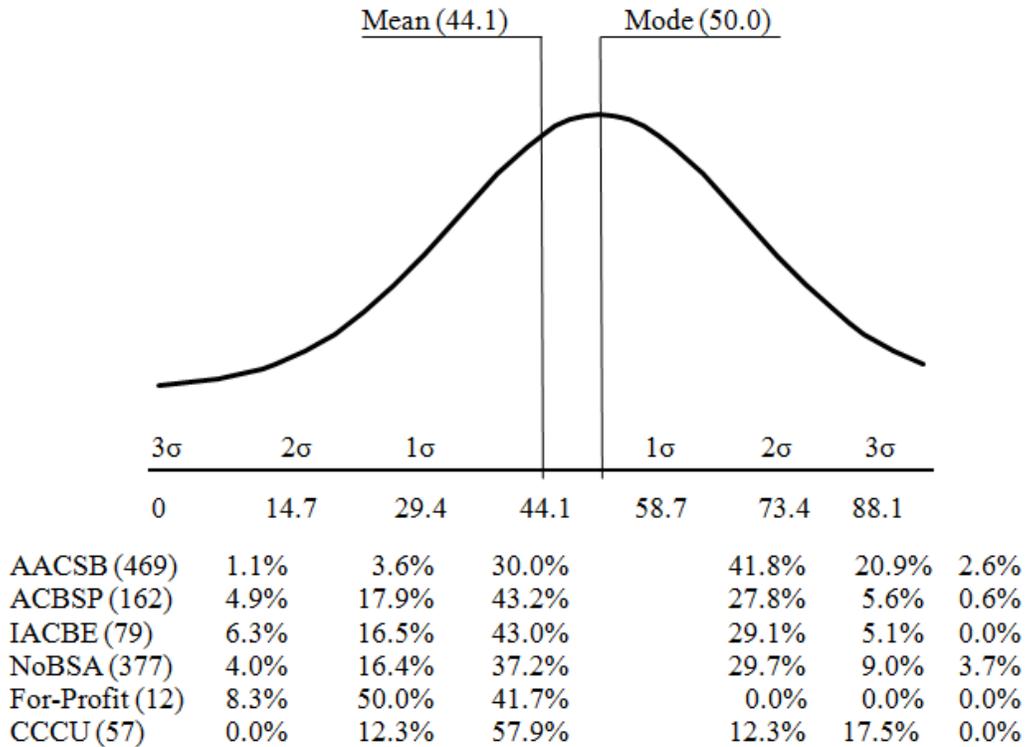
Table 4 presents accrediting body UCPAE pass rate outcomes separated by standard deviations from the 2012 testing mean. The data in this table clearly highlight the superior outcomes achieved by AACSB schools, as 65.3% of such schools achieve pass rates above the 44.1% national pass rate mean. Interestingly, those with NoBSA achieved the second highest performance with 42.4% of schools achieving UCPAE pass rates above the mean, whereas the inferior performance of for-profit schools is evident as none of the schools in this group performed above the 2012 national mean. Finally, CCCU schools demonstrated consistent performance with all schools performing within two standard deviations of the testing mean.

The Spellings (2006) Commission on the Future of Higher Education concluded that:

The results of student learning assessments, including value-added measurements that indicate how much students' skills have improved over time, should be made available to students and reported in the aggregate publicly. Higher education institutions should make aggregate summary results of all postsecondary learning measures, e.g., test scores, certification and licensure attainment, time to degree, graduation rates, and other relevant measures, publicly available in a consumer-friendly form as a condition of accreditation. (p. 23)

The UCPAE is one objective AoL measure that satisfies the Spellings Commission's summary assessment definition. Clearly, the results of our study provide evidence that separate business school accreditation, in and of itself, is not a comprehensive indicator of quality that provides prospective students and their parents with "solid evidence, comparable across institutions, of how much students learn in colleges or whether they learn more at one college than another" (Spellings, 2006, p. 13). Accordingly, to provide prospective students and parents with decision useful information, the regional accrediting bodies, as well as AACSB, ACBSP, and IACBE, should make disclosure of UCPAE pass rates a requirement of accreditation.

TABLE 4
PERCENTAGE OF ACCREDITATION GROUP UCPAE PASS RATES FALLING WITHIN
THREE STANDARD DEVIATIONS OF THE MEAN



Note. The table sets forth the percentage of UCPAE pass rates that fall within one, one-to-two, and two-to-three standard deviations of the mean; calculated by dividing the number of schools realizing pass rates at each standard deviation interval by the total number of schools in each group. The CCCU group has 31 members and for-profit group 3 members accredited by AACSB, ACBSP, or IACBE. Tests found no difference between those with additional business school accreditation and those without. Also, several for-profit institutions have UCPAE data reported for multiple locations. Our study reports multiple locations as one institution. The acronyms set forth as variable names in this table are fully spelled out in the body of the paper.

SUMMARY AND CONCLUSIONS

This study investigated the UCPAE pass rate performance of schools accredited by AACSB, ACBSP, IACBE, and those with NoBSA. Schools with AACSB accreditation achieved statistically significantly higher pass rates when compared to each of these groups. An important exception was our finding that CCCU member school performance was not statistically significantly different than that of the AACSB accredited group. This is attributable to small class sizes, active learning methods employed in the classroom, and additional mentoring of students by faculty at CCCU member schools.

Finally, for-profit school UCPAE pass rate performance was significantly lower than that of each of the other groups investigated in this study. We attribute this to differences in instructional quality, academic rigor, and shorter course delivery timeframes employed by institutions populating each of the test groups, as well as to differences in student input capability.

Based on our findings, we conclude that the UCPAE is an objective measure that can be employed for AoL purposes, and that both regional and separate business school accrediting organizations should require disclosure of each accredited school's UCPAE pass rate as a requirement of accreditation.

As is the case with all research, this study is not without limitations. First, our study only covered UCPAE pass rates for one year. Future research might investigate UCPAE performance with a focus on which schools sustain performance over an extended time period. Second, our SAT measure, used as a proxy for quality of student capability, is the average entering SAT score for the entire institution obtained from a published source. Future research might benefit from obtaining SAT scores for accounting graduates who take the UCPAE, as this will provide more precise linkage between input capability and output achievement when assessing AoL results on this measure. Finally, future studies might explore how differing course delivery methods and timeframes impact UCPAE pass rates, as well as how CPA review courses influence testing outcomes.

ENDNOTES

1. These are registered nurse, licensed practical nurse, radiology, emergency medical technician, paramedic, surgical technologist, massage therapist, lawyer, and cosmetologist.
2. This spreadsheet included number of candidates by institutions, total sections taken, number of sections taken by candidates, sections taken by those retaking the exam, percentage pass rate, average score, and average age separated by the state in which the exam was taken.
3. Sheskin (2007) provides detailed information on the application of this statistical method.
4. 785 of the 1,131 (69.4%) institutions included in this study reported SAT or ACT scores and our assessment is based only on reporting institutions. If only an ACT score was reported, we converted this score to an SAT equivalent score using a conversion chart available at ACT.org. For profit schools did not report SAT scores.
5. The presentation in the Self et al. study is not clear as to the findings related to separate accounting accreditation. Specifically, their Table 5 shows results "among the three types of institutions which earned the accounting accreditation separately by the accreditation agency and institutions without the accounting accreditation" (p. 86). Contact with the lead author indicates this finding is only for ACBSP institutions, and does not consider those with separate AACSB accounting accreditation.
6. Interestingly, Texas limits online coursework. Texas UCPAE candidates must have 30 semester hours of upper level accounting credits and "at least 15 of these hours must result from physical attendance at classes meeting regularly on the campus of the transcript-issuing institution" (Treacy, 2014, para. 2).

REFERENCES

- AACSB International Accreditation Coordinating Committee. (2013, April). *AACSB assurance of learning standards: An interpretation*. Retrieved from:
<http://www.aacsb.edu/publications/whitepapers/assurance-of-learning-standards.pdf>
- AACSB International. *2013 business accreditation standards: Standard 8*. Retrieved from:
<http://www.aacsb.edu/accreditation/business/standards/2013/learning-and-teaching/standard8.asp>
- American Institute of Certified Public Accountants (AICPA). (2014a). *The uniform CPA examination: Purposes and structure*. Retrieved from:
<http://www.aicpa.org/BecomeACPA/CPAExam/ExamOverview/PurposeandStructure/Pages/default.aspx>
- American Institute of Certified Public Accountants (AICPA). (2014b). *CPA examination passing rates*. Retrieved from:
<http://www.aicpa.org/BECOMEACPA/CPAEXAM/PSYCHOMETRICSANDSCORING/PASSINGRATES/Pages/default.aspx>
- Accreditation Council for Business Schools and Programs (ACBSP). (2013, May). *ACBSP standards and criteria for demonstrating excellence in baccalaureate/graduate degree schools and programs*.

- Retrieved from: http://c.ymcdn.com/sites/www.acbsp.org/resource/collection/EB5F486D-441E-4156-9991-00D6C3A44ED1/ACBSP_Standards_and_Criteria_2013_Rev_F.pdf
- Barilla, A. G., Jackson, R. E., & Mooney, J. L. (2008, May/June). The CPA exam as a postcurriculum accreditation assessment. *Journal of Education for Business*, 270-274.
- Boone, J., Legoria, J., Seifert, D. L., & Stammerjohan, W. W. (2006). The associations among accounting program attributes, 150-hour status, and CPA exam pass rates. *Journal of Accounting Education*, 24, 202-215.
- Briggs, G. P. & He, L. (2012). The 150 credit-hour requirement and CPA examination pass rates—A four year study. *Accounting Education: An International Journal*, 21(1), 97-108.
- Bunker, R. B., Cagle, C. S., & Harris, D. (2014). Comparison of AACSB accounting accredited and AACSB business accredited institutions using the CPA examination as a post-curriculum assessment. *Journal of Accounting and Finance*, 14(6), 127-132.
- Council for Higher Education Accreditation (CHEA). (2013). *Recognition of accrediting organizations: Policy and procedures*. Retrieved from: http://www.chea.org/pdf/Recognition_Policy-June_28_2010-FINAL.pdf
- Dunn, W. M. & Hall, T. W. (1984). An empirical analysis of the relationships between CPA examination candidate attributes and candidate performance. *The Accounting Review*, LIX(4), 674-689/
- Hahn, W., Fairchild, C., and Childs, R.J. (2014). Learning outcomes at CCCU-member institutions: A comparison of CCCU students' performance on the uniform CPA exam to performance at other institutions. Proceedings of the Christian Business Faculty Association, Session 2, Trevecca Nazarene University, Nashville, TN. Retrieved from <http://www.cbfa.org/html/conferences.html>
- International Assembly for Collegiate Business Education (IACBE). (2013). *Characteristics of Excellence in business education*. Retrieved from: <http://iacbe.org/excellence-in-business-education.asp>
- Jackson, R. E. & Mooney, J. L. (2008). The CPA exam as a postcurriculum accreditation assessment. *Journal of Education for Business*, 270-274
- Kelley, C., Tong, P., & Choe, B-J. (2010). A review of assessment of student learning programs at AACSB schools: A dean's perspective. *Journal of Education for Business*, 85(5), 299-306.
- Lindquist, T. M. (2012, April). Online accounting degrees: Research on the quality of for-profit and not-for-profit programs. *The CPA Journal*, 66-71
- Lindquist, T. M. & Smith, G. (2013, May). Top schools' success on the computerized CPA exam. *The CPA Journal*, 66-71.
- Lindsay, D. H. & Campbell, A. (2003). An examination of AACSB accreditation status as an accounting program quality indicator. *Journal of Business and Management*, 9(2), 125-135.
- Lopez, K. J. & Specht, L. B. (2009, September). The computer-based CPA exam. *The CPA Journal*, 64-70.
- Marts, J. A., Baker, J. D., & Garris, J. M. (1988). Success on the CPA examination in AACSB accredited and non-accredited schools. *The Accounting Educators' Journal*, 1, 97-105.
- National Association of State Boards of Accountancy (NASBA). (2013). *2012 uniform CPA examination: Candidate performance*. Nashville, TN: National Association of State Boards of Accountancy.
- Peterson's Inc. (2013). College bound search engine. Available at <http://www.petersons.com/college-search.aspx>
- Ponemon, L. A. (1998a). Arguments against the CPA exam to gauge accounting program success. *Issues in Accounting Education*, 13(2), 421-424.
- Ponemon, L. A. (1998b). Rebuttal. *Issues in Accounting Education*, 13(2), 427-428.
- Popular For-Profit Universities. (n.d.) *College Express*. Retrieved from: <http://www.collegexpress.com/lists/list/popular-for-profit-universities/264/>
- Porter, S. R. (2012, September). *Using student learning as a measure of quality in higher education*. Retrieved from the HCM Strategists, LLC website: http://www.hcmstrategists.com/contextforsuccess/papers/PORTER_PAPER.pdf

- Reilly, F. K. & Stettler, H. F. (1972, Autumn). Factors influencing success on the CPA examination. *Journal of Accounting Research*, 308-321.
- Schick, A. G. (1998a). Should undergraduate education in accounting be evaluated, in part, based on graduates' performance on the CPA examination? *Issues in Accounting Education*, 13(2), 417-428.
- Schick, A. G. (1998b). Reply. *Issues in Accounting Education*, 13(2), 425-426.
- Schreiner, L. A. (2003, June). *Making the case for academic excellence in Christian colleges*. Paper presented at the Critical Issues Conference, Making the Case, Counting the Cost: The Value of a Christian College Education at Seattle Pacific University, Seattle, WA. Retrieved from: http://www.cccu.org/professional_development/resource_library/2003/making_the_case_for_academic_excellence_within_the_cccu
- Schreiner, L.A. & Kim, Y. K. (2011). Outcomes of a Christian college education: A comparison of CCCU students' gains to the national aggregate. *Christian Higher Education*, 10, 324-352. DOI10-1080/15363759.2011.577714
- Self, S., Weaver, D., Proctor, J. & Hicks, M. (2013). Candidate performance on the certified public accountant exam: Empirical analysis. *International Journal of Education Research*, 8(1), 76-88.
- Self, S., Machuca, A., & Lockwood, R. (2014). Differences in the performance on the certified public accountant exam of graduates from minority and non-minority institutions. *International Journal of Education Research*, 9(1), 43-56.
- Sheskin, D. J. (2007). *Handbook of parametric and nonparametric statistical procedures*. (4th ed.). Boca Raton, FL: Chapman and Hall/CRC.
- Spellings, M. (2006). *A test of leadership: Charting the future of US higher education*. US Department of Education.
- Stout, D. E., Borden, J. P., German, M., & Monahan, T. F. (2005). Designing and implementing a comprehensive assessment plan for a graduate accounting programme. *Accounting Education: An International Journal*, 14(4), 395-410.
- Treacy, W. (2014). Accounting courses. *Texas State Board of Public Accountancy*. Retrieved from <https://www.tsbpa.state.tx.us/exam-qualification/education-accounting-courses.html>
- United States Government Accountability Office (USGAO). (2011, December). *Postsecondary education: Student outcomes vary at for-profit, nonprofit, and public schools*. (GAO-12-143). Washington, DC: Government Printing Office. Retrieved from: <http://www.gao.gov/assets/590/586738.pdf>
- Viehland, D. (2014, August 3). Separate accreditation of accounting programs. *Research Interactions Forum of the American Accounting Association*. Retrieved from http://c.ymcdn.com/sites/www.acbsp.org/resource/collection/0E6C17FF-C71B-46C7-9A69-2B5A815DB06E/AAA_Presentation--August_2014.pdf
- Weldy, T. G. & Turnipseed, D. L. (2010). Assessing and improving learning in business schools: Direct and indirect measures of learning. *Journal of Education for Business*, 85(5), 268-273.