

Three Types of Business School Accreditation and their Relationships to CPA Exam Scores of Graduates

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This research explores relationships between “business school accreditation” and average CPA exam scores of graduates from each of several types of accredited business programs. Our findings show graduates of AACSB-International accredited programs have significantly higher CPA exam scores than do graduates from other types of accredited and unaccredited business programs. Somewhat surprisingly, graduates from ACBSP and IACBE accredited programs do not have average CPA exam scores higher than those of graduates of unaccredited business programs. More surprisingly, average CPA exam scores of graduates from ACBSP accredited programs are actually lower than those of graduates from unaccredited business programs on average.

Business School Accreditation in the U.S.

The Council for Higher Education Accreditation (CHEA) is the organization in the United States that certifies and ensures quality in “higher education accrediting agencies”. CHEA certifies regional accrediting agencies such as Middle States Association of Colleges and School and the Higher Learning Commission (NCA-HCL), and it also certifies programmatic accrediting agencies such as the Accrediting Council for Pharmacy Education, the National League for Nursing Accreditation Commission, and the National Council for Accreditation of Teacher Education. CHEA has a comprehensive institutional membership including more than 3,000 degree granting colleges and universities as members (Council for Higher Education Accreditation, 2010). Presently CHEA recognizes only three business school accrediting agencies, the Association to Advance Collegiate Schools of Business-International (AACSB), the Accreditation Council for Business Schools and Programs (ACBSP), and the International Assembly for Collegiate Business Education (IACBE).

Association to Advance Collegiate Schools in Business - International

The Association to Advance Collegiate Schools of Business-International (AACSB-International or AACSB) is the oldest and largest of the three business school accrediting agencies. Founded in 1916, the AACSB established “quality” standards for use in business school accreditation in 1919 (AACSB-International, 2011). Today, institutions accredited by the AACSB are expected to meet AACSB quality standards in three major areas: Strategic Management Standards, Participant Standards, and Assurance of Learning Standards.

Strategic management standards are concerned primarily with a business school’s mission statement and the resources available to accomplish its mission. The mission itself is expected to reflect input from students, alumni, parents, employers, administration, and other stakeholders. AACSB strategic management standards require accredited programs to include statements about how faculty research contributions are integral to the business school’s mission. The inclusion of this statement is unique to the AACSB. Similar statements are not required in the quality standards of the other two accrediting agencies. Other aspects of the strategic management standards include descriptions of intended student populations to be served and a statement validating that continuous improvement in business education through assessment is a high priority. Finally, the strategic management standards also require the business school to present its financial plan for providing necessary resources to achieve its mission (AACSB-International, 2007).

AACSB participant standards are focused almost entirely on input factors that AACSB contends affects the quality of business education. These include such input factors as student admission policies, staff support sufficiency, and faculty sufficiency. Faculty sufficiency standards are notably rigorous and require faculty be properly credentialed (with emphasis on large percentages of faculty having a doctoral degree in their primary teaching area). Faculty sufficiency standards also require a significant percentage of faculty to be engaged in recent published research to maintain currency and relevancy in their teaching fields (AACSB-International, 2007).

AACSB assurance of learning standards are focused primarily on assessment of student learning outcomes and making continual improvements to business education based on the results of those assessments. AACSB assurance

of learning standards require “closing the loop” in assessment. This means feedback from assessment must be used in implementing positive changes for future learning outcomes (AACSB-International, 2007).

As the first business school accrediting agency in existence, the AACSB maintains a dominant presence in the world of business school accreditation, especially at our nation’s larger business schools. See Table 1 below for a summarization of the number of AACSB accreditations relative to other types of business school accreditations and relative to the number of unaccredited business schools.

Table 1: Accredited and Unaccredited U.S. Colleges and Universities by Size with at Least 20+ First Time CPA Testing Events*

Undergraduate Enrollments*	Total Number of Schools	Number (%) AACSB Accredited	Number (%) ACPSB Accredited	Number (%) IACBE Accredited	Number (%) With No Business Accreditation
> 15,000	147 (100%)	128 (87.1%)	3 (2%)	2 (1.4%)	14 (9.5%)
10,001 – 15,000	89 (100%)	76 (85.4%)	3 (3.4%)	2 (2.2%)	8 (9%)
5,001 – 10,000	184 (100%)	124 (67.4%)	14 (7.6%)	5 (2.7%)	41 (22.3%)
0 – 5,000	290 (100%)	82 (28.3%)	46 (15.9%)	28 (9.7%)	134 (46.1%)
Totals	710 (100%)	410 (57.8%)	66 (9.3%)	37 (5.2%)	197 (27.7%)

*-- A first-time testing event refers to one in which a candidate takes any one of the 4 parts of the CPA exam for the very first time. The source of data included in this table is the intersection of 2011 official website listings showing AACSB, ACPSB, and IACBE accredited institutions, and NASBA’s 2011 edition, Candidate Performance on the Uniform CPA Examination (Appendix F). This table lists all U.S. colleges and universities with at least 20+ first-time testing events by its graduates in the most recent year. Undergraduate enrollments are from Institute for Education Sciences, National Center for Education Statistics (2011).

The following statements summarize the information presented in Table 1. First, the AACSB has accredited more U.S. business schools than other two accrediting agencies combined - almost eight times as many. Second, at the nation’s larger schools (defined as 15,000 +), 128 of the 133 total accredited business schools have been accredited by the AACSB. Only three of these larger schools have been accredited by the ACPSB; only two have been accredited by the IACBE. Clearly, in terms of accrediting large schools, the AACSB plays a dominant role. Table 1 also makes evident that it is at smaller institutions (defined as having fewer than 5,000 undergraduates) that the ACPSB and the IACBE have the bulk of their accreditations. Even here, the AACSB has more total accreditations than do the other two accrediting agencies combined.

Accreditation Council for Business Schools and Programs (ACBSP)

The ACBSP is the second oldest business school accrediting agency. It was founded in 1988 to fulfill a need for programmatic business program accreditation at institutions with resource constraints not found at many large public institutions. Specifically, the ACBSP was founded in order to provide accreditation that emphasized quality in teaching and learning over credentials and research productivity of faculty. (Accreditation Council for Business Schools and Programs, 2011).

ACBSP accreditation differs from the AACSB accreditation in that it employs a primarily “process based” accreditation which is less dependent upon quantified measures of faculty sufficiency (i.e. reference to number of doctoral degrees in teaching fields and amounts of published faculty research). ACBSP standards require accredited schools develop and implement processes that will promote the development of excellent faculty well matched to program objectives. No specific percentages of “academically qualified faculty” are specified in ACBSP standards. An example from their web site suggests that as few as 40 percent of undergraduate credit hours in business need be taught by faculty having a Ph.D. in their teaching field (Accreditation Council for Business Schools and Programs, 2011). This is a much lower percentage than that required under AACSB standards.

ACBSP scholarship requirements for faculty can be met with any of four types of intellectual activity: (1) the scholarship of teaching, (2) the scholarship of discovery, (3) the scholarship of integration, and (4) the scholarship of application. No quantifiable amounts of these activities have been specified (Accreditation Council for Business Schools and Programs, 2011). In addition the ACBSP acknowledges the value of faculty having practical, real-world experience and believes the practical experience of professors can enhance the relevance of classroom instruction.

At that time of its founding, many of the nation’s smaller institutions desired an alternative to AACSB accreditation which for them was too costly in terms of its stringent faculty sufficiency standards related to number of Ph.D.’s in teaching field and faculty research productivity. Many of these smaller institutions sought an

accrediting process that would emphasize effective teaching rather than faculty credentials (Accreditation Council for Business Schools and Programs, 2011).

ACBSP's standards for granting accreditation are based on the Baldrige National Quality Program and its "Criteria for Educational Performance Excellence" (Accreditation Council for Business Schools and Programs, 2011). Six accreditation standards were developed by the ACBSP using Baldrige theory of educational excellence. They are: Leadership, Strategic Planning, Student and Stakeholder Focus, Faculty and Staff Focus, and Educational and Business Process Management (Accreditation Council for Business Schools and Programs, (2011). The ACBSP leadership standard requires that administrators and faculty be active participants in creating and sustaining a student focus in business education, developing student performance expectations, and generating a system that promotes leadership excellence in students. The strategic planning standard establishes a protocol to ensure that business schools maintain a process for addressing key student and program performance requirements. The student and stakeholder focus standard requires that business schools systematically consider the needs of all current and future stakeholders including parents, employers, alumni, and donors when conducting strategic planning activities. The measurement and analysis of student learning and performance standard requires that assessment of student learning outcomes takes place on a continuing basis. Furthermore, feedback from these assessments is to be used to create positive change. The faculty and staff focus standard relates to the importance of having a quality faculty whose primary focus is teaching excellence but who are also open to integrating scholarly activities into their classrooms as well. Scholarly activities are broadly defined and quantitative criteria for scholarly activities are not included in the standards. Specified minimum percentages of doctorates in teaching areas are not included. The final ACBSP accreditation standard is educational and business process management. This standard is aimed at two things: ensuring proper business school curriculum content; and ensuring that adequate resources are available to achieve the school's financial, facility, library, and computer resource goals (Accreditation Council for Business Schools and Programs, 2011).

Another distinguishing characteristic of the ACBSP is that it accredits mainly smaller institutions. Of the sixty-six total institutions accredited by the ACBSP included in our sample, forty-six have fewer than 5,000 students.

International Assembly for Collegiate Business Education (IACBE)

The newest of the three CHEA recognized business school accreditors is the International Assembly for Collegiate Business Education (IACBE). It was first established in 1997 in response to U.S. colleges and universities seeking an accreditation process fully mission-driven and outcomes-based (IACBE, 2011a). The IACBE's approach to fostering excellence in business education has been somewhat different from either the AACSB or the ACBSP. In its "Philosophy of Accreditation" the IACBE states that academic quality should be assessed based on results of the presence of characteristics that lead to positive educational outcomes rather than prescriptive input standards (IACBE, 2011b). IACBE accreditation relies on assessing educational outcomes directly and indirectly. As a result, smaller business schools having limited resources and only a few doctorates teaching in field on staff find these standards relatively attractive. The evidence of business school quality that the IACBE assesses and associates with excellence includes:

1. Evidence of a clearly defined mission consistent with the institutional mission.
 2. Evidence of overall performance in achieving student learning outcomes.
 3. Evidence of strategic planning reflective of the realities of business education and marketplace.
 4. Evidence of assessment that leads to improvements in achieving student learning outcomes.
 5. Evidence of students that develop into well educated, ethical, and competent professionals.
 6. Evidence of a learning environment that promotes and encourages innovation and creativity.
 7. Evidence of meaningful connections between the classroom and practitioners.
 8. Evidence of internal and external cooperative relationships with other educational units and institutions.
 9. Evidence of a faculty that integrates ethical viewpoints and principles into teaching.
 10. Evidence of a faculty who are effective classroom teachers regularly evaluated.
 11. Evidence of a faculty possessing academic/professional credentials worthy of community respect.
 12. Evidence of curriculum consistent with current business practices and expectations of employers.
 13. Evidence of resources adequate to accomplish the mission and broad-based goals.
- (IACBE, 2011c)

Clearly these characteristics of business education are not directly dependent upon the quantities of doctoral degrees in teaching fields or the quantity of published research by faculty in the way that AACSB standards are.

Most of IACBE accredited programs are at two-year institutions. Table 1 indicates that only 37 U.S. four year institutions are presently accredited by the IACBE. Most of the IACBE's four year accredited colleges (28 out of 37) are relatively small institutions with undergraduate enrollments of less than 5,000 students.

Comparison of Business School Accrediting Agencies

The AACSB, the ACBSP, and the IACBE do have some similarities in their accreditation processes standards. For example, all three groups contend that "continuous improvement" is the central goal of the accreditation process. And all three groups require this be accomplished through continuous assessment and the use of assessment results to produce positive change. All three groups refer to the importance of adequate physical and financial resources consistent with accomplishing stated missions and insist that business school mission statements be consistent with institutional goals. Finally all three groups attempt to describe the characteristics of faculty which are consistent with "quality" business education (though with very different perspectives).

Key differences among the three accrediting agencies relate primarily to the fact that only the AACSB quantifies and enforces minimum levels of inputs for two expensive faculty inputs. These are faculty academic credentialing and faculty research productivity. Only AACSB accreditation precludes accreditation unless a high percentage of faculty are "academically qualified" with Ph.D.'s in their teaching fields. Only the AACSB has **quantified** minimum research and publication standards based on mission. Whether these two key differences are in fact important to quality of business education is a debatable point.

The ACBSP and the IACBE, when describing desirable faculty characteristics, place relatively more focus on effective classroom teaching than on academic credentials or research productivity. The ACBSP mentions the desirability of scholarly activities but has a much broader definition of scholarly activities than does the AACSB and one that is easier to meet. The IACBE does not refer to scholarly research at all in its "characteristics of excellence in business education".

Since the costs of meeting AACSB standards for faculty credentialing and research productivity are very high, it is not surprising that many of the nation's smaller business schools (often having limited resources) choose either not to pursue business program accreditation or to seek business school accreditation from the ACBSP or the IACBE rather than the AACSB.

It remains unclear (in an empirical sense) what the relationship is between business school accreditation and business school quality. Almost no empirical work examining these relationships presently exists. One impediment to conducting research of this type has been the lack of an appropriate operational measure of "quality" in business school education. In popular and lay journals the quality of business education is often assumed to result from high levels of educational inputs such as student/faculty ratios, endowment size, funding sources, Ph.D.'s on staff, admission standards, and similar input issues. Direct measures of quality of the business education provided based on educational outcomes have seldom been considered.

Measuring inputs to evaluate educational quality and to rank institutions remains highly controversial. Many reject the measurement validity of these rankings. Measurement based on inputs and arbitrary weightings of them are seen as unfounded and non-theoretical (Webster, 1999). Pascarella (2001) and Hossler (2000) both suggest the input criteria used by U.S. News and World Report for college rankings have little or nothing to do with the quality of education students actually receive. They argue it is logically invalid to assume institutions with more resource inputs automatically provide better education. Pike, in a 2004 empirical study, shows U.S. News and World Report rankings (based on input criteria) have very small correlation with results of National Survey of Student Engagement (NSSE) benchmarks of good practices in undergraduate education (Pike, 2004). These benchmarks include level of academic challenge, active and collaborative learning, student interaction with faculty, enriching educational experiences, and supportive campus environment. As a result, Pike has doubts about the validity of ranking institutions based on these inputs.

In a letter to the editor of Strategic Finance, Gene Smith criticizes AACSB faculty credentialing standards and faculty research productivity standards as inappropriate. Smith posits that most practicing accountants would argue faculty members credentialed with MBA's or MACC, possessed of good teaching skills, having minimal basic research skills, and having 10-plus years of practical work experience in accounting would make more effective undergraduate instructors than the typical new Ph.D. who has little if any relevant real world experience, and is trained primarily for research (Smith, 2007). When evaluating the effectiveness of undergraduate professional education, this argument is plausible in our view.

CPA Exam: A Measure of Quality in Business Education

Accounting programs often rightly attempt to employ multiple measures for assessing their students' learning and evaluating the quality of education provided. Average success rates of recent graduates on the uniform CPA exam are one measure often used by business schools as a key indicator of the quality of accounting education provided by that school. Whether success of graduates on the CPA exam (by itself and alone) is an adequate measure of quality of accounting education is unlikely. Nevertheless, we believe it is a good approximation. Schick, a long time business school academic, makes the argument that CPA exam results are a key indicator of quality in accounting education being provided. He says: "Since students and/or their parents are paying a significant amount of money for the education that students are receiving, you think of students and parents as customers for a university's services. Therefore, you think it appropriate for accounting departments to provide the education desired by their paying customers, students and parents. If students want to become CPAs, then accounting departments should seek to help them do so. The success of accounting departments in satisfying their customers' wants, as indicated by first-time candidates' performance on CPA exams, should be information that is widely disseminated and easily obtainable." (Schick, 1998: p. 417).

Former Price Waterhouse partner, Lawrence Ponemon, expressed reservations about using the CPA exam as the sole indicator of quality in accounting programs for a number of reasons. First, he said the exam itself is not a complete measure of accounting knowledge, aptitude, or mastery. Second, he pointed out that some high quality accounting programs in the United States do not focus on the public accounting career track for students. He also pointed out that a majority of today's accounting graduates never work in public accounting and thus do not need the "CPA" designation for their job. Even the big accounting firms have shifted some hiring away from trained CPAs. Lastly, he said that developing curriculums to meet CPA exam content specifications implicitly shifts the burden of curriculum design away from faculty to the AICPA and the State Boards of Accountancy which he believes is inappropriate. Despite his many reservations, Ponemon does admit the CPA exam is a reliable and valid measure of mastery of a large body of technical accounting, financial reporting and auditing topics that are indicative of a quality accounting program (Ponemon, 1998).

Whether the CPA exam is appropriate as the only measure of accounting program quality, CPA exam success rates of graduates are clearly used by many institutions to justify claims of quality in accounting education. This is true both inside and outside of academe. The National Association of State Boards of Accountancy (NASBA) publishes aggregate data about candidate performance on each part of the 4 part CPA exam annually. NASBA breaks this data down by institution. Those colleges and universities having relatively high success rates on the CPA exam often publicize this information in student recruiting and promotional materials. Additionally some state CPA societies use NASBA's reported CPA exam success rates to determine which colleges and universities within their jurisdictions will be awarded student scholarships. De facto, CPA exam success rates have been used by many institutions to assess quality in accounting education.

According to the official website of the American Institute of Certified Public Accountants, the purpose of the CPA examination has been to admit individuals into the accounting profession only after they have demonstrated entry-level knowledge and skills necessary to protect the public interest in a rapidly changing environment (AICPA, 2011). Passing the CPA exam is recognized by accounting graduates themselves as being prestigious and critical to their advancement within the accounting profession. This is true even for those having no intention of becoming licensed public auditors.

The NASBA says this about the CPA exam: "Since 1917, the Uniform CPA Examination has proven to be a highly valid and reliable measure of candidate abilities. This focus on quality has made it possible for all United States jurisdictions to rely on the results in determining who is competent to practice public accounting in order to protect the public." (AICPA, NASBA, and Thomson Prometric, 2004: p. i). The prestige associated with passing the fourteen hour CPA exam is no doubt partially related to the difficulty in attaining a passing grade. Only after successfully completing the equivalent of a four year business degree with a concentration in accounting courses, are candidates even permitted to sit for the exam. Pass rates for first-time candidates averaged only 48.3% in 2010 nationwide (NASBA, 2011).

For the purposes of this research we use candidates' average CPA exam scores as a proxy for the quality of accounting education they received prior to sitting for the CPA exam. CPA success rates are useful because large numbers of accounting majors from around the nation take the uniform CPA exam annually. Of importance to our research is the fact that the CPA exam scores of candidates by institution are published annually by NASBA each year (NASBA, 2011). Finally, the CPA exam itself is graded in a uniform way and from a central location for all candidates regardless of location or alma mater. Scores on the CPA exam provide an objective and uniform dependent variable for comparing the quality of business school education prior to taking the exam.

Previous Studies

We did not find any previous studies comparing CPA exam success rates of those schools accredited by each of the three accrediting agencies, the AACSB, ACBSP, and IACBE. We did find two studies comparing AACSB and non-AACSB CPA exam success rates, both based on pre-April 2004 CPA exam outcomes (before the CPA exam was computerized) that investigated the relationship between AACSB accreditation and CPA exam success rates. The two studies reached differing conclusions. Grant, Ciccotello, and Dicke (2001) reported a positive relationship between AACSB business school accreditation and CPA exam success rates. Specifically, they reported on average, a 7.653% higher pass rate at AACSB accredited business schools for first time candidates passing at least two of the four parts of the CPA exam. A second study by Boone, Legoria, Seifert, & Stammerjohan, (2006) reached a differing conclusion with a smaller sample. Boone et al. reported only a weak association between program-level pass rates and AACSB accreditation exists after eliminating the effects of selectivity when admitting students.

In a more recent study, Morgan, Bergin, and Sallee (2008) report empirical evidence indicating graduates of AACSB accredited business schools have significantly higher pass rates on all four sections of the new computerized CPA exam than do graduates of business schools not accredited by the AACSB. This same study also compared CPA examination scores of schools in three separate size categories (large schools, medium schools and small schools) comparing AACSB graduates to their unaccredited counterparts in the same size schools. Results showed that graduates from AACSB accredited programs at large, medium, and small schools all performed better on all parts of the CPA exam than did their counterparts at non-AACSB institutions. In another related paper, Morgan, Bergin, and Sallee (2009) compared CPA examination performance of graduates from AACSB accredited **accounting programs** to the CPA exam performance of graduates of AACSB accredited **business schools** not having separate accreditation for their accounting programs. Results showed that graduates of AACSB accredited accounting programs had even higher CPA exam success rates than did graduates of AACSB accredited business schools not having separate accounting program accreditation.

Motivation for This Research

The motivation for this research is to compare the average CPA exam success rates of graduates of institutions from each of four accreditation categories (i.e. schools having one of three types of separate business school accreditation offered in the U.S., and completely unaccredited business schools making up the fourth group) noting whether graduates of any group have higher CPA exam scores on average than those of the other groups. Our goal is simply to determine whether such differences, positive or negative, exist at all, and if so to describe them. Institutions that advertise business school accreditation through their promotional materials clearly are implying higher quality is associated with accreditation. Whether or not this is actually true, on average, is an interesting research question.

The intent of this research has **not** been to suggest a singular or even causal relationship between business school accreditation and CPA exam success. We recognize the likelihood of other factors being strongly and causally connected to the average CPA exam scores of an institution's graduates. For example the average quality of entering students as measured through SAT or ACT scores or through high school class rank, the average classroom effectiveness of teaching faculty at an institution, and the overall availability of resources at a business school that permit students to experience more accounting electives all seem as important to ultimate CPA exam success of graduates than does accreditation. The degree to which an institution's graduates have been counseled while in school to enter and complete a formal CPA examination review course before attempting to sit for the exam is also likely to be an important factor in CPA examination success of an institution's graduates.

It would indeed be interesting to discover whether business school accreditation, in and of itself, makes any difference to CPA exam success rates after removing all the potentially confounding effects of other related factors. However, saying that it would be interesting to know does not also mean that it is practical to do so. In our view, inherent design and/or data availability limitations make this more interesting question unanswerable in any practical sense. To eliminate potential confounds one must either use an experimental design with random assignment of subjects to groups (not possible in this case) or eliminate suspected confounds such as entering student aptitude using statistical techniques. Using statistical techniques to eliminate confounds is impractical in this case due to data problems. The most likely confounds such as entering student aptitude and faculty teaching effectiveness cannot be statistically removed because data about these variables is not available. Data about the average CPA exam scores of the graduates of the nation's universities is readily available. Data about the types of business school accreditation existing at the nation's universities is readily available. Data about the differential quality of the entering freshmen and the differential effectiveness of teaching faculties at the nation's universities are not

available. Only a few universities publish such information. Thus using statistical methods to remove the effects of these variables is not possible.

As a result our research question has been more limited. We ask: Is business school accreditation of any type positively (or negatively) associated with success on the CPA exam? It seems clear when institutions advertise their business school accreditation in promotional literature they are implying there is higher quality associated with accreditation. Is this really true?

We have found no research to date that directly compares the CPA exam success rates of graduates from each of the three types of accredited business programs with each other or with graduates from unaccredited business programs.

Research Design and Data Selection

The business schools included in our analyses were selected from colleges and universities intersecting two databases. The first database was the U.S. Department of Education's Institute of Education Sciences, National Center for Education Statistics (IES, 2011). From this U.S. Department of Education database we selected all four-year colleges and universities located within the United States and District of Columbia. This database was also the source of undergraduate enrollment statistics by institution. We initially selected all colleges and universities in the database labeled as primarily "four-year undergraduate colleges and universities". "Two-year colleges" and "graduate universities" (i.e. universities having more total graduate students than undergraduate students) were not included. The exclusion of "graduate universities" does not mean we excluded universities offering both graduate and undergraduate degrees. Many of the four-year undergraduate universities included in our study also had extensive graduate programs. Rather we excluded only those universities classified by U.S Department of Education as having **primarily** graduate students with few undergraduate students. These schools which are labeled as "graduate universities" by Department of Education statistics have very small or nonexistent undergraduate accounting programs. And since our comparisons were all aimed at the relative CPA examination success of first-time candidates with bachelor's degree only, the exclusion of "graduate universities" in the sense used by the Department of Education had no impact whatsoever on the sample of schools selected. Not one of the "graduate universities" had sufficient undergraduate accounting students to be separately identified in NASBA reporting anyway.

The second database, whose intersection with the first ultimately determined our final sample, was Candidate Performance on the Uniform CPA Exam, 2011 Edition published by the National Association of State Boards of Accountancy (NASBA, 2011). This second database includes the average CPA exam scores of each institution having at least 20 or more of its graduates taking the CPA exam for the first-time during the calendar year reported. Institutions with fewer than 20 total graduates sitting as first-time candidates for the CPA examination during the calendar year are not identified separately in the NASBA database, and therefore could not be included in our sample.

Our final sample included only those schools intersecting both databases. That is to say our sample included all U.S. colleges and universities designated as **primarily** four-year undergraduate institutions in National Center for Education Statistics, 2011 (though many had extensive graduate programs as well) intersecting with all institutions separately listed in Candidate Performance on the Uniform CPA Exam, 2011 Edition, Appendix F. This final sample consisted of 710 colleges and universities identified in NASBA data with the average CPA exam scores of graduates from those 710 universities.

The 710 selected schools were next classified both by number of undergraduates enrolled in them, and by one of four (mutually exclusive) accreditation statuses: 1) AACSB accredited business schools; 2) ACBSP accredited business schools; 3) IACBE accredited business schools, and; 4) business programs not having any separate business program accreditation. Classifications were determined by consulting the 2011 AACSB, ACBSP, and IACBE on-line websites listing member institutions in June, 2011. A summary of the 710 schools according to accreditation status and undergraduate enrollment category is provided in Table 1.

All statistical analyses were conducted using one-way analysis of variance (ANOVA). ANOVA is a well-known test statistic for comparing the means of two or more groups for the purpose of rejecting a null hypothesis that there are no significant differences among the groups. In the present case we wished to reject the null hypothesis that average CPA exam scores were no different across the four groups of institutions tested. After rejecting the null hypothesis in our initial analysis, we then compared the average CPA scores for each group of the four groups of institutions relative to the other three in post hoc comparisons based on least significant differences (LSD) tests. The dependent variable in all comparisons was the average CPA exam score of the institutions in each of the four groups as reported in the 2011 edition of Candidate Performance on the Uniform CPA Exam (NASBA, 2011).

Results

Table 2 shows the results of our initial one-way ANOVA that rejects the null hypothesis in our sample of 710 schools placed into four groupings; AACSB accredited, ACBSP accredited, IACBE accredited, and unaccredited. The term “unaccredited” refers to business programs not accredited by any one of the three business program accrediting agencies, AACSB, ACBSP, and IACBE.

The null hypothesis is rejected ($p < .001$). Average CPA exam scores of schools in the four groups are not identical. Table 3 shows the means and standard deviations of the four groups. Table 4 presents results of post hoc comparisons - comparing each group to the other three separately. Homogeneity of variance between groups (a required assumption for ANOVA) has been tested using the Levine statistic and found acceptable.

Table 2: ANOVA to Reject the Null Hypothesis (n = 710)

Dependent Variable	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2738.607	3	912.869	25.437	.000*
Within Groups	25336.039	706	35.887		
Total	28074.645	709			

*-statistically significant difference

Table 3: CPA Exam Average Scores and Standard Deviation by Condition (n = 710)

Accreditation Type	N	Mean CPA Exam Score	Std. Deviation	Std. Error
AACSB accreditation	410	71.939	5.3271	.2631
ACBSP accreditation	66	66.745	6.9636	.8572
IACBE accreditation	37	66.868	5.8814	.9669
Unaccredited	197	68.931	6.9003	.4916
Total	710	70.357	6.2927	.2362

Table 4: POST HOCS Multiple Comparisons-Least Significant Difference Tests (n = 710)

Dependent Variable (Accreditation Type)	Mean CPA Exam Score Difference	Std. Error	Sig.
AACSB accreditation to:			
ACBSP accreditation	5.1938	.7945	.000 *
IACBE accreditation	5.0717	1.0283	.000 *
Unaccredited	3.0085	.5193	.000 *
ACBSP accreditation to:			
AACSB accreditation	-5.1938	.7945	.000 *
IACBE accreditation	-.1221	1.2303	.921
Unaccredited	-2.1853	.8520	.011 *
IACBE accreditation to:			
AACSB accreditation	-5.0717	1.0283	.000 *
ACBSP accreditation	.1221	1.2303	.921
Unaccredited	-2.0632	1.0733	.055
Unaccredited to:			
AACSB accreditation	-3.0085	.5193	.000 *
ACBSP accreditation	2.1853	.8520	.011 *
IACBE accreditation	2.0632	1.0733	.055

*-statistically significant difference

Table 4 results show that candidates from AACSB accredited business schools have significantly higher average exam scores than do candidates from ACBSP or IACBE accredited business schools. Candidates from AACSB schools scored, on average, more than five points higher than did candidates from ACBSP and IACBE schools. This is not only statistically significant, but significant in its real-world implications for tens of thousands of candidates. Candidates from AACSB schools also scored, on average, significantly higher (on average three points higher) than did candidates from unaccredited business schools. Surprisingly, candidates from ACBSP and IACBE accredited business school graduates did not score significantly higher than candidates from unaccredited business schools. The ACBSP and IACBE accredited schools did not have statistically significant higher scores than those at unaccredited schools. Perhaps the most striking and seemingly inexplicable result is that candidates from ACBSP accredited schools, on average, actually had **lower** scores than those of candidates from unaccredited business schools. This difference was statistically significant with the mean average score at ACBSP accredited being about 2.2 points lower than the average at unaccredited business schools. Our previous study, based on 2006 CPA exam

data, also found that ACBSP accredited schools scored significantly lower CPA exam pass rates than business programs with no separate business accreditation (Bergin, Morgan, Sallee, 2011).

Implications and Conclusions

Our results show a significant positive association between AACSB accreditation status and higher average CPA exam scores. Accounting graduates of AACSB accredited business programs clearly have the highest overall average CPA exam scores of the four groups. Surprisingly, business schools with ACBSP accreditation were found to have the lowest average pass rates of the four groups, even lower than those of unaccredited business schools. These findings bolster arguments of proponents of AACSB accreditation who believe AACSB accreditation is associated with business school quality at least within the specific context of CPA exam success rates. Our evidence is not consistent with the belief of some that AACSB accreditation has a net negative effect on the quality of business education due to overemphasis placed on credentialing and research productivity. Our findings also suggest ACBSP business school accreditation is currently negatively associated with higher quality business education. We have no explanation for this negative ACBSP result.

The data do not reveal **reasons** for the discovered relationships reported. Direct inferences cannot be drawn from this research design. Because our research design was correlative, it does not provide a proper basis for causal inference (Bryman and Cramer, 2005). Causal inference requires an experimental design in which researchers actively manipulate a research variable differently across randomly selected and assigned subjects. Only through differential administration of a treatment variable to random groups, can one isolate and observe the systematic effects of the treatment (this assuming other **systematic** differences among groups do not exist because of the random assignment of sufficiently large numbers of subjects). Our subjects were not randomly assigned nor could we actively manipulate our independent variable, accreditation status.

In spite of not understanding why discovered differences exist, our data nevertheless do convey statistically significant differences and surprisingly large differences in the average CPA exam scores of the four groups. AACSB accredited business schools, on average, evidence considerably higher average scores than other groups. The size of difference is especially impressive in light of how significant the impact five points on a test score can make. The magnitude of difference found also adds some prestige to the reputation of AACSB schools relative to others. Higher CPA exam scores by graduates of AACSB institutions enhance the reputation of the AACSB as an accrediting agency. Systematic higher performances on the CPA exam by graduates of AACSB accredited institutions, once they become better understood by the public may increasingly affect students' choices of which universities to attend. In turn this may better justify the high costs of seeking to achieve AACSB accreditation. Accreditation type may also impact choices made by funding agencies, and choices made by recruiters about where to spend their limited resources when enlisting accounting talent. It can be anticipated that ambitious and forward looking institutions will continue to value AACSB accreditation for reasons of associations with CPA success alone.

At the same time, we caution against over-generalizing from our result. In the un-aggregated data one sees many AACSB accredited schools with lower than average CPA exam scores, and ACBSP and IACBEB accredited business schools with higher than average CPA exam scores. Accreditation (of any type) does not guarantee high or low average CPA exam scores of graduates. Readers should keep in mind that large individual differences do exist within each group. The correct conclusion is, **on average**, the CPA exam scores of graduates from AACSB accredited business schools are currently higher than those of other groups.

In summation, the purpose of this paper has not been to demonstrate a causal relationship between business school accreditation of any type and CPA exam scores. Nor has the purpose been to develop and explicate a theoretical model showing factors important to this relationship. Rather, the purpose has been to discover whether systematic relationships exist between type of business school accreditation and average CPA exam scores, and if they do exist, discover the magnitude and direction of differences. This we have done. To the extent higher than average CPA exam scores are an indicator of higher quality business education received, then AACSB business school accreditation is indeed associated with higher quality business education. IACBEB business schools do not differ significantly from unaccredited programs and ACBSP business school accreditation is associated with lower quality business education as measured by CPA exam success.

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