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Learning Gains at CCCU-Member Schools: A Comparison of CCCU Students' Performance on the CPA Exam to Performance at AACSB-Member and Non-AACSB-Member Schools – A Replication of a Study by Hahn, Fairchild, and Childs Presented at the Christian Business

Faculty Association in October 2014

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### **Abstract**

This study is a replication of a study by Hahn, Fairchild, and Childs that examines differences in Uniform Certified Public Accountant Exam (UCPAE) pass rates between test-takers who graduated from schools that are members of the Council for Christian Colleges and Universities (CCCU) and those who graduated from institutions that are not members of the CCCU. CCCU-member schools were found to have pass rates similar to institutions accredited by the Association to Advance Collegiate Schools of Business (AACSB) even though AACSB schools have an advantage in incoming student aptitude as measured by students' SAT scores. These results indicate that CCCU-member schools are effectively preparing their students at the same level as are AACSB-accredited schools and outperforming schools not accredited by AACSB. The results of this study were determined using a methodology that compares each group of schools' UCPAE median pass rate and its SAT median scores to the other groups determined in the study.

### **Introduction**

Around nine percent of students in the United States looking to attend college select a religiously affiliated school (CCCU, 2010). Research shows that graduates from schools in the Council for Christian Colleges and Universities (CCCU) have higher levels of growth in student self-awareness and knowledge obtained in a specific major than do graduates of secular schools (Schreiner, 2003; Schreiner & Kim, 2011). However, these data are subjective since they are purely obtained through student surveys. Objective data derived from direct measurements are needed to support the research finding primarily based on student perception. For example, the Future Business Leaders-Phi Beta Lambda's (FBLA-PBL) Comprehensive Business Examination (CBE) or the Educational Testing Service's (ETS) Major Field Test in Business (MFTB), as well as professional certification exams, are nationally recognized measures on which objective conclusions could be drawn. Further research involving direct measures of learning, using nationally-normed testing systems, should be done to ascertain if CCCU-member institutions achieve a performance advantage over secular institutions.

The objective measure of academic achievement used in this study is the UCPAE pass rates at CCCU-member and non-member institutions. The difference in UCPAE pass rates between CCCU-member and non-member organizations was explored to investigate the quality of undergraduate accounting education at these schools. The average national pass rate for the 2012 UCPAE was 46.4% for graduates of the 57 CCCU-member school graduates, and the

average pass rate for the 1,074 non-member school graduates was 44.0% according to the data from the National Association of State Boards of Accountancy (NASBA). The UCPAE average pass rate difference was not statistically significant between CCCU-member and all non-member organizations. However, when the non-CCCU group was separated into two groups according to whether the school was accredited by The Association to Advance Collegiate Schools of Business (AACSB) or not (non-AACSB), a statistically significant difference was found between the UCPAE pass rates of CCCU-member schools and non-AACSB schools, with CCCU-member schools having the higher pass rates. In contrast, there was no significant difference in pass rates between CCCU-member and AACSB-accredited institutions, which indicates no performance variance between the groups. Since AACSB-accredited schools are believed to be the more prestigious schools in business higher education (Howell & Heshizer, 2006), this conclusion is significant because the CCCU-members are performing similarly to the schools with perceived higher standing.

### **Literature Review**

#### **Benefits of CCCU Education**

Typically, there is a relatively common belief that when a student chooses to go to a Christian college, he or she is sacrificing education for spirituality. Dr. Laurie Schreiner, the chair of doctoral studies in education at Azusa Pacific University, believes that this is untrue. In her presentation at the Critical Issues Conference at Seattle Pacific University in 2003, Schreiner discussed the academic excellence of institutions in the Council for Christian Colleges & Universities versus private, non-religious colleges and universities. In her study, Dr. Schreiner found that CCCU students are significantly more satisfied with faculty availability and approachability than secular private colleges, making positive student-faculty interaction a big

strength on Christian campuses. Dr. Schreiner also explored the benefits of “active learning,” a teaching method, which she found to be employed at CCCU schools much more frequently than other institutions (Schreiner, 2003).

In a similar study, Schreiner and Kim (2011) explored the patterns of college experiences and outcomes among students who attend CCCU institutions versus secular private colleges. The study consisted of surveying students in their freshman year and their senior year from 25 institutions in the CCCU and comparing their levels of satisfaction in several areas with students from a national sample of private colleges covering the same four years. Results showed that CCCU students reported much higher levels of faculty support, which correlated with their above average gains in academic self-esteem, interpersonal ability, and social awareness. Schreiner and Kim attributed these higher levels of satisfaction to two major factors: level of faculty support and the ways the students spent their time. At CCCU schools, the amount of support from faculty was reported to be more prevalent, especially resulting in academic self-esteem. Students at CCCU institutions also spent more of their time in prayer and with homework, which resulted in higher levels of social awareness. According to other studies, such as the study by Hahn, Fairchild, and Childs (2014), factors that encourage learning, as identified by Schreiner (2003) and Schreiner and Kim (2011), increased passing rates on the CPA exam, which shows how much value is obtained from an education from a Christian university.

### **Assurance of Learning (AoL)**

Schools that are not part of the CCCU may have other business school accreditation, typically considered more prestigious, such as membership in the AACSB, the Accreditation Council for Business Schools and Programs (ACBSP), or the International Assembly for Collegiate Business Education (IACBE). In examining why accredited schools have been

reported to have higher CPA exam passing rates, the factors that give them accreditation are pertinent, as well. In 2003, Lindsay and Campbell did a study to examine the possible factors of AACSB accreditation. The authors found a number of determinants of accreditation status, primarily teaching performance quality, adequacy of research productivity, and faculty quality. AACSB schools are reported to have high CPA exam passing rates, meaning that AACSB accreditation is an indicator of quality.

The purpose of AoL standards is to encourage the improvement of education quality at accredited institutions. Typically, a minimum of two indirect measures and two direct measures are required by accrediting bodies (AACSB, 2013; IACBE, 2013). Indirect measures include surveys and interviews of graduates, employers, and alumni, in addition to job placement data, focus group findings, and performance on licensing examinations. Direct measures consist of commonly known exams like the MFTB or the CBE, selection of students based on capability, and course-embedded assignments that are evaluated with a rubric (Kelley, Tong, & Choi, 2010; Weldy & Turnipseed, 2010). Both direct and indirect measures are useful to provide information to better the education quality of a school, allowing it to live up to the earned accreditation.

The Council for Higher Education Accreditation (CHEA) discusses specific guidance regarding assurance of learning in their online copy of policies and procedures:

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. (p. 5, para. 5)

The accreditation standards of the AACSB regarding assurance of learning is listed on their website under “2013 Business Standards”:

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 (“Business Standard 8,” n.d.).

The Accreditation Council for Business Schools and Programs (ACBSP) discusses their guidance regarding assurance of learning by saying:

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 (“Standard 4,” n.d.).

Finally, the International Assembly for Collegiate Business Education (IACBE) includes this section on outcomes assessment on their page about characteristics of excellence in business education:

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 (“The Characteristics of Excellence in Business Education,” n.d.).

### **Aspects of the Computer-Based CPA Exam**



In order to earn a CPA license, an individual must pass the Uniform CPA Exam. The American Institute of Certified Public Accountants (AICPA) states:

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).

As of April 2004, the exam is only administered in computer format in four, two-month testing periods each year. Before 2004, the exam was only offered twice a year in paper-and-pencil format. The computer exam utilizes multiple-choice questions, simulations, and relational case studies to evaluate higher-level cognitive skills (Lopez & Specht, 2009). It is conducted over 14 hours in four sections: “Auditing and Attestation (AUD), Business Environment and Concepts (BEC), Financial Accounting and Reporting (FAR), and Regulation (REG)” (AICPA, 2014a, para. 5).

Because of the notable changes made to the format, content, and testing environment of the CPA exam when it was switched to an electronic form, the AICPA warns against comparing passing rates for paper-and-pencil exam to the computer-based exam (AICPA, 2014b). Briggs and He (2012) further studied the reason for the advisory and found that overall pass rates on the paper-and-pencil exam before April 2004 averaged 31 to 32 percent, while the overall pass rates from 2004 to 2007 were between 43 and 47 percent. NASBA (2013) reports an overall weighted-average pass rate of 48.9% for 2012. With these changes in consideration, this paper

examines whether CPA exam pass rates achieved on the computer-based exam are consistent with research results from the paper-and-pencil exam.

### **CPA Exam Research**

A major concept to include in this section is research about the relation of CPA exam pass rates and accreditation school types. Marts, Baker, and Garris (1998) compared 1985 and 1986 CPA exam pass rates of those who graduated from schools with AACSB accounting accredited programs to the pass rates of candidates from schools with general business accreditation and schools which were not accredited. According to the AACSB, graduates of accredited accounting programs should perform better than graduates of programs that are not accredited. The first purpose of the Marts et al. study was to find out if this is a fair assessment. The study found that graduates from schools with AACSB accounting accreditation performed significantly better on the CPA exam than graduates from schools that were not AACSB accredited. However, when accounting accredited programs were compared to business schools with only AACSB general business accreditation, there was no significant difference. The second purpose of this study was to find out if there were regional differences in exam pass rates at accredited schools and non-accredited schools. Though the authors' hypothesis was that there would be no regional differences in pass rates, they found that test-takers from schools in the West and the Midwest had significantly higher pass rates than schools in other regions. Even more interestingly, in 1985, non-accredited programs in these regions had significantly higher pass rates than accounting accredited programs in the Southeast and Southwest, and in 1986 the West and Midwest non-accredited schools had higher pass rates than accounting accredited schools in the Southwest. Barilla, Jackson, and Mooney (2008) built on the study by Marts et al.

(1988) finding that graduates of both AACSB-accredited schools with additional accounting accreditation and graduates of ACBSP-business program accredited schools scored significantly higher pass rates on the Uniform CPA Exam than graduates of AACSB-accredited schools without additional accounting accreditation.

In contrast to the above studies done with paper-and-pencil test formats, Self, Weaver, Proctor, and Hicks (2013) performed the first computer-based test study. They formed two hypotheses: “There are differences in the CPA exam passing rates (first time, retakes, and overall) among the three types of institutions (for profit, private, and state colleges or universities)” and “There are differences in the CPA exam passing rates (first time, retakes, and overall) among the three types of institutions accredited by one of the professional agencies [AABSB or ACBSP] and those that are not accredited by any of the professional agencies” (81). For the first hypothesis, they found that the average pass rates among for-profit schools are statistically lower compared to private and state schools. For the second hypothesis, the authors discovered that schools with AABSB accreditation had statistically higher average pass rates than both ACBSP accreditation or no additional business school accreditation. They also found that schools without additional business school accreditation had higher pass rates than institutions with ACBSP accreditation, though the difference was not statistically significant.

### **Research Questions**

Based on the literature previously presented, the main research question is: How do CPA exam pass rates at CCCU member schools compare to pass rates at non-CCCU institutions?

### **Methodology**

The year 2012 was the chosen test year to explore the research questions. Uniform CPA Exam (UCPAE) pass rates for this year were obtained in an Excel file from the National

Association of State Boards of Accountancy (NASBA). The Excel file was simply a condensed form of the information in the NASBA's *2012 Uniform CPA Examination: Candidate Performance* yearbook, and since the file was directly obtained from the NASBA, the possibility of data entry error is reduced. There were 1,131 institutions included in the database, all of which had five or more graduates take the UCPAE in 2012. Institutions with less than five candidates were not included. The dependent variable of the study was the overall UCPAE percent pass rates because Self et. al (2013) found that UCPAE pass rates between first-time, retake, and overall testing events were consistent when compared to regional and program-specific accreditation bodies.

The two independent variables employed in this study were CCCU membership and SAT score, including math and reading. A school was considered a CCCU member if it was included on the membership list from the organization's website as of December 31, 2012. Student quality can be measured by SAT scores because they were found to be an indicator of passing the UCPAE in the future (Howell & Heshizer, 2006). Peterson's (2013) online college search tool listed SAT scores of schools. ACT scores, if SAT scores were not available, were converted to comparable SAT scores using a concordance table on the ACT (2008) website. CCCU member schools that did not list SAT or ACT scores were researched on institutional websites.

In order to facilitate the data analysis process, all the institutions included in the NASBA Excel spreadsheet were coded according to accreditation status – CCCU, AACSB, or non-AACSB. In order to properly code each school's accreditation status, the accreditation was researched on each accreditation body's website as of December 31, 2012. Once completed, each school was sorted by CCCU, AACSB, and non-AACSB, and each grouping and its respective UCPAE scores were imported into the IBM Statistical Package for the Social Science

(SPSS). Along with the CPA exam scores, the SAT and ACT scores obtained from Peterson's (2013) online college search tool were included. This data set was analyzed using the SPSS.

The University of Windsor ([uwindsor.ca](http://uwindsor.ca), n.d.) has a document on its site that gives a brief description of SPSS – what it means, what it does, and how it is rated. SPSS is described as “one of the most popular statistical packages which can perform highly complex data manipulation and analysis with simple instructions” ([uwindsor.ca](http://uwindsor.ca), n.d., para. 2). In the “State of the Art” category, SPSS is rated as excellent and in the “Breadth of Functionality,” the program is rated as good. The test in the SPSS used to analyze the data in this study was the Mann-Whitney U test, also called the Wilcoxon-Mann-Whitney test. It is a “rank-based nonparametric test that can be used to determine if there are differences between two groups on a continuous or ordinal dependent variable” ([statistics.laerd.com](http://statistics.laerd.com), n.d., p.1, para. 1). The Mann-Whitney U test is the most ideal for this study because it fulfills the requirements listed by [statistics.laerd.com](http://statistics.laerd.com):

1. There is one dependent variable that is measured at the continuous or ordinal level.
2. There is one independent variable that consists of two categorical, independent groups.
3. There is independence of observations.
4. The variables are not normally distributed. Rather, the statistician must determine if the shape of the distributions of the variables is the same.

Because there is just one dependent variable and more than two independent variables, the test allows the researcher to run several analyses to compare two groups at a time. For this reason, the Mann-Whitney U test proved to be the most appropriate in order to determine whether the median UCPAE pass rate was significantly different between the median UCPAE pass rate of CCCU and AACSB institutions, the AACSB and the non-AACSB institutions, and the CCCU and non-AACSB institutions.

## Results

As was previously stated, the research question examined in this study is: How do CPA exam pass rates at CCCU member schools compare to pass rates at non-CCCU institutions? In order to explore this question, the NASBA data was divided into two groups: institutions that are members of CCCU and institutions that are not. An independent sample Mann-Whitney U test was performed to determine whether there was a significant difference between the two groups since the population is not normally distributed and distributions of the UCPAE pass rate scores for the groups are comparable, as evaluated by visual appraisal. As is displayed in the results reported in Table 1, the median UCPAE pass rate scores for CCCU (.47) and non-CCCU (.44) institutions were not statistically significantly different ( $p=.161$ ). Thus, the performance of these groups on the UCPAE pass rate measure is similar.

Because the literature reports that AACSB accredited schools achieve the highest UCPAE pass rates, the group that is non-CCCU was separated into those with AACSB accreditation and those without AACSB accreditation. This provides a way to more thoroughly examine the pass rates and their differences. Using a Mann-Whitney U test for the reasons explained above, the medians of the AACSB and non-AACSB samples were compared to the median of the CCCU-member group. As is seen in Table 1 above, the median score for AACSB-accredited institutions (.49) was not significantly higher than CCCU member institutions (.47) ( $p = .208$ ). In contrast, the difference between the medians of CCCU-member institutions (.47) and non-AACSB-accredited institutions (.40) was statistically significant ( $p = .001$ ).

Table 1

## Descriptive Statistics and Mann-Whitney U Test

| <u>Variable</u>                         | <u>n</u>          | <u>Mean</u> | <u>SD</u> | <u>Median</u> | <u>U</u> | <u>Z</u> | <u>p</u> |
|---|-------------------|-------------|-----------|---------------|----------|----------|----------|
| <u>CPA Pass Rates</u>                   |                   |             |           |               |          |          |          |
| CCCU                                    | 57                | .4640       | .12389    | .47           |          |          |          |
| Non-CCCU                                | 1074 <sup>a</sup> | .4404       | .14778    | .44           | 27242.5  | -1.401   | 0.161    |
| AACSB                                   | 467               | .4913       | .12778    | .49           | 11952.0  | -1.258   | 0.208    |
| Non-AACSB                               | 607               | .4013       | .15029    | .40           | 12575.5  | -3.413   | 0.001*   |
| <u>SAT Scores for Reporting Schools</u> |                   |             |           |               |          |          |          |
| CCCU                                    | 57                | 1075.12     | 69.356    | 1070          |          |          |          |
| All Non-CCCU                            | 728 <sup>b</sup>  | 1078.41     | 118.604   | 1070          | 20360.0  | -0.235   | 0.814    |
| AACSB                                   | 369               | 1078.64     | 117.379   | 1100          | 8796.5   | -1.988   | 0.047*   |
| Non-AACSB                               | 359               | 1050.54     | 113.457   | 1033          | 8132.5   | -2.490   | 0.013*   |

<sup>a</sup> Of the 1,074 non-CCCU schools, 467 AACSB and 607 non-AACSB had published pass rates  
<sup>b</sup> 728 of the 1074 schools reported SAT scores: 369 AACSB and 359 non-AACSB  
\* Significant at 0.05 confidence level

To determine whether student aptitude previous to college enrollment influenced pass rate success, the median SAT scores for all of the 57 CCCU-member institutions were compared to the median SAT scores of the 728 non-CCCU-member schools that reported SAT scores. When the median SAT scores were compared, no statistically significant difference resulted between the medians of these two samples ( $p = .814$ ), as is demonstrated in Table 1. Next, the non-CCCU institutions were divided into AACSB-accredited institutions and non-AACSB-accredited institutions. When the AACSB-accredited sample (median=1100) was compared to the CCCU-member sample (median=1070), the AACSB-accredited sample was found to have

SAT scores statistically significantly higher than the CCCU-member sample ( $p=.047$ ). Additionally, the non-AACSB sample has SAT scores (median=1033) that are statistically significantly lower than the CCCU-member sample (median=1070). Since UCPAE pass rates and SAT scores are positioned in the same direction among testing groups, the data appears to indicate that the aptitude of a student, as measured by SAT scores, is an aspect that influences UCPAE pass rate success.

### **Discussion**

The outcome of this analysis supports previous studies that found that CCCU-member schools better educate their students in their respective majors than non-AACSB accredited institutions. In the studies performed by Schreiner (2003) and Schreiner and Kim (2011), results indicated that professors at CCCU-member schools have more academically rigorous senior level classes, encourage higher percentages of students to advance their credentials by furthering their education, and utilize active learning classroom teaching techniques more often than their non-CCCU counterparts. The UCPAE was used as an indicator of program quality and AoL in this study, and the results reinforce what was found in the prior studies investigated by Schreiner (2003) and Schreiner and Kim (2011). The results demonstrated that CCCU-member institutions achieve statistically significantly higher UCPAE pass rates than the pass rates of non-member, non-AACSB-accredited institutions, but there is no statistically significant difference between CCCU-member UCPAE pass rates and the pass rates of AACSB-accredited schools.

A possible explanation for these results is that the student input quality of CCCU-member schools could be similar to the input quality of AACSB-accredited schools and higher than the schools that are not accredited, explaining some of the pass rate similarities or differences. To test this possible explanation, SAT scores were used as a proxy for student



aptitude. The median SAT scores for the 57 CCCU-member institutions (SAT = 1070) were measured against the scores of the 728 non-member institutions (SAT = 1070), and no statistically significant difference was evident. However, the non-member institution group was divided, and the AACSB-accredited schools have a student aptitude level (SAT = 1100) higher than the level demonstrated by incoming students at CCCU-member schools (SAT = 1070), and CCCU-members have an advantage over non-AACSB-accredited schools (SAT = 1033). Both comparisons are statistically significant. The implication of these numbers is notable because they provide evidence that, even though AACSB-accredited schools have an advantage in their incoming student aptitude over the CCCU-member schools, as assessed by SAT scores, CCCU-member schools are able to overcome the difference by employing a teaching environment effective enough to achieve similar UCPAE pass rates.

There are several apparent factors contributing to this high level of success on the UCPAE, and these have been previously studied, though never quantitatively as in the present study. First, faculty at CCCU-member schools feel that they have a faith-based calling to do everything that they do to the best of their ability, including teaching students. As Schreiner and Kim (2011) point out in their study, the faculty spends more time associating with and mentoring students than faculty at secular institutions in order to fulfill the calling they have. Second, active learning as a technique is a tool utilized more often in CCCU-member schools compared to faculty at secular schools, as studied by Schreiner (2003). The method of active learning is a mix of lecturing and in-class work on problem solutions, either working in groups or alone (Hahn, Fairchild, & Dowis, 2013). Third, research is not the main emphasis at CCCU-member schools, but rather effectively teaching. For this reason, faculty spends more time engaging with students, both inside and outside the classroom (Schreiner, 2003). Lastly, in Sauerwein's (2013)

study, he found that accounting faculty at Christ-based schools emphasize high academic expectations and especially stress professionalism and ethics. These ideas of a faith-based calling compelling faculty, active learning being the primary tool in the classroom, faculty putting their effort in teaching and relationship over research production, and the emphasis being placed on professionalism and ethics all are reflected in higher achievement levels on the UCPAE.

### **Conclusion**

This study finds that CCCU-member graduates achieve statistically significantly higher pass rates on the UCPAE than do graduates of non-member, non-AACSB-accredited schools, and the pass rates are comparable to those of AACSB-accredited schools' graduates. Because of the fact that AACSB-accredited organizations have an advantage in level of incoming student aptitude, the results indicate that the CCCU-member institutions overcome the difference in input capability and rise to the same performance level as AACSB-accredited schools. This provides evidence that students at CCCU-member schools experience greater learning gains in comparison to their AACSB-accredited counterparts. If the UCPAE pass rate outcomes of high performing CCCU-member schools were made public, the notion that being AACSB-accredited gives an advantage to passing the UCPAE would be dispelled as relates to Christian education.

Additionally, performance expectations set by SAT scores were surpassed by CCCU-members as shown by pass rates on the UCPAE. The evidence of such a learning gain should be valuable to CCCU-member schools when discussing the value of an education at these particular member schools. Since this value was only based on the UCPAE, which is only relevant to an accounting major, CCCU schools would benefit from other studies which are conducted using nationally recognized tests in other majors. This would provide an opportunity to discover if the

performance advantage that is evident in the accounting departments is consistent with the performance in other educational disciplines.

The limitations in this study are caused by lack of supporting research, which can be remedied in the future as additional studies are done involving different factors such as more disciplines and more accreditation groups. For example, the only comparisons made were between CCCU-member schools and non-member schools. Studies done in the future might investigate the relationship of UCPAE pass rates at CCCU-member institutions to schools with other various accreditations as well as to for-profit institutions. Another item to consider is that by using SAT scores as a measure of student quality, the usage assumes that the distribution of SAT scores of UCPAE candidates is consistent with the SAT scores of the institution overall, which is not necessarily true. Also, since Peterson's updates the SAT scores throughout the year, some scores could have been reported from 2012 and 2013, though in the short run, the variability of scores at a college is not significant.

To compensate for these limitations, studies done in the future could collect SAT scores directly from accounting departments, or any particular educational discipline being studied, and look at performance over several years. A study in this manner will further illuminate the subject on the consistency of the learning growth among colleges and universities. Additionally, researching different teaching methods among all accreditation groups, and then examining the performance levels of the groups, would add insight into the subject.

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