

FACTORS INFLUENCING STUDENTS' ACADEMIC PERFORMANCE IN THE
FIRST ACCOUNTING COURSE: A COMPARATIVE STUDY BETWEEN PUBLIC
AND PRIVATE UNIVERSITIES IN PUERTO RICO

A Dissertation

Presented to the
Faculty of Argosy University/Sarasota

In partial fulfillment of
the requirement for the degree of

Doctor in Business Administration

by

Herminio Rodríguez Príncipe

November, 2005

Abstract

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The first comprehensive comparative study conducted in public and private universities in Puerto Rico investigated if there were many failures in the first accounting course. It also analyzed students' perceptions on internal and external classroom factors that might influence their academic performance in their first accounting course. A descriptive co-relational research design was used in this investigation. The population was the students in the first accounting course at public and private universities in Puerto Rico. The sample, 1721 subjects, included thirteen campuses from three different universities out of a total of 65 campuses in Puerto Rico. The campuses were not randomly selected. The researcher selected campuses representing different demographic areas in Puerto Rico. A Chi-Square analysis reflected that public universities had a higher

number of student failures compared to private universities. The grade distribution reports from private universities demonstrated that 40 to 50 percent of students did not complete or failed in the first accounting course. The findings of the study also demonstrated that students perceived that internal classroom factors positively influenced students' academic performance in the first accounting course in Puerto Rican public and private universities. However, the effect of combined external classroom factors was not statistically significant for Puerto Rican universities.

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Dedication

To my lovely parents, Herminio, and Guillermina,
my brothers, especially, Heriberto, and my sisters,
my gorgeous and dedicated wife Felicidad,
my daughters Yannira and Lymarie and my sons Hermie and Diego,
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CHAPTER ONE: THE PROBLEM

The Problem

The first accounting course is required in most Business Administration Bachelor Degree (BBA) programs. Most students take this course because it is a requirement to complete their degree, but the students do not feel comfortable taking this course. As a result of this situation, many universities are experiencing a high number of student failures and low academic performance in the first accounting course. Comments from accounting practitioners, employers, and academics led the researcher to question if a problem exists with this course.

Problem Background

Today, accountants have become increasingly concerned about the quality and quantity of entrants into the accounting profession (American Accounting Association (AAA), 1986; Big Six Accounting Firms [Perspective Paper], 1989; Accounting Education Change Commission (AECC), 1990). The AECC (1990) recommends a redirected focus for higher education, giving priority to teaching and curriculum and course development. The Commission is convinced that an increased emphasis on teaching and curriculum and course development is vital to the future of accounting education.

The need for change has arisen because accounting programs have not kept pace with the dynamic, complex, expanding, and constantly changing profession for which students are being educated. The need has been documented in "Future Accounting Education: Preparing for the Expanding Profession" (the Bedford Committee Report,

1986) and "Perspectives on Education: Capabilities for Success in the Accounting Profession" (Big Eight (now Six) Accounting Firms, 1989).

Albrecht and Stack, (1999) show three key drivers of change in the business environment (technology, globalization, and the concentration of market power in large pension and mutual funds). These key drivers have resulted in inexpensive information and increased compensation (which in turn have led to an increase pace of change in the business world), shorter product life cycles and shorter competitive advantages, and a requirement of better, quicker, and more decisive actions by management. As a consequence of these drivers, new companies and new industries emerged and new professional services appeared, outsourcing on non-value added, but necessary services. This business environment increased uncertainty and the explicit recognition of risk, increasingly complex business transactions. This business environment also provided for restructuring of rewards with elimination of or reduction in rewards for services replaced by technology, unchanged rewards for traditional, but needed services, and increased rewards for services that help leverage technology and globalization and that assist in making better strategic decisions. Finally, it provided for changes in financial reporting and relationships with financial market and major market players, and increased regulatory activity.

These environmental changes impacted education from a historical education model to new splintered model where supply, capacity and demand are no longer equal. As seen in Figure #1 in (Appendix I).

The AECC (1992) has identified the introductory accounting course as critical for accounting and other business majors. The problem of the first accounting course in

Puerto Rico as compared to United States is more or less the same, except for the language problem in Puerto Rico, which is considered a political issue. Since most of the population in Puerto Rico speaks Spanish and most of the texts for the business administration area come from the United States in English, the students in Puerto Rico have a dilemma to learn accounting. This is because the class is conducted in Spanish (the professor and students develop the class in Spanish), the text is in English and the exams are administered in English, Spanish or Spanglish (a combination of English and Spanish). This scenario makes the first accounting course more difficult for Puerto Rican students.

The accounting profession concerns about the quantity and quality of the new accountants, and the three key drivers of change in the business environment and its impact on the education model force the academics to investigate the reasons for the large number of failures in the first accounting course. Also, the academics are interested in studying the causes for the low academic performance in the first accounting course, the students' discomfort with it, and the factors influencing students' academic performance in the first accounting course.

Literature Review

Accounting was viewed as a social instrument; as a device that enabled humans to better comprehend and control the world of business. Seen in a larger context, along with time management and broader-skills in literacy and mathematics, accounting enabled business people to quantify, summarize, and interpret the abstract processes of business that could be evidenced by transactions and captured within the double-entry system (Previts & Merino, 1998).

There are three factors that form part of the business complexity in which our society is involved (Albrecht & Stack, 1999). First, the number of patents issued by the United States government has increased every year. Products and services covered by these patents will change the way people works and lives in the future. Second, these new industries and services have affected job tenure. In future years, a typical job will average five years or less. Americans are being “downsized,” “right-sized,” and cut from their jobs in record numbers. Third, the way people works and does business in the United States is changing. People have moved away from a manufacturing to a service and information-based society.

In addition to the above facts, consider the highly complex transactions in which many companies are involved. The profession had and still has a lot of difficulties dealing with the treatment of these transactions. The Enron and World Com cases are examples of the complexity involved in actual business scenarios.

The government’s opening of the communication market in 1996 provided an excellent competitive market in the communications industry, giving opportunities for entrepreneurs to start new business scenarios. Business complexity, technology and communications, and globalization forced all business areas, not only accounting, to change in accordance with this revolution in order to keep pace with new and rapidly emerging business strategies.

Many accounting programs have experienced declines in enrollments and questions are being raised regarding the quality of accounting graduates. While the number of freshmen enrolling in business schools has grown substantially, the proportion

of students planning to major in accounting has decreased (Ettredge & Nunamaker, 1993). The calls for change are based on evidence and pressure from different sectors.

The First Accounting Course

While there is a need to institute changes in all areas of the accounting curriculum, many, including the AECC, have recognized that the need for change is the most urgent in the first accounting course at the undergraduate level. The AECC's Position Statement No. Two expressed the importance of the entry-level accounting course thus: the first accounting course has even more significance for those considering a career in accounting and those open to the option of majoring in accounting (AECC 1992). The course shapes their perceptions of (1) the profession, (2) the aptitudes and skills needed for successful careers in accounting, and (3) the nature of career opportunities in accounting.

Paolillo and Estes (1982) found that accountants tended to make their career-choice decisions primarily during the first two years in college and that teacher influence was the factor that had the greatest impact on them. Those results make the content and teaching style of introductory accounting particularly significant for sophomore business students. Cohen and Hanno (1993) found that students' initial experiences with accounting were a primary determinant of whether or not they selected it as a major.

Student Failure in the First Accounting Course

This investigation analyzed factors that influence student academic performance in the first accounting course, based on this researcher's 16 years of experience teaching the undergraduate first accounting course at a private university in Puerto Rico. Student failure in the first accounting course, the first part of this study, fluctuated between 30

and 40 percent, and in some cases more than 40 percent, during the last ten or twelve years. Many other professors in private and public universities in Puerto Rico have experienced the same results.

Internal Classroom Factors

The second phase of the study is related to the internal classroom factors influencing students' academic performance in the first accounting course. Various researchers have completed studies in this area in the United States. Almer et al. (1998) examined the effect of various forms of one-minute papers on quiz scores in an undergraduate introductory accounting course with over 850 students. Overall results indicated that performance on subsequent essay quizzes were significantly higher by students who wrote one-minute papers than by those who did not.

Basile and D'Aquila (2002) surveyed 128 accounting students who were exposed to either computer-mediated instruction using course management software (WebCT) or to only traditional instructional methods. Survey results revealed no significant differences between the two groups in attitudes about the course. However, students who used the computer more frequently reported more positive attitudes about course delivery methods in general and about specific course management software applications.

Beets and Lobingier (2001) examined the comparative effectiveness of three pedagogical techniques (use of a chalkboard, use of an overhead projector, and use of computer-projected software). The results of the study provide no evidence of overall differences in student learning among the three methods.

Hill (1998) investigated the effect of large sections on accounting student performance and perceptions in the introductory courses using a research design which

controlled for instructor, mode of instruction, examination content and university setting. An ANCOVA model showed that students in large classes outperformed students in small classes when other explanatory variables were considered (attendance, GPA).

External Classroom Factors

The third phase of the study was related to external classroom factors influencing students' academic performance in the first accounting course. There is one study in this area that the researcher was motivated to consider in his study, because the external factors used by Wooten (1998) in his study are directly related with the actual students' problems in their daily student life (extracurricular, family, and working activities).

Wooten (1998) includes in his model several variables not examined in the accounting education literature to date, such as the effects of family activities, work activities, extracurricular activities and classroom environment, on performance in the first accounting course. The model begins with the ultimate goal of performance (learning). Two factors have a direct influence on student performance: (1) the student's aptitude and (2) the amount of effort the student puts forth in the course. Wooten (1998) indicates that the amount of effort put forth by a student depends on the student's (1) grade history, (2) motivation, (3) extracurricular activities, (4) work responsibilities and (5) family responsibilities.

As predicted by Wooten (1998), aptitude and effort were both significant variables in influencing performance of the traditional students. For the traditional students, grade history, motivation and family responsibilities all influenced the amount of effort the students put forth. However, neither extracurricular activities nor work responsibilities influenced the students' effort. Motivation was significantly influenced by

the students' self-expectations and their perceptions of the learning environment. Motivation was the only variable that significantly influenced effort.

Purpose of the Study

The purpose of this study was to investigate if it is a reality that there are many failures in the first accounting course and evaluate the student perception about some factors that may influence their academic performance in the first accounting course. These factors were grouped as internal or external classroom factors. Internal classroom factors consisted of class schedule, class size, English text book, business reality scenario, classroom environment, course material simplicity, homework, professor role in the class, exams, and technology. External classroom factors incorporated extracurricular, family, and work activities.

There have been many studies in the first accounting course for the last ten or fifteen years at universities in the United States, but not in Puerto Rico. Different studies considered one, two or maybe three factors or variables and the participation of one university. This study included ten internal classroom factors (independent variables) and three external classroom factors (independent variables) in three different universities (thirteen campuses) divided in eight private and five public (state) institutions. It is important to let the readers know a brief history about Puerto Rico and its education background to understand how the topic under study (factors influencing students' academic performance in the first accounting course) relate to Puerto Rican students.

Puerto Rico History and Its Education Background

Puerto Rico was a Spanish colony for approximately four hundred years until it was given up to the United States following the Spanish-American War (1898). Today, it

remains geographically and culturally part of Latin America even though it has close ties to the United States.

Although the United States Congress granted United States citizenship to Puerto Ricans in 1917, Puerto Rico remained a territorial possession. In 1952 Puerto Rico became a Commonwealth with its own constitution. Since 1952 Puerto Ricans have debated whether the island should remain a Commonwealth, attempt to become the 51st state of the United States, or become an independent nation.

For most of Puerto Rico's history, the economy was heavily dependent on outside markets and sharp fluctuations in demand and prices. In 1997-1998, 76 percent of Puerto Rico's labor force worked in services, 22 percent worked in industry, and two percent worked in agriculture (<http://encarta.msn.com>, 1993-2003 Microsoft Corporation).

Puerto Rico greatly improved its educational institutions throughout the 20th century. By 2003, 94.3 percent of the adult population was literate, compared with some 67 percent in 1940. Most of the schools in Puerto Rico are public and are modeled on the public schools in the continental United States. About 20 percent of schoolchildren attend private schools (<http://encarta.msn.com>, 1993-2003 Microsoft Corporation). Most of the children attend for 12 years (six years of elementary school, three of junior high, and three of senior high school).

The government has gradually spent more money on public elementary and secondary schools, but in 1995-1996 Puerto Rico spent only \$3,859 per pupil, compared to an average of \$6,146 per pupil in the mainland United States. In the late 1990s, the Commonwealth's public schools annually enrolled about 452,000 elementary pupils and

about 162,000 secondary students (<http://encarta.msn.com>, 1993-2003 Microsoft Corporation).

In 1998-1999 the Commonwealth had 51 private and 14 public institutions of higher education with a combined enrollment of 164,000 students (<http://encarta.msn.com>, 1993-2003 Microsoft Corporation). The island is divided into 78 municipalities. These 65 higher education institutions are distributed in 28 municipalities around the Island. The Puerto Rican education system is the same as in the United States, primary and secondary school, undergraduate and graduate. The Puerto Rico education system follows the same federal requirements for the fifty States. The undergraduate and graduate levels fall under the Middle State Accreditation jurisdiction and the federal Pell grant student aid program.

Even though most of the residents speak Spanish as their primary language, language has been a central issue in Puerto Rican education and culture since 1898. Until 1930, United States authorities insisted upon making English the language of instruction in the schools. They wanted students to speak English in order to expose them to the American culture. However, Puerto Ricans strongly resisted the effort to impose English as the primary language in schools. The policy was changed in 1948, when Spanish replaced English in the school system. English became a second language, although students were required to study English at every school level. In 1993 Puerto Rico declared both Spanish and English the island's official languages (<http://encarta.msn.com>, 1993-2003 Microsoft Corporation). Puerto Rico has a special scenario when it is related to the business administration higher education, especially accounting, where the

class in taught in Spanish, the text is written in English and the exams can be administered in English, Spanish or a combination of both languages (Spanglish).

Research Statement or Research Hypotheses

The researcher divided the study into three parts related to the student performance in the first accounting course. First, the number of student failures in the first accounting course, second, the internal classroom factors influencing students' academic performance in the first accounting course, and third, the external classroom factors influencing students' academic performance in the first accounting course.

The Number of Student Failures

First part of the study, the number of student failures in the first accounting course. The researcher formulated the research statement and hypothesis related to student failures in the first accounting course.

Research statement

It seemed that the high number of student failures in the first accounting course at universities in Puerto Rico was coming from private universities.

Null Hypothesis

There is no difference in the number of student failures in the first accounting course between private and public (state) universities.

Directional Hypothesis

H1: The number of student failures in the first accounting course from private universities was higher than those from public (state) universities.

Failure, for the purpose of this study, represented a student who dropped from the class or received a D or F in the first accounting course.

Internal Classroom Factors

The second part of the study was related to the internal classroom factors influencing students' academic performance in the first accounting course. Internal classroom factors were independent variables directly related to the students' academic performance during the 2003 fall academic semester, including class schedule, class size, English text book, business reality scenario, classroom environment, course material simplicity, homework, professor role in the classroom, exams, and technology. The researcher formulated research statements and hypotheses related to internal classroom factors influencing students' academic performance in the first accounting course.

Research statement

It seems that the internal classroom factors have a positive influence on students' academic performance in the first accounting course at universities in Puerto Rico.

Null Hypothesis

There is no difference in the students' performance in the first accounting course between the students who agreed that the internal classroom factors aided their learning in the first accounting course and the students who disagreed.

Primary Hypotheses:

H2: Students who agreed that the internal classroom factors aided their learning in the first accounting course will outperform students who disagreed.

H3: Students who agreed that accounting text, written in English, aided student's learning in the first accounting course will outperform students who disagreed.

H4: Students who agreed that technology was essential in the teaching-learning process in the first accounting course will outperform students who disagreed.

Sub-hypotheses:

H5: Students who agreed that the material covered in the course was very simple (easy to understand) in the first accounting course will outperform students who disagreed.

H6: Students who agreed that the small class size aided their learning in the first accounting course will outperform students who disagreed.

H7: Students who agreed that the classroom environment aided their learning in the first accounting course will outperform students who disagreed.

H8: Students who agreed that the role played by the professor in the teaching-learning process aided their learning in the first accounting course will outperform students who disagreed.

External classroom factors

The third part of the study was related to the external classroom factors influencing students' academic performance in the first accounting course. External classroom factors were independent variables indirectly related to the students' academic performance in the first accounting course during the 2003 fall academic semester, including extracurricular, family and work for pay activities. The researcher formulated research statements and hypotheses related to external classroom factors influencing students' academic performance in the first accounting course.

Research statement

It seems that the student who spends fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform the first accounting course students who spend more hours.

Null Hypothesis

There is no difference in the students' performance in the first accounting course between the students who spend more hours on external classroom factors (extracurricular, family and work for pay activities) than the students who spend fewer hours.

Primary Hypothesis

H9: Students who spend fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform first accounting course students who spend more hours.

Secondary Hypotheses

H10: Students who spend fewer hours on extracurricular activities will outperform first accounting course students who spend more hours.

H11: Students who spend fewer hours on family activities will outperform first accounting course students who spend more hours.

H12: Students who spend fewer hours on work for pay activities will outperform first accounting course students who spend more hours.

H13: Students who spend more hours studying for the first accounting course will outperform students who spend fewer hours.

Limitations/Delimitations

One of the most unconstructive limitations was the restrictions imposed by the Family Educational Rights and Privacy Act (FERPA) about the confidentiality of the students' records. Due to this restriction, most universities operating with federal funding did not provide any individual information about their students. In additions, the researcher did not have control over the participants (students) or the professor teaching

the first accounting course, who administered the questionnaire to the students. The researcher did not have control either over student drop outs before the end of the semester nor the student's absence when the questionnaire was administered. This limitation reduced the sample of the study. However, the researcher selected a sample size of 1,721 subjects (all students enrolled in the first accounting course) from thirteen campuses around the Island. A total of 760 students answered the questionnaire, which represented an excellent sample. The reduction of 961 subjects from the original sample did not affect or threaten the quality of the research or evaluation.

Definitions

Failure in the first accounting course: for the purpose of this study, this represented a student who dropped the class or received grade of D or F. Students approved the first accounting course with A, B or C.

Internal classroom factors: for the purpose of this study, these represented mean factors that had a direct relationship with the teaching-learning process in the classroom environment (professor, student, co-student, text, homework, class size, class schedule, technology, etc.).

External classroom factors: the for purpose of this study, these represented mean factors that had an indirect relationship with the teaching-learning process outside the classroom environment (extracurricular, family, and working activities).

Importance of the Study

This research provided the accounting profession with valuable information to reach a better understanding of how different factors influence students' academic performance in the first accounting course at universities in Puerto Rico. This study

added more statistical data to prior accounting research, which will be used to improve the content, format, quality and teaching-learning process of the first accounting course. Different accounting organizations and associations are interested in transforming the first accounting course into an effective mechanism that can be used by accounting professors to demonstrate the existence of excellent career opportunities (specifically, the accounting specialty) in today's complex and technological business scenario for students coming to universities.

CHAPTER TWO: REVIEW OF RELEVANT LITERATURE

The objective of this research was to assess how some internal and external classroom factors influence students' academic performance in the first accounting course and to compare the influence of these factors between public and private universities. Internal classroom factors consisted of business reality scenario, class schedule, class size, English text book, homework, classroom environment, course material complexity, professor role in the class, technology, and exams. External classroom factors consisted of extracurricular, family, and work activities. To accomplish this objective, the researcher administered a questionnaire to the students taking the first accounting course on thirteen campuses at three universities in Puerto Rico.

The researcher divided the study into three parts related to the students' performance in the first accounting course. First, the number of student failures in the first accounting course, second, the internal classroom factors influencing students' academic performance in the first accounting course, and third, the external classroom factors influencing students' academic performance in the first accounting course.

Before going to the three areas mentioned by the researcher, it is important to briefly discuss the history of the accounting profession. By the late seventeenth century, double-entry bookkeeping became popular in the education of young men and women. Accounting was viewed as a social instrument; as a device that enabled humans to better comprehend and control the world of business. Seen in a larger context, along with time management and broader-skills in literacy and mathematics, accounting enabled businesspeople to quantify, summarize, and interpret the abstract processes of business

that could be evidenced by transactions and captured within the double-entry system (Previts & Merino, 1998).

If this accounting view, which goes back more than three hundred years, is compared with today's view, there is not much difference. The major difference can be found in business complexity and the need for expanded skills along with two new factors: changes in technology and communications, and globalization. The AAA through the Accounting Education Change Commission [AECC] (1990) established and recommended a list of competencies necessary in the accounting education categorized as follows: (1) general knowledge with five competencies, (2) intellectual skills with five competencies, (3) interpersonal skills with two competencies, (4) communication skills with three competencies, (5) organizational and business knowledge with five competencies, (6) accounting knowledge with nine competencies, (7) accounting skills with one competency; and (8) personal capacities and attitudes with nine competencies, for a total of 39 competencies. Albrecht and Stack (1999) included a third factor, which they identified as drivers of change, the concentration of power in certain market investors, primarily large mutual and pension funds, which this researcher considered as one of the business complexities.

Today, accountants have become increasingly concerned with the quality and quantity of entrants into the accounting profession (AAA, 1986; Big Six Accounting Firms [Perspective Paper], 1989; AECC, 1990). To comprehend why the number of students choosing to major in accounting has decreased, as compared with other types of business majors, it is necessary to know the changes that have been taking place in business and how these changes have impacted business and accounting education.

There are three factors that form part of the business complexity in which our society is involved (Albrecht & Stack, 1999). First, the number of patents issued by the United States government has increased. The first patent under the current patent numbering system was issued in July 1836. Since that time, the number of patents issued has increased every year but with 1999 having the largest increase and being the highest at almost 600,000 patents. Products and services covered by these patents will change the way we work and live in the future, second, how these new industries and services have affected job tenure. The length of time employees' stay with the same firm has now decreased to where, in 1998, the median job tenure for workers 25 and older was 4.7 years. In future years, a typical job will average five years or less and employees will constantly be on the lookout for their "next" job. The promise or thought of "lifetime employment" is a myth that very few Americans will experience or even want to experience. Americans are being "downsized," "right-sized," and cut from their jobs in record numbers. For example, even though the period 1993-97 were years of high corporate profits and robust economy, over two and one-half million workers were "laid off" by companies in the United States; and third how the way we work and do business in the United States is changing. The United States has moved away from a manufacturing, to a service and information-based society.

In addition to the above facts consider the highly complex transactions that many companies are involved in (derivatives and hedges of foreign exchanges, commodity risks, stock compensation plans, and corporate taxes for multinational companies on transfer pricing or doing business overseas). The profession had and still has a lot of difficulties dealing with the treatment of these transactions. The Enron and World Com

cases are examples of the complexity involved in actual business scenarios. These forces of change influence the organizations and change the amount they pay for different kinds of services as seen in Figure # 2 (Appendix I).

These statistics demonstrate that salaries paid to graduates who work in public and private accounting firms are currently the lowest. This comparison indicates that other professions related to the accounting profession are being paid better. In other words, all of these professions were not categorized in the past thirty or forty years ago as a specialty, but were considered part of the accounting field. Business complexity and technology forced the creation of these and other specialties, such as strategic finance (management accountant), internal auditing, forensic accounting or auditing, etc. Facts suggest that all of these professionals should have some accounting knowledge to do the analysis of the accounting data in order to complete their tasks. Closely, all these professionals use, depend, work, need, and live with refined data produced by accounting professionals. All of the analysis these professionals perform today used to be part of the accounting profession's analysis process, which in today's business complexity has forced them to separate from the accounting profession. The complexity of the business scenario has been one of the key factors that have contributed to developing today's accounting profession's changing environment.

The government's opening of the communication market in 1996 provided an excellent competitive market in the communications industry, giving opportunities for entrepreneurs to start new business scenarios. The combination of communication, technology, advances with the personal computer, servers to facilitate and improve communication between personal computers and main frames, e-commerce, Internet, web

sites, cellular telephones, etc. has opened an international business. Business complexity, technology and communications, and globalization forced all business areas, not only accounting, to change in accordance with this revolution in order to keep pace with new and rapid business strategies.

Many accounting programs have experienced declines in enrollments and questions are being raised regarding the quality of accounting graduates. While the number of freshmen enrolling in business schools has grown substantially, the proportion of students planning to major in accounting has decreased (Ettredge & Nunamaker, 1993).

The above assertions have been discussed and commented on within the community of academic accountants, and have encouraged debate and transformation of the accounting educational curricula for the past eighteen years (Bedford, 1986; Big Six Accounting Firms, 1989; Accounting Education Change Commission (AECC), 1990, 1992; see also, cited in Ettredge and Nunamaker, (1993); Mueller and Simmons, 1989; Patten and Williams, 1990; Wallace, 1990; Elliott, 1991; Williams, 1991; Barefield, 1991).

With the exception of Inman et al. (1989), discussions of the current state of accounting education have provided little, if any, analysis of relevant empirical data (Ettredge & Nunamaker, 1993). This assertion in 1993 comes seven years after the start of the debate over the improvement of the accounting education curriculum and the crisis in the accounting practice. This debate lacked empirical research with all the elements necessary to provide the needed information to make the right decision. Today, after eighteen years, and with knowledge of Enron and World Com cases, the decline of the

stock market and pension fund plans, together with the September 11, 2001 event, the accounting profession is in a hurry to make such changes.

In the last eighteen years, there has been a growing demand for major changes in the design and delivery of accounting education. The calls for change are based on evidence and pressure from different sectors. Professional accountants expressed dissatisfaction with the state of accounting education (Perspectives..., 1989; Inman et al., 1989; Elliott, 1991) about the same time that regulators were exerting pressure to revamp the accounting curricula (Treadway Commission Report, 1987). Research by accounting academics also found that the accounting curriculum was not adequately serving the profession's needs (AAA, 1986) and urged the need to reemphasize teaching in accounting programs (AECC, 1990). The call to reconsider the importance of teaching is not limited to accounting, but extends to all fields of higher education (Boyer, 1990).

The First Accounting Course

While there is a need to institute changes in all areas of the accounting curriculum, many, including the AECC, have recognized that the need for change is the most urgent in the first accounting course at the undergraduate level. This course can either confirm or dispel the negative stereotypes of accounting with which the typical sophomore student often enters this course. In so doing, it can either help attract the best and brightest students to accounting (something in which accounting academics and professionals both have a stake) or it can turn them away. The AECC's Position Statement No. Two expressed the importance of the entry level accounting course. The first accounting course has even more significance for those considering a career in accounting and for those open to the option of majoring in accounting. The course shapes

their perceptions of (1) the profession, (2) the aptitudes and skills needed for successful careers in accounting, and (3) the nature of career opportunities in accounting. These perceptions affect whether the supply of talent will be sufficient for the profession to thrive. For those who decide to major in accounting or other aspects of business, the first accounting course is an important building block for success in future academic work (AECC, 1992).

The AECC (1992) has identified the introductory accounting course as critical for both accounting major and other business majors. Researchers and educators are challenged to improve both the quality of accounting education and the learning of accounting students (AECC, 1990, 1992).

Paolillo and Estes (1982) found that accountants tended to make their career-choice decisions primarily during the first two years in college and that teacher influence was the factor that had a greater impact on them than for other professional groups. Those results make the content and teaching style of introductory accounting for sophomore business students particularly significant. Cohen and Hanno (1993) found that students' initial experiences with accounting were a primary determinant of whether or not they selected it as a major. Students who did not choose accounting as a major indicated that they found the course content to be boring and the work to be too number-oriented. Interestingly, they found that non-accounting majors chose to stay away from accounting even though they recognized that the career opportunities in an accounting were greater than those in other business areas. This suggests that students were making an informed choice and felt that the type of work involved in accounting career was not worth the greater career opportunities it created.

The researcher presented this brief summary of the complexity of the accounting profession in a perilous environment for the last twenty years and the key role of the first accounting course for the business administration students in order to have a clear understanding about the significance of accounting in their future professional business careers. The first accounting course is very important to all who take it, whether they plan to become professional accountants or to use accounting information in non-accounting careers (AECC, 1992).

Student Failure in the First Accounting Course

This investigation studied factors that influence student academic performance in the first accounting course, based on this researcher's sixteen years of experience teaching undergraduate first accounting course at a private university in Puerto Rico. Student failure in the first accounting course, in the first part of this study, fluctuated between 30 and 40 percent during the last ten or twelve years. Many other professors in private and public universities in Puerto Rico experience the same results. Ward et al. (1994) found that students who failed their first accounting course attributed that failure to a lack of study, inability to apply the material covered, the speed of coverage of the material, and the instructor, among other possible factors. The researcher could not find other studies or investigations on the high number of student failures in the first accounting course. Failure, for the purpose of this study, represented a student who dropped the class or received D or F in the first accounting course.

The second and third parts of this study evaluated the internal and external factors, respectively, that influence the students' academic performance in the first

accounting course. There are many studies related to the students' academic performance in the first accounting course and the researcher cited some of them.

Internal Classroom Factors

The second phase of the study was related to the classroom internal factors influencing students' academic performance in the first accounting course. Internal classroom factors were variables directly related to the students' academic performance in the first accounting course during the 2003 fall academic semester, including the relation to business reality of the course content, class schedule, class size, English text for Spanish speaking students, homework relation to classroom material, classroom environment, course material complexity, professor's role in the classroom, technology, and exams.

The following studies considered some techniques in the classroom, which this researcher classified as classroom internal factors. Almer et al. (1998) examined the effect of various forms of one-minute papers on quiz scores in an undergraduate introductory accounting course with over 850 students. Students were required to write one-minute papers addressing the main point learned in class and the main unanswered question from class that day. Overall results indicated that performance on subsequent essay quizzes were significantly higher by students who wrote one-minute papers than by those who did not.

Basile and D'Aquila (2002) surveyed 128 accounting students who were exposed to either computer-mediated instruction using course management software (WebCT) or to only traditional instructional methods. The authors found that most students were comfortable with the computer and the internet and those in the computer-mediated

instructional setting reported fairly positive attitudes. Survey results revealed no significant differences between the two groups in attitudes about the course. However, students who used the computer more frequently reported more positive attitudes about course delivery methods in general and specific course management software applications. These findings have important implications regarding technology's impact on accounting education.

Beets and Lobingier (2001) examined the comparative effectiveness of three pedagogical techniques (use of a chalkboard, use of an overhead projector, and use of computer-projected software). The study involved students in three financial accounting principles classes at one university. The results of the study provide no evidence of overall differences in student learning among the three methods. Learning, however, was found to be related to students' preferences for pedagogical method--that is, exam grades were higher when students' preferred methods were used in the classroom.

Hill (1998) investigated the effect of large sections on accounting student performance and perceptions in the introductory courses using a research design which controlled for instructor, mode of instruction, examination content and university setting. An ANCOVA model showed that students in large classes outperformed students in small classes when other explanatory variables were considered (attendance, GPA). Furthermore, Chi-square analyses show class size appears to have no effect on the student's interest in accounting or overall perception of the professor's effectiveness. In spite of these results, the students reported that they felt the class size was too large for the subject material. In addition, the students in the large classes attended fewer class

sessions. This researcher considered class size as one of the variables of the study and compared the results with Hill's study.

Ingram (1998) commented that the primary objective for an introductory financial accounting course should be for students to be able to analyze and interpret accounting information. Whether educators teach debits and credits in the introductory course is far less of a concern than what they do teach in addition to debits and credits. Ingram's comment about teaching debits and credits in the first accounting course has been a topic of discussion in the last twenty years.

Jones and Fields (2001) conducted a study to empirically investigate the role of supplemental instruction (SI) as a means of enhancing students' performance in the first accounting course. SI is a proactive educational intervention program that targets traditionally high-risk courses and employs collaborative learning techniques emphasizing learning strategies and critical-thinking skills. ANCOVA-based results from 1,359 students in nine sessions of principles of accounting indicate that SI was effective at increasing academic performance; after controlling for self-selection bias, participation in both voluntary and mandatory SI sessions was found to be positively associated with the total points earned in the course. Additionally, a step pattern is observed in the increased performance for both the voluntary and mandatory attendance phases of the study, indicating that the level of SI attendance may play a role in the benefits obtained.

Marcheggiani et al. (1999) described a study in which a group-Socratic teaching method and an interactive lecture style were compared for their effect on students' examination performance in an introductory financial accounting course. The effect of teaching method on students' attitudes toward the accounting profession and the course

was also analyzed. An ANOVA design was used to test for differences between experimental and control groups of undergraduate students. The results provide no evidence that either method of instruction results in significantly higher scores on examinations; nor was there any statistically significant difference in attitudes toward the accounting profession or the course.

Mintz and Cherry (1993) investigated the importance of covering a variety of topics in the introductory accounting course and developing specific skills for both accounting and non-accounting majors. All topics except those related to the use of financial statement information were considered to be significantly more important for accounting majors. Intellectual skills were considered the most important skills to develop for all students, followed by communication skills and then technical skills. Technical skills were considered far more important for accounting majors. The faculties were not satisfied with either the preparation students receive in introductory accounting or their performance in intermediate accounting.

Accounting educators are being encouraged to make the first accounting course an exciting environment in which students appreciate the role of accounting in decision-making. Articles from the popular press are written in ways that captivate student attention and therefore provide an instructor with a rich source of classroom material. However, the effective use of that material is unlikely to occur if the article is merely distributed with a warning that the student "should come prepared." The question framework proposed in this paper provides a method of guiding class discussions so the student has a rich foundation for analyzing even the more complex issues covered in an article. The framework provides a vehicle to emphasize not only the accounting issues,

but also the business environment from which those issues emanate (Rankine & Stice, 1994).

Rosacker and Rosacker (1995) examined student performance in business core courses to assess the academic quality of accounting majors versus that of business administration majors. The findings furnish evidence that accounting students outperform their counterparts in business administration across a broad spectrum of business core courses.

External Classroom Factors

Geiger and Cooper (1995) used expectancy theory and needs theory variables to predict college student performance –that is, overall GPA. The average valence variable from the expectancy theory model was found to be the best overall predictor of actual academic performance. Although exhibiting low internal reliability measures, need for autonomy scores were also found to be highly significant. Need for achievement was unexpectedly not a significant predictor of actual performance for this student group.

Gist, Goedde, and Ward (1996) examined the influence of mathematical skills and several other factors on Black student performance in accounting classes. Their study represents a more comprehensive test of the relation between cognitive abilities and accounting course performance of minority students than is provided by prior research. The model considers variables relating to mathematical skills, college admission-test scores, college grade-point averages and gender.

Booker (1991) addressed performance in accounting coursework by minority students. Booker's work serves as a catalyst for additional research in the area. Booker considered only the effect of the American College Test (ACT) score on the performance

of Black accounting majors in first-semester intermediate accounting and the study was based on a sample of 40 students. Ward et al. (1993) extended Booker's study and found that a positive correlation exists between both composite and math ACT scores and Black student performance in accounting principles. Carpenter et al. (1993) suggest that minority students have a lower level of academic achievement in accounting than majority students partially due to lower performance expectations; and that performance expectations among minority males and minority females are different.

Hermanson, Hermanson, and Ivancevich (1995) discussed the potentially serious personnel issue facing the accounting profession in the 1990s. It is becoming more difficult to attract the "best and brightest" business students into the profession. This difficulty comes at a time when employers are demanding graduates with substantial accounting knowledge, as well as strong communication and analytical skills. These skills are needed as accounting firms face increased competition, more complex economic conditions, technological advances and increased litigation risk. New hires are the primary asset of accounting firms, and the future quality of this asset is in question.

Hermanson, Hermanson, and Ivancevich (1995) questioned how did this "best and brightest" problem arise? Garner and Dombrowski (1993) summarized the possible reasons as follows: (1) students are attracted to more immediate rewards and responsibilities in other fields, (2) litigation and personal liability have made the profession less attractive, (3) starting salaries in public accounting are too low, (4) other areas of business appear more exciting or important than financial accounting, (5) accounting still has a "bean counter" image, (6) students perceive the CPA firms to be sweat shops, with long, inflexible hours, (7) many students decide early to pursue fields

that require graduate study, and (8) the bookkeeping approach used in the first accounting course is not appealing to top students. While many factors (particularly the nature of accounting education) may influence students' career choices, reason #8 is related to the first accounting course, and could influence the student's academic performance in the first accounting course for the non-accounting business major students.

Lee (1999) examined (a) the generalizability of U.S. results to Hong Kong and (b) the effect of strength of high school accounting qualification, by incorporating different accounting strength variables in the U.S. model. Results show that students who had passed accounting in a public examination at the end of either the fifth or seventh forms all significantly outperformed students without high school accounting qualification in the first, but not the second, introductory accounting course. Despite differences in culture and educational system, determinants of student performance in university introductory accounting courses were found to be similar to those in the United States.

Rumberger (1990) examined a series of variables that reveal some of the mechanisms by which families influence students' decisions to drop out of school. Results from a study of 114 high school dropouts suggest that families exert an important influence on dropout behavior, just as they do on other measures of students' academic achievement.

CHAPTER THREE: METHODOLOGY

The objective of this chapter was to delineate the methodology that was utilized to reveal some statistical details about students' academic performance in the first accounting course at universities in Puerto Rico. The study focused on three different parts. First, to determine how many failures were reported in each section in the first accounting course by each campus under study; second, to have a better understanding of student perceptions about some internal classroom factor that can influence their academic performance in the first accounting course; and third, to have a better understanding of student perceptions about some external classroom factors that can influence their academic performance in the first accounting course.

Research Design

A descriptive co-relational research design was used in this investigation. First, this research studied the relationship between students' failure in first accounting course and some demographic independent variables (public or private university, section, major, public or private school, gender, English as a primary language, academic credit enrollment, age, class schedule, class size, and get hold of text) as measured by a questionnaire and the grade distribution report by section and campus. Second, this research considered some of the above demographic variables (class schedule, class size, and text) together with other factors as internal classroom factors (business reality scenario, classroom environment, course material simplicity, homework, professor role in the classroom, exams, and technology), and external classroom factors (extracurricular, family, and work activities) that could influence the students' academic performance in the first accounting course at universities in Puerto Rico. Specifically, this research

assessed the students' perception on how these independent variables (internal and external classroom factors) influenced their academic performance in the first accounting course. The descriptive method fit into this study, because the researcher searched for answers to some questions about the student perceptions on factors influencing the students' academic performance in the first accounting course. The questionnaire survey is one of the classical techniques to collect descriptive data.

Selection of Subjects

The population for this study was the students taking the first accounting course at universities in Puerto Rico. The sample included thirteen campuses from three different universities out of 65 campuses in Puerto Rico. All sections offered for the first accounting course at five campuses in the public (state) institutions, University of Puerto Rico (UPR); one campus in a private institution, Pontifical Catholic University of Puerto Rico (PUCPR); and seven campuses in another private institution, Inter American University of Puerto Rico (UIPR) were considered for the study. The researcher included campuses from five different regions in the whole Island as follows: North side (3), UPR Arecibo and UIPR Arecibo and Bayamón; South side (4), UPR Ponce, PUCPR Ponce and UIPR Guayama and Ponce; East side (2), UPR Humacao and UIPR Fajardo; West side (1), UIPR Aguadilla; and Central side (3), UPR Cayey and Utuado and UIPR Barranquitas. Participants were traditional and non-traditional students. All business majors were required to take this course. The students in the first accounting course at the time of the study in these thirteen campuses determined the size of the sample ($n = 1721$).

Instrumentation

The researcher created a questionnaire as the measuring instrument for this study (Appendix A). The instrument consisted of three parts as follows: first, a brief explanation of the purpose of the study, the importance of the students' participation and their contribution to improve the content, format, quality and teaching-learning process of the first accounting course, and that their responses will be held in the strictest confidence; second, questions related to demographic information about participant education background and personal data, the first accounting course and the external classroom factors; and third, 14 statements, reflecting a positive approach, related to the participants' perception about their degree of agreement or disagreement on internal and external classroom factors that aid their learning in the first accounting course during the 2003 fall semester. The questionnaire itself was anonymous. Survey participants for this study responded to each statement using a 4-point Likert scale with items ranging from (1) totally disagree, (2) disagree, (3) agree to (4) totally agree.

Pilot Study

Six experts evaluated the test instrument for validity. A pilot study was completed before administering the questionnaire to check for reliability. To assess the face validity of the survey instrument, a panel of experts: two doctors with dissertation review experience, one doctor and one professor with statistical experience, one doctor for English proof reading, and one professor for Spanish proof reading was chosen. The survey instrument was reviewed for completeness, format, accuracy, and validity. After careful review, the questionnaire was determined acceptable.

Reliability of the survey instrument was tested by administering the questionnaire to one or two sections of the first accounting course in one of the campuses chosen for the study. The researcher prepared a presentation letter (Appendix B) with instructions (Appendix C) and a draft of the questionnaire. The researcher administered the questionnaire personally in order to experience any reaction from the students participating in the pilot study and to receive good feedback on the instrument. The instrument was considered reliable after evaluating the pilot study results.

Limitations/Assumptions

One of the most unconstructive limitations was the restriction imposed by the FERPA act about the confidentiality of the students' records. Due to this restriction, most universities operating with federal funding did not provide any individual information about their students. The researcher did not have control of either the participants (students) or the professor teaching the first accounting course, who administered the questionnaire to the students. The researcher did not have control over students who dropped out before the end of the semester, nor the students who were absent the day the questionnaire was administered. This limitation reduced the sample of the study.

Procedures

The study included thirteen university campuses located around the island. This situation was almost impossible for the researcher to personally administer the questionnaire in each campus. The researcher used the following procedures:

1. The universities that participated in the data collection are the oldest academic institutions in Puerto Rico and two of the largest in the United States continent and its

- territories. Since Puerto Rico is under the federal jurisdiction for education purpose, the three institutions participating in the study must comply with the FERPA act.
2. The application to involve human subjects in research was submitted on May 8, 2003 and resubmitted on August 27, 2003 to the Institutional Review Board (IRB), Inter American University of Puerto, for their approval.
 3. On September 12, 2003 the IRB approved the study.
 4. In December, 2003 the application to involve human subjects in research together with the IRB approval by Inter American University was submitted to the IRB from Argosy University, Sarasota campus, where the document was also approved.
 5. The researcher prepared and mailed or hand delivered a letter in May, 2003 to each chancellor of the selected campuses asking for their authorization to participate in the study (Appendix D). All of them agreed to participate.
 6. An informed consent letter was requested from each participant student (Appendix E).
 7. The researcher coordinated with the professor of each section to obtain the informed consent letter signed by the student.
 8. The informed consent letters was distributed to each student at the moment the questionnaire was administered.

Data Collection Procedures

The researcher divided the data collection procedures into two stages.

Stage 1: The questionnaire (Appendix A).

1. The researcher translated the questionnaire from English to Spanish to facilitate student understanding of each question.

2. The questionnaire was administered to the students in each first accounting course section by campus, at the end of the 2003 fall semester in order to have a good response about the students' perception on internal and external classroom factors influencing students' academic performance.
3. The Chair of the Business Administration Department from each campus introduced the researcher to most of the professors in charge of the first accounting course.
4. The researcher prepared three manila envelopes for each section.
5. The researcher assigned a code for each campus and section under study.
6. Each envelope was identified, indicating the campus and section code.
7. The first envelope contained a set of documents for each student.
 - a. A copy of the presentation letter from the researcher.
 - b. An informed consent letter for the student.
 - c. A separate sheet with the procedures to be followed by the professor.
8. The second envelope contained a set of documents for each student:
 - a. A questionnaire copy (Appendix A).
 - b. A general purpose answer sheet (Appendix F).
 - c. The instructions to answer the questionnaire (Appendix C).
9. The third envelope was empty and each professor in charge of each first accounting course section used it to include the questionnaire and general purpose answer sheet used by the students.
10. The professor hand received the three envelopes for each section from the chair during the first or second week of November, 2003.

11. The professor gave a set of the documents from the first envelope to each student to obtain the student consent before ending the December, 2003 fall semester.
12. The professor collected the informed consent letter properly signed from the students.
13. The professor gave a set of the documents from the second envelope to each student to administer the questionnaire before ending the December, 2003 fall semester.
14. The professor administered the questionnaire in the classroom.
15. The professor delivered the three envelopes with all used and unused documents to the researcher through the Chair. The researcher hand received the envelopes from the Chair.

Stage 2: Grade Distribution Report

1. The researcher requested the grade distribution report by section from each campus under study in December, 2003.
2. Each private university provided the grade distribution report by section during January, 2004 after all grades were posted.

Data processing and analysis

During this study, demographic data, and internal and external classroom factors were identified as independent variables with students' academic performance as the dependent variable. The unit of analysis for this study was the section within the campus under study. To arrive at the scores for the internal and external classroom factors, the responses of the students will be summed and averaged to arrive at a section means. All data was processed using Statistical Package for the Social Sciences (SPSS) software.

The specifics of the study process involved respondents completing the questionnaire using a general purpose answer sheet that was totaled automatically. The

researcher reviewed each survey form upon completion by the students to ensure there were no missing items. The resulting data was entered into a database for processing using SPSS. Frequency distributions for the section and campus assigned, and the demographic independent variables (public or private high school, gender, English as primary language, academic credit enrollment, age, class schedule, class size, and get hold of text) were calculated. Descriptive statistics were used to describe the makeup of the respondent population. The responses of each student were summed to arrive at a total score per section under each campus.

CHAPTER FOUR: FINDINGS

Introduction

This chapter describes each research statement and the findings obtained through an analysis of the data. Data was collected following the procedures explained in chapter three. Chapter four starts with a restatement of the purpose of the study and the procedure followed by an analysis of the findings for each statement. The chapter concludes with a summary of the findings.

Restatement of the Purpose

The purpose of this study was to investigate if there are many failures in the first accounting course and to evaluate student perception of factors that may influence his/her academic performance in the first accounting course. These factors were grouped as internal or external classroom factors as follows: internal classroom factors: class schedule, class size, use of English text book, business reality scenario, classroom environment, simplicity of course material, homework, professor's role in the classroom, exams, and technology. External classroom factors: extracurricular, family, and work activities.

Restatement of the Procedure

A descriptive co-relational research design was used in this investigation. First, the researcher studied the relationship between students' failure in the first accounting course and some independent demographic variables as measured by a questionnaire and the grade distribution report by section and campus. Second, the researcher considered some of the demographic variables (class schedule, class size, and text) together with

other internal and external classroom factors that could influence students' academic performance in the first accounting course at universities in Puerto Rico.

The population for this study was students in the first accounting course at universities in Puerto Rico. The sample (n = 1721 students) included all sections offered for the first accounting course in thirteen campuses from three different universities out of 65 campuses in Puerto Rico. The campuses were not randomly selected; instead the researcher selected units representing different demographic areas in Puerto Rico.

The researcher created a questionnaire as the measuring instrument for this study (Appendix A). The instrument consisted of three parts as follows: first, the purpose of the study; second, questions related to demographic information, the first accounting course and the internal and external classroom factors; and third, 14 statements related to the participants' perception about his/her degree of agreement or disagreement if internal and external classroom factors aided student learning in the first accounting course during the 2003 fall semester. The questionnaire itself was anonymous and voluntarily. Survey participants for this study responded to each statement in part three of the questionnaire using a 4-point Likert scale with items ranging from (1) totally disagree, (2) disagree, (3) agree to (4) totally agree.

Pilot Study

Six experts evaluated the test instrument for its validity. After careful review, the questionnaire was determined valid. A pilot study was concluded before full administration to test its reliability. The instrument was deemed reliable after evaluating the pilot study results, with a Cronbach's alpha coefficient of .87.

Findings

The findings of this study were reported by each research statement and its matching survey statement. An alpha level of .05 was used for all statistical tests. The Statistical Package for Social Science (SPSS) software, version 12.0.1 for windows, was used to analyze all data. The results were demonstrated using narratives in chapter four and frequency tables in Appendix H. The researcher distributed the questions or statements in three different sections in the questionnaire as follows: First section, the researcher asked the subjects to identify their university/campus, major, high school origin, gender, primary language, academic load, age, course schedule, class size, text book acquisition, grade expectation and his/her grade at the moment the questionnaire was completed. A frequency analysis was done for these variables with its respective narrative. See Tables 1 to 10, 13, and 16, in Appendix H for a summary of results.

Second section, the researcher asked the subjects how much hours the respondents spent during a typical week doing extracurricular, family and work activities, and studying for the first accounting course? A frequency analysis was done for these variables with its respective narrative. See Tables 34, 39, 44, and 49 in Appendix H for a summary of results.

Third section, the researcher asked the subjects to indicate his/her degree of agreement or disagreement if internal and external classroom factors aided student learning in the first accounting course. A frequency analysis was done for these variables with its respective narrative. See Tables 11, 12, 14, 15, 17 to 33, 35 to 38, 40 to 43, and 45 to 48 in Appendix H for a summary of results.

In addition to the questionnaire data, the researcher made an effort to obtain the grade distribution report from each participating campus to compare the number of student failures in the first accounting course between private and public universities. However this step was not completed, because the researcher was unable to get all grade distribution reports from public universities. The comparison was made with the grade provided in question #10 at the moment the questionnaire was completed by each respondent. See Table 9 in Appendix H for a summary of results.

Variable Perception

This chapter includes the statistical analysis and the results of the data collected for each research statement examined in the following order. First, the sample, with valid and missing cases, and demographic data. Second, the results for the first part of the study; the number of student failures in the first accounting course in Puerto Rican universities. Third, the results for the second part of the study; the internal classroom factors influencing students' academic performance in the first accounting course. Fourth, the results for the third part of the study; the external classroom factors influencing students' academic performance in the first accounting course. Fifth, findings supporting or rejecting research hypotheses. Sixth, the chapter concludes with a summary of findings.

First: Sample, Valid and Missing Cases, and Demographic Data.

Narratives for table 1: Sample, participants, and valid and missing cases by campus.

Table 1 in Appendix H shows the sample of 1,721 participants selected (all students enrolled in the first accounting course in thirteen participating campuses) to

answer the questionnaire. A total of 760 students responded, representing a response rate of 44%. Out of the initial 1,721 sample, 961 (56%) students did not respond, which represents withdrawal from the course, absences at the moment the questionnaire was administered or students who chose not to answer the questionnaire. Only one campus from public universities did not participate due to the class schedule time limitation. Table 1 in Appendix H demonstrates more details about the respondents and the percentage for each campus selected between public and private universities in Puerto Rico. Table 1 also shows 87% of valid cases, 13% of missing cases, and more details about valid and missing cases by campus.

Narrative for table 2: Major and the first accounting course grade.

Even though the researcher identified ten different majors in the questionnaire, and the subjects responded appropriately, the researcher decided to merge all other than accounting majors in one category and left the accounting major by itself to emphasize the appropriateness of the major variable analysis, which is accounting. Table 2 in Appendix H shows 63% (419) of respondents from Puerto Rican universities came from other than accounting majors as compared to 37% (241) from accounting major. Of respondents with accounting major, 5% (11 out of 241) failed in the first accounting course as compared to 12% (52 out of 419) from other than accounting majors.

Respondents from public universities showed 45% with a major in accounting as compared to 28% from private universities. One of each five, 21% (10 out of 47), respondents from public universities who failed in the first accounting course came from accounting majors as compared to one of each sixteen, 6% (1 out of 16), from private universities.

Of the respondents from public universities with majors in accounting, 7% (10 out of 148) failed in the first accounting course as compared to 21% (37 out of 178) for other than accounting majors. Of the respondents from private universities with major in accounting, 1% failed in the first accounting course as compared to 6% for other than accounting majors. With an alpha level of .05, the effect of major and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 24.32, p < .01$, public universities, $X^2(3, 326) = 25.00, p < .01$, and private universities, $X^2(3, 334) = 11.90, p < .01$.

Narrative for table 3: Graduates from high school and the first accounting course grade.

Table 3 in Appendix H shows 79% (520 out of 660) of respondents from Puerto Rican universities came from public high schools as compared to 21% (140 out of 660) who came from private high schools. Of respondents who came from public high schools, 92% passed the first accounting course as compared to 86% who came from private high schools.

The public and private universities share the same number of respondents coming from public high schools. However, private universities received 22% (74 out of 334) of students from private schools as compared to 20% (66 out of 326) for public universities.

An interesting result was observed in public universities when students coming from private high schools showed 26% of failures as compared to 12% from public high schools, more than double. The percentages of failures in private universities were the opposite; 4% of students coming from private high schools were lower than 5% from public high schools.

With an alpha level of .05, the effect of high school graduates and the first accounting course grade was statistically significant for public universities, $X^2(3, 326) = 9.05$, $p < .05$. However, it was neither statistically significant for Puerto Rican universities, $X^2(3, 660) = 4.91$, $p = .18$ nor for private universities, $X^2(3, 334) = .21$, $p = .98$.

Narrative for table 4: Gender and the first accounting course grade.

Table 4 in Appendix H shows 60% (399 out of 660) of respondents from Puerto Rican universities was female and 40% (261 out of 660) male. Of female respondents, 7% (30) failed the first accounting course as compared to 13% (33) of male respondents. Female is the predominant gender in public and private universities. The 20% of male failure at public universities was almost double the 11% female. A 2% failure difference was observed in private universities where the male was 6% and the female was 4%.

With an alpha level of .05, the effect of gender and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 8.28$, $p < .05$ and public universities, $X^2(3, 326) = 17.80$, $p < .01$. However, it was not statistically significant for private universities, $X^2(3, 334) = 1.34$, $p = .72$.

Narrative for table 5: English as a primary language and the first accounting course grade.

Table 5 in Appendix H shows 96% (632 out of 660) of respondents from Puerto Rican universities did not have English as his/her primary language as compared to 4% (28 out of 660) who did. Of respondents who did not have English as his/her primary language, 90% (572 out of 632) passed the first accounting course as compared to 89% (25 out of 28) who did.

Of respondents from public and private universities, 97% and 94 % respectively, did not have English as his/her primary language. However, of respondents from public universities who had English as his/her primary language, 22% showed a higher failure rate than 14% who did not. Private universities showed the same failure rate of 5% for respondents who had and did not have English as his/her primary language. With an alpha level of .05, the effect of English as a primary language and the first accounting course grade was neither statistically significant for Puerto Rican universities, $X^2(3, 660) = 1.49, p = .69$, nor for public universities, $X^2(3, 326) = 1.60, p = .66$, nor for private universities, $X^2(3, 334) = .34, p = .95$.

Narrative for table 6: Academic credit load and the first accounting course grade.

Table 6 in Appendix H shows 95% (624 out of 660) of respondents from Puerto Rican universities were full time students as compared to 5% (36 out of 660) who were part-time. Of full time respondents, 10% showed a higher failure rate compared to 8% for part time.

Respondents from public universities showed 1% (3 out of 326) for part time students as compared to 10% (33 out of 334) from private universities. Respondents from public universities who were part time showed zero failure. However, of respondents from private universities who were part time, 9% demonstrated a higher failure rate as compared to 4% of full time, more than double.

With an alpha level of .05, the effect of academic credit load and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 8.53, p < .05$. However, it was neither statistically significant for public

universities, $X^2(3, 326) = 2.43, p = .49$ nor for private universities, $X^2(3, 334) = 6.92, p = .07$.

Narrative for table 7: Age and the first accounting course grade.

Table 7 in Appendix H shows 89% (588 out of 660) of respondents from Puerto Rican universities fell within the 17-24 age range as compared to 11% (72 out of 660) 25 or older. Of those younger than 25, 10% showed the same failure rate as compared to those over 24.

Respondents from public universities showed 98% of students younger than 25 as compared to 80% of private universities. Respondents from public universities showed failure rates of 14% for younger than 25 and 20% for those over 24. Respondents from private universities showed failure rates of 4% for younger than 25 and 9% for those over 24. With an alpha level of .05, the effect of age and the first accounting course grade was neither statistically significant for Puerto Rican universities, $X^2(3, 660) = 4.71, p = .19$, nor for public universities, $X^2(3, 326) = .35, p = .95$, nor for private universities, $X^2(3, 334) = 5.06, p = .17$.

Second: The Results for the First Part of the Study, the Number of Student Failures in the First Accounting Course in Puerto Rican Universities

Narrative for table 8: Grade expectation in the first accounting course and the first accounting course grade.

Table 8 in Appendix H shows 89% (550 out of 621) of respondents from Puerto Rican universities had a good expectation about his/her grade (A or B) in the first accounting course. At the moment the questionnaire was completed, 67% (418 out of 621) of the respondents had A or B in the first accounting course as compared to 89% of

respondents' grade expectation, representing a reduction of 22%. At the moment the questionnaire was completed, 9% (55 out of 621) of the respondents had failed in the first accounting course as compared to 1% (8 out of 621) of respondents' grade expectation, representing an increased of 8%.

Respondents from public and private universities showed 1% of failure as grade expectation (four out of 302 and four out of 319 respectively). At the moment the questionnaire was completed, public universities demonstrated a failure rate of 13% (40 out of 302) and private universities 5% (15 out of 319). With an Alpha level of .05, the effect of grade expectation and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(9, 621) = 106.67, p < .01$, public universities, $X^2(9, 302) = 53.83, p < .01$, and private universities, $X^2(9, 319) = 71.83, p < .01$.

Narrative for table 9: Universities and the first accounting course grade.

Table 9 in Appendix H shows the valid cases the researcher considered for all analyses in this study that were distributed between public and private universities, 49% (326) and 51% (334) respectively. Of respondents from Puerto Rican universities, 10% (63 out of 660) failed in the first accounting course. Of respondents from public universities, 14% failed in the first accounting course as compared to 5% from private universities, almost triple. With an alpha level of .05, the effect of universities and first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 33.13, p < .01$.

*Third: The Results for the Second Part of the Study, Internal Classroom Factors
Influencing Students' Academic Performance in the First Accounting Course.*

Narrative for table 10: Course schedule and the first accounting course grade.

Table 10 in Appendix H shows 60% (398 out of 660) of respondents from Puerto Rican universities was enrolled in the morning (7:00-11:55 a.m.) section. The evening (5:00-11:00 p.m.) section with 14% (90 out of 660) was the smallest group enrolled in the first accounting course. Of the morning section, 7% (29 out of 398) showed the lowest failure rate in the first accounting course as compared to 13% for each of the noon and evening sections.

Respondents from private universities showed 64% (184 out of 326) of enrollment for the morning section as compared to 57% (214 out of 334) from public universities. However, the opposite was observed for the noon section where respondents from public universities showed 37% (121 out of 326) of enrollment as compared to 15% (51 out of 334) from private universities, more than double. An interesting result was observed in the evening section where private universities showed 21% (69 out of 334) enrollment as compared to 6% (21 out of 326) from public universities, more than triple.

Respondents from private universities in the evening sections showed 10% failure as compared to 4% and 0% failure in the morning and noon sections, respectively. Respondents from public universities showed 11%, 18%, and 24% failure for morning, noon, and evening sections respectively.

With an alpha level of .05, the effect of course schedule and the first accounting course grade was statistically significant for public universities, $X^2(6, 326) = 15.03, p <$

.05. However, it was neither statistically significant for Puerto Rican universities, $X^2(6, 660) = 9.83$, $p = .13$ nor for private universities, $X^2(6, 334) = 10.87$, $p = .09$.

Narrative for table 11: Degree of agreement or disagreement if course schedule aided student learning in the first accounting course, and the first accounting course grade.

Table 11 in Appendix H shows 83% (545 out of 660) of respondents from Puerto Rican universities agreed that course schedule aided student learning in the first accounting course as compared to 17% (115 out of 660) that disagreed. Of respondents that agreed, 93% (505) showed a higher achievement rate in the first accounting course than 80% (92) that disagreed.

Table 11 also shows 76% (247 out of 326) of respondents from public universities agreed that the course schedule aided student learning in the first accounting course as compared to 24% (79 out of 326) that disagreed. Of respondents that agreed, 88% (217) showed a higher achievement rate in the first accounting course than 78% (62) that disagreed.

Table 11 also shows 89% (298 out of 334) of respondents from private universities agreed that the course schedule aided student learning in the first accounting course as compared to 11% (36 out of 334) that disagreed. Of respondents that agreed, 97% (288) showed a higher achievement rate in the first accounting course than 83% (30) those that disagreed. With an alpha level of .05, the effect of degree of agreement or disagreement if course schedule aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican

universities, $X^2(3, 660) = 29.00, p < .01$, public universities, $X^2(3, 326) = 13.33, p < .01$, and private universities, $X^2(3, 334) = 13.39, p < .01$.

Narrative for table 12: Course schedule, student perception if course schedule aided student learning in the first accounting course, and the first accounting course grade.

Table 12 in Appendix H included the course schedule variable (Table 10 in Appendix H) together with student perception that course schedule aided student learning in the first accounting course, and first accounting course grade. Table 12 shows 60% (398 out of 660) of respondents from Puerto Rican universities were enrolled in the morning section as compared to 26% (172 out of 660) in the noon section, and 14% (90 out of 660) in the evening section. Of respondents who enrolled in the morning section, 88% (350) agreed that course schedule aided student learning in the first accounting course as compared to 12% (48) that disagreed. Of respondents who enrolled in the noon section, 73% (126) agreed that course schedule aided student learning in the first accounting course as compared to 27% (46) that disagreed. Of respondents who enrolled in the evening section, 77% (69) agreed that course schedule aided student learning in the first accounting course as compared to 23% (21) that disagreed.

Of respondents from Puerto Rican universities in the morning sections who agreed that course schedule aided student learning in the first accounting course, 93% (327 out of 350) showed a higher achievement rate in the first accounting course than 87% (42 out of 48) that disagreed. Of respondents from Puerto Rican universities in the noon sections who agreed that course schedule aided student learning in the first accounting course, 90% (114 out of 126) showed a higher achievement rate in the first

accounting course than 78% (36 out of 46) that disagreed. Of respondents from Puerto Rican universities in the evening sections who agreed that course schedule aided student learning in the first accounting course, 93% (64 out of 69) showed a higher achievement rate in the first accounting course than 67 % (14 out of 21) that disagreed.

With an alpha level of .05, the effect of course schedule, student perception if course schedule aided student learning in the first accounting course, and the first accounting course grade was statistically significant for noon sections, $X^2(3, 172) = 13.93, p < .01$ and evening sections, $X^2(3, 90) = 14.69, p < .01$. However, it was not statistically significant, for morning sections, $X^2(3, 398) = 2.61, p = .46$.

Narrative for table 13: Class size and the first accounting course grade.

Table 13 in Appendix H shows 70% (464 out of 660) of respondents from Puerto Rican universities fell in a class size of 25 or less as compared to 30% (196 out of 660) that were in a class size of 26 or more. Of respondents from class size of 25 or less, 88% (409 out of 464) showed a lower achievement rate in the first accounting course than 96% (188 out of 196) with class size of 26 or more.

Of respondents from public universities, 85% (277 out of 326) fell into a class size of 25 or less as compared to 56% (187 out of 334) from private universities. Respondents from public universities did not have class sizes of more than 35, while private universities reflected 23% class size over 35. Respondents from public universities had a failure rate (16%) for class size of 25 or less was more than three times higher than the 5% from private universities.

With an alpha level of .05, the effect of class size and the first accounting course grade was statistically significant, for Puerto Rican universities, $X^2(3, 660) = 15.94, p <$

.01 and public universities, $X^2(3, 326) = 12.97, p < .01$. However, it was not statistically significant for private universities, $X^2(3, 334) = .69, p = .88$.

Narrative for table 14: Degree of agreement or disagreement if class size aided student learning in the first accounting course, and the first accounting course grade.

Table 14 in Appendix H shows 79% (522 out of 660) of respondents from Puerto Rican universities agreed that class size aided student learning in the first accounting course as compared to 21% (138 out of 660) that disagreed. Of respondents that agreed, 93% (487 out of 522) showed a higher achievement rate in the first accounting course than 80% (110 out of 138) that disagreed.

Table 14 also shows 78% (253 out of 326) of respondents from public universities agreed that class size aided student learning in the first accounting course as compared to 22% (73 out of 326) that disagreed. Of respondents that agreed, 90% (227 out of 253) showed a higher achievement rate in the first accounting course than 71% (52 out of 73) that disagreed.

Table 14 also shows 81% (269 out of 334) of respondents from private universities agreed that class size aided student learning in the first accounting course as compared to 19% (65 out of 334) that disagreed. Of respondents that agreed, 97% (260 out of 269) showed a higher achievement rate in the first accounting course than 89% (58 out of 65) that disagreed.

With an alpha level of .05, the effect of degree of agreement or disagreement if class size aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) =$

23.81, $p < .01$ and public universities $X^2(3, 326) = 16.16$, $p < .01$. However, it was not statistically significant for private universities, $X^2(3, 334) = 7.35$, $p = .06$.

Narrative for table 15: Class size, student perception if class size aided student learning in the first accounting course, and the first accounting course grade.

Table 15 in Appendix H included the class size variable (Table 13 in Appendix H) together with student perception if class size aided student learning in the first accounting course, and the first accounting course grade. Table 15 shows 70% (464 out of 660) of respondents from Puerto Rican universities was enrolled in classes with 25 or less students as compared to 30% (196 out of 660) that was enrolled in classes with 26 or more students. Of respondents who enrolled in classes with 25 or less students, 81% (378 out of 464) agreed that class size aided student learning in the first accounting course as compared to 19% (86 out of 464) that disagreed. Of respondents who enrolled in classes with 26 or more students, 73% (144 out of 196) agreed that class size aided student learning in the first accounting course as compared to 27% (52 out of 196) that disagreed.

Of respondents from Puerto Rican universities in classes with 25 or less who agreed that class size aided student learning in the first accounting course, 92% (347 out of 378) showed a higher achievement rate in the first accounting course than 72% (62 out of 86) that disagreed. Of respondents from Puerto Rican universities in classes with 26 or more students who agreed that class size aided student learning in the first accounting course, 97% (140 out of 144) showed a higher achievement rate in the first accounting course than 92% (48 out of 52) that disagreed.

With an alpha level of .05, the effect of class size, student perception if class size aided student learning in the first accounting course, and the first accounting course grade

in Puerto Rican universities was statistically significant for a class size of 25 or less, $X^2(3, 464) = 26.66, p < .01$. However, it was not statistically significant for a class size of 26 or more, $X^2(3, 196) = 6.77, p = .08$.

Narrative for table 16: Text book, written in English, acquisition and the first accounting course grade.

Table 16 in Appendix H shows 87% (574 out of 659) of respondents from Puerto Rican universities acquired the text written in English. There was a difference of 2% on the failure rate between the students, who acquired the text, 9%, and the students who did not, 11%.

Respondents from public universities who acquired the text showed a higher failure rate of 15% than 12% that did not. The study reflected the opposite for private universities, where respondents who acquired the text showed a lower failure rate of 3% than 10% that did not.

With an alpha level of .05, the effect of textbook, written in English, acquisition and the first accounting course grade was statistically significant for private universities, $X^2(3, 334) = 10.20, p < .05$. However, it was neither statistically significant for Puerto Rican universities, $X^2(3, 659) = 5.98, p = .11$ nor for public universities, $X^2(3, 325) = 4.37, p = .22$.

Narrative for table 17: Degree of agreement or disagreement if text book, written in English, aided student learning in the first accounting course, and the first accounting course grade.

Table 17 in Appendix H shows 45% (300 out of 658) of respondents from Puerto Rican universities agreed that the accounting text, written in English, aided student

learning in the first accounting course as compared to 55% (358 out of 658) that disagreed. In this case, more than half of the respondents disagreed that the accounting textbook, written in English, aided student learning in the first accounting course.

However, of respondents who agreed that the accounting text, written in English, aided student learning in the first accounting course, 97% (290 out of 300) showed a higher achievement rate in the first accounting course than 85% (305 out of 358) that disagreed.

Table 17 also shows 44% (142 out of 326) of respondents from public universities agreed that the text, written in English, aided student learning in the first accounting course as compared to 56 % (184 out of 326) that disagreed. Of respondents who agreed that the accounting text, written in English, aided student learning in the first accounting course, 94% (134 out of 142) showed a higher achievement rate in the first accounting course than 79% (145 out of 184) that disagreed.

Table 17 also shows that 48% (158 out of 332) of the respondents from private universities agreed that the textbook, written in English, aided student learning in the first accounting course as compared to 52% (174 out of 332) that disagreed. Of respondents who agreed that the accounting text, written in English, aided student learning in the first accounting course, 99% (156 out of 158) showed a higher achievement rate in the first accounting course than 92% (160 out of 174) that disagreed. With an alpha level of .05, the effect of the degree of agreement or disagreement if text book, written in English, aided student learning in the first accounting course and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 658) = 38.83, p < .01$, public universities, $X^2(3, 326) = 23.35, p < .01$, and private universities, $X^2(3, 332) = 16.33, p < .01$.

Narrative for table 18: Textbook acquisition, student perception if textbook, written in English, aided student learning in the first accounting course, and the first accounting course grade.

Table 18 in Appendix H included the text acquisition variable (Table 16 in Appendix H) together with student perception if the textbook, written in English, aided student learning in the first accounting course, and the first accounting course grade. Table 18 shows 87% (573 out of 657) of respondents from Puerto Rican universities acquired the text, written in English, as compared to 13% (84 out of 657) who did not.

Table 18 shows that 300 respondents from Puerto Rican universities agreed that the accounting text, written in English, aided student learning in the first accounting course as compared to 357 that disagreed. Of respondents who agreed, 97% (290 out of 300) showed a higher achievement rate in the first accounting course than 85% (304 out of 357) that disagreed.

Table 18 also shows that of respondents from Puerto Rican universities who acquired the text who agreed that text, written in English, aided student learning in the first accounting course, 96% (264 out of 274) showed a higher achievement rate in the first accounting course than 85% (255 out of 299) that disagreed. Of respondents from Puerto Rican universities who did not acquire the text who agreed that text, written in English, aided student learning in the first accounting course, 100% (26 out of 26) showed a higher achievement rate in the first accounting course than 84% (49 out of 58) that disagreed.

Table 18 also shows that 142 respondents from public universities agreed that the accounting text, written in English, aided student learning in the first accounting course

as compared to 183 that disagreed. Of respondents who agreed, 94% (134 out of 142) showed a higher achievement rate in the first accounting course than 79% (144 out of 183) that disagreed.

Table 18 also shows that of respondents from public universities who acquired the text who agreed that text, written in English, aided student learning in the first accounting course, 94% (130 out of 138) showed a higher achievement rate in the first accounting course than 78% (133 out of 170) that disagreed. Of respondents from public universities who did not acquire the text who agreed that the text, written in English, aided student learning in the first accounting course, 100% (four out of four) showed a higher achievement rate in the first accounting course than 85% (11 out of 13) that disagreed.

Table 18 also shows that 158 respondents from private universities agreed that the accounting text, written in English, aided student learning in the first accounting course as compared to 174 that disagreed. Of respondents who agreed, 99% (156 out of 158) showed a higher achievement rate in the first accounting course than 92% (160 out of 174) that disagreed.

Table 18 also shows that of respondents from private universities who acquired the text who agreed that text, written in English, aided student learning in the first accounting course, 99% (134 out of 136) showed a higher achievement rate in the first accounting course than 95% (122 out of 129) that disagreed. Of respondents from private universities who did not acquire the text who agreed that text, written in English, aided student learning in the first accounting course, 100% (22 out of 22) showed a higher achievement rate in the first accounting course than 84% (38 out of 45) that disagreed.

With an alpha level of .05, the effect of textbook acquisition, student perception if textbook, written in English, aided student learning in the first accounting course, and the first accounting course grade for respondents who acquired the text was statistically significant for Puerto Rican, public and private universities, $X^2(3, 573) = 36.14, p < .01$, $X^2(3, 308) = 23.61, p < .01$, and $X^2(3, 265) = 11.49, p < .01$, respectively. However, it was not statistically significant for respondents who did not acquire it for Puerto Rican, public or private universities, $X^2(3, 84) = 4.54, p = .21$, $X^2(3, 17) = 1.65, p = .65$, or $X^2(3, 67) = 4.16, p = .25$, respectively.

Narrative for table 19: Combined internal classroom factors average means.

First, the 4-point Likert scale, with items ranging from (1) totally disagree, (2) disagree, (3) agree to (4) totally agree, was converted to a 2-point scale, (1) totally disagree and disagree and (2) totally agree and agree, to obtain the minimum number of items required in each cell by the Chi Square Cross tab analysis for better results. Based on this new 2-point scale, a t-test was applied to determine the combined internal classroom factors average mean, which resulted in 1.78, with 1.74 and 1.81 for Puerto Rican, public, and private universities respectively.

Table 19 in Appendix H shows t-test results for the combined internal classroom factors average means, which reflected 1.78, with 1.74, and 1.81 for Puerto Rican, public and private universities respectively related to the degree of agreement or disagreement with the ten internal classroom factors considered in the study. Respondents from Puerto Rican, public, and private universities reflected the same tendency to agree (more than 1.50 in the combined 2-point scale) that combined internal classroom factors aided student learning in the first accounting course.

Narrative for table 20: Universities, degree of agreement or disagreement if combined internal classroom factors aided student learning in the first accounting course, and the first accounting course grade.

Table 20 in Appendix H shows 92% (608 out of 660) of respondents from Puerto Rican universities agreed that combined internal classroom factors aided student learning in the first accounting course as compared to 8% (52 out of 660) that disagreed. Of respondents who agreed, 93% (564 out of 608) showed a higher achievement rate in the first accounting course than 63% (33 out of 52) that disagreed.

Table 20 also shows 90% (294 out of 326) of respondents from public universities agreed that combined internal classroom factors aided student learning in the first accounting course as compared to 10% (32 out of 326) that disagreed. Of respondents who agreed, 89% (262 out of 294) showed a higher achievement rate in the first accounting course than 53% (17 out of 32) that disagreed.

Table 20 also shows 94% (314 out of 334) of respondents from private universities agreed that combined internal classroom factors aided student learning in the first accounting course as compared to 6% (20 out of 334) that disagreed. Of respondents who agreed, 96% (302 out of 314) showed a higher achievement rate in the first accounting course than 80% (16 out of 20) that disagreed. With an alpha level of .05, the effect of universities, degree of agreement or disagreement if the combined internal classroom factors aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 54.01, p < .01$, public universities, $X^2(3, 326) = 32.57, p < .01$, and private universities, $X^2(3, 334) = 15.47, p < .01$.

Narrative for table 21: Degree of agreement or disagreement if accounting concepts related with real facts aided student learning in the first accounting course, and the first accounting course grade.

Table 21 in Appendix H shows 94% (618 out of 660) of respondents from Puerto Rican universities agreed that the relation of the accounting concepts discussed in the classroom with the real facts of daily business operation aided student learning in the first accounting course as compared to 6% (42 out of 660) that disagreed. Of respondents who agreed, 91% (565 out of 618) showed a higher achievement rate in the first accounting course than 76% (32 out of 42) that disagreed.

Table 21 also shows 95% (309 out of 326) of respondents from public universities agreed that the relation of the accounting concepts discussed in the classroom with the real facts of daily business operation aided student learning in the first accounting course as compared to 5% (17 out of 326) that disagreed. Of respondents who agreed, 87% (268 out of 309) showed a higher achievement rate in the first accounting course than 65% (11 out of 17) that disagreed.

Table 21 also shows 93% (309 out of 334) of respondents from private universities agreed that the relation of the accounting concepts discussed in the classroom with the real facts of daily business operation aided student learning in the first accounting course as compared to 7% (25 out of 334) that disagreed. Of respondents who agreed, 96% (297 out of 309) showed a higher achievement rate in the first accounting course than 84% (21 out of 25) that disagreed.

With an alpha level of .05, the effect of degree of agreement or disagreement if accounting concepts related with real facts aided student learning in the first accounting

course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 11.31, p < .05$ and private universities, $X^2(3, 334) = 8.98, p < .05$. However it was not statistically significant for public universities, $X^2(3, 326) = 6.82, p = .08$.

Narrative for table 22: Degree of agreement or disagreement if classroom environment aided student learning in the first accounting course, and the first accounting course grade.

Table 22 in Appendix H shows 85% (558 out of 660) of respondents from Puerto Rican universities agreed that classroom environment aided student learning in the first accounting course as compared to 15% (102 out of 660) that disagreed. Of respondents who agreed, 92% (515 out of 558) showed a higher achievement rate in the first accounting course than 80% (82 out of 102) that disagreed.

Table 22 also shows 82% (268 out of 326) of respondents from public universities agreed that classroom environment aided student learning in the first accounting course as compared to 18% (58 out of 326) that disagreed. Of respondents who agreed, 88% (235 out of 268) showed a higher achievement rate in the first accounting course than 76% (44 out of 58) that disagreed.

Table 22 also shows 87% (290 out of 334) of respondents from private universities agreed that classroom environment aided student learning in the first accounting course as compared to 13% (44 out of 334) that disagreed. Of respondents who agreed, 97% (280 out of 290) showed a higher achievement rate in the first accounting course than 86% (38 out of 44) that disagreed. With an alpha level of .05, the effect of degree of agreement or disagreement if classroom environment aided student

learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 17.91, p < .01$, public universities, $X^2(3, 326) = 9.03, p < .05$, and private universities, $X^2(3, 334) = 9.0, p < .05$.

Narrative for table 23: Degree of agreement or disagreement if easily understood accounting concepts discussed in the classroom aided student learning in the first accounting course, and the first accounting course grade.

Table 23 in Appendix H shows 79% (522 out of 660) of respondents from Puerto Rican universities agreed that easily understood accounting concepts discussed in the classroom aided their learning in the first accounting course as compared to 21% (138 out of 660) that disagreed. Of respondents who agreed, 95% (496 out of 522) showed a higher achievement rate in the first accounting course than 73% (101 out of 138) that disagreed.

Table 23 also shows 78% (253 out of 326) of respondents from public universities agreed that easily understood accounting concepts discussed in the classroom aided student learning in the first accounting course as compared to 22% (73 out of 326) that disagreed. Of respondents who agreed, 92% (234 out of 253) showed a higher achievement rate in the first accounting course than 62% (45 out of 73) that disagreed.

Table 23 also shows 81% (269 out of 334) of respondents from private universities agreed that easily understood accounting concepts discussed in the classroom aided student learning in the first accounting course as compared to 19% (65 out of 334) that disagreed. Of respondents who agreed, 97% (262 out of 269) showed a higher achievement rate in the first accounting course than 86% (56 out of 65) that disagreed. With an alpha level of .05, the effect of degree of agreement or disagreement if

accounting concepts discussed in the classroom were easy to understand aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 74.91, p < .01$, public universities, $X^2(3, 326) = 53.71, p < .01$, and private universities, $X^2(3, 334) = 21.79, p < .01$.

Narrative for table 24: Degree of agreement or disagreement if homework's exercises and problems agreed with the accounting concepts discussed in the classroom aided student learning in the first accounting course, and the first accounting course grade.

Table 24 in Appendix H shows 91% (597 out of 660) of respondents from Puerto Rican universities agreed that homework's exercises and problems, which agreed with the accounting concepts discussed in the classroom aided student learning in the first accounting course as compared to 9% (63 out of 660) that disagreed. Of respondents who agreed, 92% (548 out of 597) showed a higher achievement rate in the first accounting course than 78% (49 out of 63) that disagreed.

Table 24 also shows 89% (290 out of 326) of respondents from public universities agreed that homework's exercises and problems, which agreed with the accounting concepts discussed in the classroom aided student learning in the first accounting course as compared to 11% (36 out of 326) that disagreed. Of respondents who agreed, 88% (254 out of 290) showed a higher achievement rate in the first accounting course than 69% (25 out of 36) that disagreed.

Table 24 also shows 92% (307 out of 334) of respondents from private universities agreed that homework's exercises and problems, which agreed with the

accounting concepts discussed in the classroom aided student learning in the first accounting course as compared to 8% (27 out of 334) that disagreed. Of respondents who agreed 96% (294 out of 307) showed a higher achievement rate in the first accounting course than 89% (24 out of 27) that disagreed.

With an alpha level of .05, the effect of degree of agreement or disagreement if homework's exercises and problems, which agreed with the accounting concepts discussed in the classroom aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 28.85, p < .01$ and public universities, $X^2(3, 326) = 19.54, p < .01$. However, it was not statistically significant for private universities, $X^2(3, 334) = 7.61, p = .06$.

Narrative for table 25: Degree of agreement or disagreement if the role played by the professor in the teaching-learning process aided student learning in the first accounting course, and the first accounting course grade.

Table 25 in Appendix H shows 88% (580 out of 660) of respondents from Puerto Rican universities agreed that role played by the professor in the teaching-learning process aided student learning in the first accounting course as compared to 12% (80 out of 660) that disagreed. Of respondents who agreed, 93% (539 out of 580) showed a higher achievement rate in the first accounting course than 73% (58 out of 80) that disagreed.

Table 25 also shows 86% (279 out of 326) of respondents from public universities agreed that the role played by the professor in the teaching-learning process aided student learning in the first accounting course as compared to 14% (47 out of 326) that disagreed.

Of respondents who agreed, 89% (247 out of 279) showed a higher achievement rate in the first accounting course than 68% (32 out of 47) that disagreed.

Table 25 also shows 90% (301 out of 334) of respondents from private universities agreed that the role played by the professor in the teaching-learning process aided student learning in the first accounting course as compared to 10% (33 out of 334) that disagreed. Of respondents who agreed, 97% (292 out of 301) showed a higher achievement rate in the first accounting course than 79% (26 out of 33) that disagreed. With an alpha level of .05, the effect of degree of agreement or disagreement if the role played by the professor in the teaching-learning process aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 44.14, p < .01$, public universities, $X^2(3, 326) = 23.38, p < .01$, and private universities, $X^2(3, 334) = 22.84, p < .01$.

Narrative for table 26: Degree of agreement or disagreement if tests administered were prepared based on the accounting terminology discussed in the classroom aided student learning in the first accounting course, and the first accounting course grade.

Table 26 in Appendix H shows 91% (602 out of 660) of respondents from Puerto Rican universities agreed that tests administered were prepared based on the accounting terminology discussed in the classroom aided student learning in the first accounting course as compared to 9% (58 out of 660) that disagreed. Of respondents who agreed, 92% (555 out of 602) showed a higher achievement rate in the first accounting course than 72% (42 out of 58) that disagreed.

Table 26 also shows 91% (296 out of 326) of respondents from public universities agreed that tests administered were prepared based on the accounting terminology

discussed in the classroom aided student learning in the first accounting course as compared to 9% (30 out of 326) that disagreed. Of respondents who agreed, 89% (263 out of 296) showed a higher achievement rate in the first accounting course than 53% (16 out of 30) that disagreed.

Table 26 also shows 92% (306 out of 334) of respondents from private universities agreed that tests administered were prepared based on the accounting terminology discussed in the classroom aided student learning in the first accounting course as compared to 8% (28 out of 334) that disagreed. Of respondents who agreed, 95% (292 out of 306) showed a higher achievement rate in the first accounting course than 93% (26 out of 28) that disagreed.

With an alpha level of .05, the effect of degree of agreement or disagreement if tests administered were prepared based on the accounting terminology discussed in the classroom aided student learning in the first accounting course and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 26.71, p < .01$ and public universities, $X^2(3, 326) = 28.67, p < .01$. However, it was not statistically significant for private universities, $X^2(3, 334) = 3.24, p = .36$.

Narrative for table 27: Degree of agreement or disagreement if technology was essential in the teaching-learning process aided student learning in the first accounting course, and the first accounting course grade.

Table 27 in Appendix H show 48% (318 out of 657) of respondents from Puerto Rican universities agreed that technology was essential in the teaching-learning process in aiding student learning in the first accounting course as compared to 52% (339 out of 657) that disagreed. In this case, more than half of respondents disagreed that technology

was essential in the teaching-learning process in aiding student learning in the first accounting course. However, of respondents who agreed, 95% (301 out of 318) showed a higher achievement rate in the first accounting course than 86% (293 out of 339) that disagreed.

Table 27 also shows 30% (97 out of 324) of respondents from public universities agreed that technology was essential in the teaching-learning process in aiding student learning in the first accounting course as compared to 70% (227 out of 324) that disagreed. Of respondents who agreed, 89% (86 out of 97) showed a higher achievement rate in the first accounting course than 84% (191 out of 227) that disagreed.

Table 27 also shows 66% (221 out of 333) of respondents from private universities agreed that technology was essential in the teaching-learning process in aiding student learning in the first accounting course as compared to 34% (112 out of 333) that disagreed. Of respondents who agreed, 97% (215 out of 221) showed a higher achievement rate in the first accounting course than 91% (102 out of 112) that disagreed.

With an alpha level of .05, the effect of degree of agreement or disagreement if technology was essential in the teaching-learning process in aiding student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 657) = 17.60, p < .01$. However, it was neither statistically significant for public universities, $X^2(3, 324) = 3.94, p = .27$ nor for private universities, $X^2(3, 333) = 6.93, p = .07$.

Fourth: The Results for the Third Part of the Study, External Classroom Factors Influencing Student Academic Performance in the First Accounting Course.

Narrative for table 28: Combined external classroom factors average means.

First, the 4-point Likert scale, with items ranging from (1) totally disagree, (2) disagree, (3) agree to (4) totally agree, was converted to a 2-point scale, (1) totally disagree and disagree and (2) totally agree and agree, to obtain the minimum number of items required in each cell by the Chi Square Cross tab analysis for better results. Based on this new 2-point scale, a t-test was applied to determine the combined external classroom factors average mean, which resulted in 1.35, with 1.29 and 1.41 for Puerto Rican, public, and private universities respectively.

Table 28 in Appendix H shows t-test results for the combined external classroom factors average means, which reflected 1.35, with 1.29, and 1.41 for Puerto Rican, public and private universities respectively related to the degree of agreement or disagreement with the three external classroom factors considered in the study. Respondents from Puerto Rican, public, and private universities reflected the same tendency to disagree (less than 1.50 in the combined 2-point scale) that combined external classroom factors aided student learning in the first accounting course.

Narrative for table 29: Hours spent on combined external classroom factors and the first accounting course grade.

Table 29 in Appendix H shows 81% (533 out of 660) of respondents from Puerto Rican universities spent nine or fewer hours on combined external classroom factors compared to 19% (127 out of 660) that spent 10 or more hours. Of the respondents who

spent nine or fewer hours 89% (477 out of 533) showed a lower achievement rate than 94% (120 out of 127) who spent 10 or more hours.

Table 29 also shows 84% (273 out of 326) of respondents from public universities spent nine or fewer hours on combined external classroom factors compared to 16% (53 out of 326) that spent 10 or more hours. Of the respondents who spent nine or fewer hours 85% (231 out of 273) showed a lower achievement rate than 90% (48 out of 53) who spent 10 or more hours.

Table 29 also shows 78% (260 out of 334) of respondents from private universities spent nine or fewer hours on combined external classroom factors compared to 22% (74 out of 334) that spent 10 or more hours. Of the respondents who spent nine or fewer hours 95% (246 out of 260) showed a lower achievement rate than 97% (72 out of 74) who spent 10 or more hours. With an alpha level of .05, the effect of hours spent on combined external classroom factors, and the first accounting course grade was neither statistically significant for Puerto Rican universities, $X^2(3, 660) = 5.02, p = .17$, nor for public universities, $X^2(3, 326) = 3.60, p = .31$, nor for private universities, $X^2(3, 334) = 1.46, p = .69$.

Narrative for table 30: Universities, perception if combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade.

Table 30 in Appendix H shows 38% (249 out of 660) of respondents from Puerto Rican universities agreed that combined external classroom factors aided student learning in the first accounting course as compared to 62% (411 out of 660) that disagreed. Of

respondents who agreed, 94% (233 out of 249) showed a higher achievement rate in the first accounting course than 89% (364 out of 411) that disagreed.

Table 30 also shows 31% (101 out of 326) of respondents from public universities agreed that combined external classroom factors aided student learning in the first accounting course as compared to 69% (225 out of 326) that disagreed. Of respondents who agreed, 88% (89 out of 101) showed a higher achievement rate in the first accounting course than 84% (190 out of 225) that disagreed.

Table 30 also shows 44% (148 out of 334) of respondents from private universities agreed that combined external classroom factors aided student learning in the first accounting course as compared to 56% (186 out of 334) that disagreed. Of respondents who agreed, 97% (144 out of 148) showed a higher achievement rate in the first accounting course than 94% (174 out of 186) that disagreed.

With an alpha level of .05, the effect of universities, perception if the combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 660) = 8.22, p < .05$ and public universities, $X^2(3, 326) = 8.07, p < .05$. However, it was not statistically significant for private universities, $X^2(3, 334) = 4.59, p = .20$.

Narrative for table 31: Hours spent on and perception if combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade in Puerto Rican universities.

Table 31 in Appendix H shows 37% (199 out of 533) of respondents from Puerto Rican universities who spent nine or fewer hours on combined external classroom factors agreed that combined external classroom factors aided student learning in the first

accounting course as compared to 63% (334 out of 533) that disagreed. Of the respondents who spent nine or fewer hours that agreed, 93% (185 out of 199) showed a higher achievement rate than 87% (292 out of 334) that disagreed.

With an alpha level of .05, the effect of hours spent on combined external classroom factors, perception if the combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade for Puerto Rican universities was statistically significant for respondents who spent nine or fewer hours on combined external classroom factors, $X^2(3, 533) = 8.04, p < .05$. However, it was not statistically significant for respondents who spent 10 or more hours, $X^2(3, 127) = 1.79, p = .62$.

Narrative for table 32: Hours spent on and perception if combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade in public universities.

Table 32 in Appendix H shows 31% (85 out of 273) of respondents from public universities who spent nine or less hours on combined external classroom factors agreed that the combined external classroom factors aided student learning in the first accounting course as compared to 69% (188 out of 273) that disagreed. Of respondents who spent nine or fewer hours that agreed, 88% (75 out of 85) showed a higher achievement rate in the first accounting course as compared to 83% (156 out of 188) that disagreed.

With an alpha level of .05, the effect of hours spent on combined external classroom factors, perception if combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade for public universities was statistically significant for respondents who spent nine or less hours on

combined external classroom factors, $X^2(3, 273) = 8.09, p < .05$. However, it was not statistically significant for respondents who spent 10 or more hours, $X^2(3, 53) = 1.12, p = .77$.

Narrative for table 33: Hours spent on and perception if combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade in private universities.

Table 33 in Appendix H shows 44% (114 out of 260) of respondents from private universities who spent nine or less hours on combined external classroom factors agreed that combined external classroom factors aided student learning in the first accounting course as compared to 56% (146 out of 260) that disagreed. Of respondents who spent nine or fewer hours that agreed, 96% (110 out of 114) showed a higher achievement rate in the first accounting course than 93% (136 out of 146) that disagreed. With an alpha level of .05, the effect of hours spent on combined external classroom factors, perception if the combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade for private universities was neither statistically significant for respondents who spent nine or fewer hours on combined external classroom factors, $X^2(3, 260) = 5.19, p = .16$ nor for respondents who spent 10 hours or more $X^2(3, 74) = 2.13, p = .55$.

Narrative for table 34: Hours spent on extracurricular activities and the first accounting course grade.

Table 34 in Appendix H shows 71% (468 out of 660) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week on extracurricular activities as compared to 29% (192 out of 660) who spent 10 or more hours. Of

respondents who spent nine or fewer hours during a typical week on extracurricular activities, 90% (420 out of 468) showed a lower achievement rate in the first accounting course than 92% (177 out of 192) who spent 10 or more hours.

Table 34 also shows 67% (219 out of 326) of respondents from public universities spent nine or fewer hours during a typical week on extracurricular activities as compared to 33% (107 out of 326) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on extracurricular activities, 84% (184 out of 219) showed a lower achievement rate in the first accounting course than 89% (95 out of 107) who spent 10 or more hours.

Table 34 also shows 75% (249 out of 334) of respondents from private universities spent nine or fewer hours during a typical week on extracurricular activities as compared to 25% (85 out of 334) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on extracurricular activities, 95% (236 out of 249) showed a lower achievement rate in the first accounting course than 96% (82 out of 85) who spent 10 or more hours. With an alpha level of .05, the effect of hours spent on extracurricular and the first accounting course grade was neither statistically significant for Puerto Rican universities, $X^2(3, 660) = 1.19, p = .76$, nor for public universities, $X^2(3, 326) = 2.16, p = .54$, nor for private universities, $X^2(3, 334) = 4.60, p < .20$.

Narrative for table 35: Universities, perception if hours spent on extracurricular activities aided student learning in the first accounting course, and the first accounting course grade.

Table 35 in Appendix H shows 38% (249 out of 659) of respondents from Puerto Rican universities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 62% (410 out of 659) that disagreed. Of the respondents that agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 94% (233 out of 249) showed a higher achievement rate in the first accounting course than 89% (363 out of 410) that disagreed.

Table 35 also shows 31% (101 out of 326) of respondents from public universities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 69% (225 out of 326) that disagreed. Of the respondents that agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 88% (89 out of 101) showed a higher achievement rate in the first accounting course than 84% (190 out of 225) that disagreed.

Table 35 also shows 44% (148 out of 333) of respondents from private universities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 56% (185 out of 333) that disagreed. Of the respondents that agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 97% (144 out of 148) showed a higher achievement rate in the first accounting course than 94% (173 out of 185) that disagreed.

With an alpha level of .05, the effect of universities, perception if hours spent during a typical week on extracurricular activities aided student learning in the first

accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 659) = 8.13, p < .05$ and public universities, $X^2(3, 326) = 8.07, p < .05$. However, it was not statistically significant for private universities, $X^2(3, 192) = 4.88, p = .18$.

Narratives for table 36: Hours spent on extracurricular activities, perception if hours spent on extracurricular activities aided student learning in the first accounting course, and the first accounting course grade in Puerto Rican universities.

The researcher combined the five categories for hours spent on external classroom factors into two categories (nine or fewer hours or 10 or more hours) for all external classroom factors analysis. The Chi-Square (X^2) application used only 659 valid cases for extracurricular activities analysis with the combination of the following variables: (1) hours spent during a typical week on extracurricular activities, (2) perception about degree of agreement and disagreement if hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, and (3) the first accounting course grade. The 101 missing cases were not considered.

Table 36 in Appendix H shows 71% (467 out of 659) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week on extracurricular activities as compared to 29% (192 out of 659) who spent 10 or more hours. Table 36 also shows 38% (176 out of 467) of respondents from Puerto Rican universities who spent nine or fewer hours during a typical week on extracurricular activities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 62% (291 out of 467) that disagreed. Of respondents who spent nine or fewer hours who agreed that hours spent during a typical

week on extracurricular activities aided student learning in the first accounting course, 93% (164 out of 176) showed a higher achievement rate in the first accounting course than 88% (255 out of 291) that disagreed.

Table 36 also shows 38% (73 out of 192) of respondents from Puerto Rican universities who spent 10 or more hours during a typical week on extracurricular activities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 62% (119 out of 192) that disagreed. Of respondents who spent 10 or more hours who agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 95% (69 out of 73) showed a higher achievement rate in the first accounting course than 91% (108 out of 119) that disagreed.

With an alpha level of .05, the effect of hours spent during a typical week on extracurricular activities, perception if hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, and the first accounting course grade for Puerto Rican universities was statistically significant for respondents who spent nine or fewer hours on extracurricular activities, $X^2(3, 467) = 7.94, p < .05$. However, it was not statistically significant for respondents who spent 10 or more hours, $X^2(3, 192) = 4.11, p = .25$.

Narratives for table 37: Hours spent on extracurricular activities, perception if hours spent on extracurricular activities aided student learning in the first accounting course, and the first accounting course grade in public universities.

Table 37 in Appendix H shows 67% (219 out of 326) of respondents from public universities spent nine or fewer hours during a typical week on extracurricular activities

as compared to 33% (107 out of 326) who spent 10 or more hours. Table 37 also shows 31% (67 out of 219) of respondents from public universities who spent nine or fewer hours during a typical week on extracurricular activities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 69% (152 out of 219) that disagreed. Of respondents who spent nine or fewer hours who agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 88% (59 out of 67) showed a higher achievement rate in the first accounting course than 82% (125 out of 152) that disagreed.

Table 37 also shows 32% (34 out of 107) of respondents from public universities who spent 10 or more hours during a typical week on extracurricular activities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 68% (73 out of 107) that disagreed. Of respondents who spent 10 or more hours who agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 88% (30 out of 34) showed a lower achievement rate in the first accounting course than 89% (65 out of 73) that disagreed. With an alpha level of .05, the effect of hours spent during a typical week on extracurricular activities, perception if hours spent during a typical week on extracurricular activities aided student learning in the first accounting course and the first accounting course grade for public universities was neither statistically significant for respondents who spent nine or fewer hours on extracurricular activities, $X^2(3, 219) = 5.62, p = .13$ nor for respondents who spent 10 or more hours, $X^2(3, 107) = 3.07, p = .38$.

Narratives for table 38: Hours spent on extracurricular activities, perception if hours spent on extracurricular activities aided student learning in the first accounting course, and the first accounting course grade in private universities.

Table 38 in Appendix H shows 74% (248 out of 333) of respondents from private universities spent nine or fewer hours during a typical week on extracurricular activities as compared to 26% (85 out of 333) who spent 10 or more hours. Table 38 also shows 44% (109 out of 248) of respondents from private universities who spent nine or fewer hours during a typical week on extracurricular activities agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course as compared to 56% (139 out of 248) that disagreed. Of respondents who spent nine or fewer hours who agreed that hours spent during a typical week on extracurricular activities aided student learning in the first accounting course, 96% (105 out of 109) showed a higher achievement rate in the first accounting course than 94% (130 out of 139) that disagreed.

Table 38 also shows 46% (39 out of 85) of respondents from private universities who spent 10 or more hours during a typical week on extracurricular activities agreed that hours spent on extracurricular activities aided student learning in the first accounting course as compared to 54% (46 out of 85) that disagreed. Of respondent who spent 10 or more hours who agreed that hours spent on extracurricular activities aided student learning in the first accounting course, 100% (39 out of 39) showed a higher achievement rate in the first accounting course than 93% (43 out of 46) that disagreed. With an alpha level of .05, the effect of hours spent during a typical week on extracurricular activities, perception if hours spent during a typical week on extracurricular activities aided student

learning in the first accounting course, and the first accounting course grade for private universities was neither statistically significant for respondents who spent nine or fewer hours on extracurricular activities, $X^2(3, 248) = 5.65, p = .13$ nor for respondents who spent 10 or more hours, $X^2(3, 85) = 3.96, p = .27$.

Narrative for table 39: Hours spent on family activities and the first accounting course grade.

Table 39 in Appendix H shows 82% (540 out of 660) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week on family activities as compared to 18% (120 out of 660) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on family activities, 91% (489 out of 540) showed a higher achievement rate in the first accounting course than 90% (108 out of 120) who spent 10 or more hours.

Table 39 also shows 85% (276 out of 326) of respondents from public universities spent nine or fewer hours during a typical week on family activities as compared to 15% (50 out of 326) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on family activities, 87% (239 out of 276) showed a higher achievement rate in the first accounting course than 80% (40 out of 50) who spent 10 or more hours.

Table 39 also shows 79% (264 out of 334) of respondents from private universities spent nine or fewer hours during a typical week on family activities as compared to 21% (70 out of 334) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on family activities, 95% (250 out of 264) showed a lower achievement rate in the first accounting course than 97% (68 out of 70)

who spent 10 or more hours. With an alpha level of .05, the effect of hours spent during a typical week on family activities and the first accounting course grade was neither statistically significant for Puerto Rican universities, $X^2(3, 660) = .86, p = .84$, nor for public universities, $X^2(3, 326) = 1.80, p = .61$, nor for private universities, $X^2(3, 334) = .94, p = .82$.

Narrative for table 40: Universities, perception if hours spent on family activities aided student learning in the first accounting course, and the first accounting course grade.

Table 40 in Appendix H shows 38% (249 out of 659) of respondents from Puerto Rican universities agreed that hours spent during a typical week on family activities aided student learning in the first accounting course as compared to 62% (410 out of 659) that disagreed. Of the respondents that agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 94% (233 out of 249) showed a higher achievement rate in the first accounting course than 89% (363 out of 410) that disagreed.

Table 40 also shows 31% (101 out of 326) of respondents from public universities agreed that hours spent during a typical week on family activities aided student learning in the first accounting course as compared to 69% (225 out of 326) that disagreed. Of the respondents that agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 88% (89 out of 101) showed a higher achievement rate in the first accounting course than 84% (190 out of 225) that disagreed.

Table 40 also shows 34% (139 out of 405) of respondents from private universities agreed that hours spent during a typical week on family activities aided

student learning in the first accounting course as compared to 66% (266 out of 403) that disagreed. Of the respondents that agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 97% (144 out of 148) showed a higher achievement rate in the first accounting course than 94% (173 out of 185) that disagreed.

With an alpha level of .05, the effect of universities, perception if hours spent during a typical week on family activities aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 659) = 8.13, P < .05$ and public universities, $X^2(3, 326) = 8.07, P < .05$. However, it was not statistically significant for private universities, $X^2(3, 333) = 4.88, p = .18$.

Narrative for tables 41: Hours spent on family activities, perception if hours spent on family activities aided student learning in the first accounting course, and the first accounting course grade in Puerto Rican universities.

The researcher combined the five categories for hours spent during a typical week on external classroom factors in two categories (nine or fewer hours and 10 or more hours) for all external classroom factors analysis. The Chi-Square (X^2) application used only 654 valid cases for family activities analysis with the combination of the following variables: (1) hours spent during a typical week on family activities, (2) perception about degree of agreement and disagreement if hours spent during a typical week on family activities aided student learning in the first accounting course, and (3) the first accounting course grade. The 106 missing cases were not considered.

Table 41 in Appendix H shows 82% (540 out of 659) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week on family activities as compared to 18% (119 out of 659) who spent 10 or more hours. Table 41 also shows 37% (202 out of 540) of respondents from Puerto Rican universities who spent nine or fewer hours during a typical week on family activities agreed that hours spent during a typical week on family activities aided student learning in the first accounting course as compared to 63% (338 out of 540) that disagreed. Of respondents who spent nine or fewer hours who agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 94% (190 out of 202) showed a higher achievement rate in the first accounting course than 88% (299 out of 338) that disagreed.

Table 41 also shows 39% (47 out of 119) of respondents from Puerto Rican universities who spent 10 or more hours during a typical week on family activities agreed that hours spent on family activities aided student learning in the first accounting course as compared to 61% (72 out of 119) that disagreed. Of respondents who spent 10 or more hours who agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 91% (43 out of 47) showed a higher achievement rate in the first accounting course than 89% (64 out of 72) that disagreed.

With an alpha level of .05, the effect of hours spent during a typical week on family activities, perception if hours spent during a typical week on family activities aided student learning in the first accounting course, and the first accounting course grade for Puerto Rican universities was statistically significant for respondents who spent nine or fewer hours on family activities, $X^2(3, 540) = 8.70, p < .05$. However, it was not

statistically significant for respondents who spent 10 or more hours, $X^2(3, 119) = .26, p = .97$.

Narrative for tables 42: Hours spent on family activities, perception if hours spent on family activities aided student learning in the first accounting course, and the first accounting course grade in public universities.

Table 42 in Appendix H shows 85% (276 out of 326) of respondents from public universities spent nine or fewer hours during a typical week on family activities as compared to 15% (50 out of 326) who spent 10 or more hours. Table 42 also shows 31% (86 out of 276) of respondents from public universities who spent nine or fewer hours during a typical week on activities agreed that hours spent during a typical week on family activities aided student learning in the first accounting course as compared to 69% (190 out of 276) that disagreed. Of respondents who spent nine or fewer hours during a typical week on family activities who agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 90% (77 out of 86) showed a higher achievement rate in the first accounting course than 85% (162 out of 190) that disagreed.

Table 42 also shows 30% (15 out of 50) of respondents from public universities who spent 10 or more hours during a typical week on family activities agreed that hours spent during a typical week on family activities aided student learning in the first accounting course as compared to 70% (35 out of 50) that disagreed. Of respondents who spent 10 or more hours who agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 80% (12 out of 15) showed

the same achievement rate in the first accounting course as 80% (28 out of 35) that disagreed.

With an alpha level of .05, the effect of hours spent during a typical week on family activities, perception if hours spent during a typical week on family activities aided student learning in the first accounting course, and the first accounting course grade for public universities was statistically significant for respondents who spent nine or fewer hours on family activities, $X^2(3, 276) = 8.38, p < .05$. However, it was not statistically significant for respondents who spent 10 or more hours, $X^2(3, 50) = .52, p = .92$.

Narrative for tables 43: Hours spent on family activities, perception if hours spent on family activities aided student learning in the first accounting course, and the first accounting course grade in private universities.

Table 43 in Appendix H shows 79% (264 out of 333) of respondents from private universities spent nine or fewer hours during a typical week on family activities as compared to 21% (69 out of 333) who spent 10 or more hours. Table 43 also shows 44% (116 out of 264) of respondents from private universities who spent nine or fewer hours during a typical week on family activities agreed that hours spent during a typical week on family activities aided student learning in first accounting course as compared to 56% (148 out of 264) that disagreed. Of respondents who spent nine or fewer hours who agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 97% (113 out of 116) showed a higher achievement rate in the first accounting course than 93% (137 out of 148) that disagreed.

Table 43 also shows 46% (32 out of 69) of the respondents from private universities that spent 10 or more hours during a typical week on family activities agreed that hours spent during a typical week on family activities aided student learning in the first accounting course as compared to 54% (37 out of 69) that disagreed. Of respondents who spent 10 or more hours who agreed that hours spent during a typical week on family activities aided student learning in the first accounting course, 97% (31 out of 32) showed the same achievement rate in the first accounting course as 97% (36 out of 37) that disagreed. With an alpha level of .05, the effect of hours spent during a typical week on family activities, perception if hours spent during a typical week on family activities aided student learning in the first accounting course, and the first accounting course grade for private universities was neither statistically significant for respondents who spent nine or fewer hours on family activities, $X^2(3, 264) = 5.06, p = .17$ nor for respondents who spent 10 or more hours, $X^2(3, 69) = .40, p = .94$.

Narrative for table 44: Hours spent on working activities and the first accounting course grade.

Table 44 in Appendix H shows 67% (444 out of 659) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week on working (for pay) activities as compared to 33% (215 out of 659) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on family activities, 88% (391 out of 444) showed a lower achievement rate in the first accounting course than 95% (205 out of 215) who spent 10 or more hours.

Table 44 also shows 75% (244 out of 326) of respondents from public universities spent nine or fewer hours during a typical week on working (for pay) activities as

compared to 25% (82 out of 326) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on working (for pay) activities, 84% (204 out of 244) showed a lower achievement rate in the first accounting course than 91% (75 out of 82) who spent 10 or more hours.

Table 44 also shows 60% (200 out of 333) of respondents from private universities spent nine or fewer hours during a typical week on working (for pay) activities as compared to 40% (133 out of 333) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week on working (for pay) activities, 94% (187 out of 200) showed a lower achievement rate in the first accounting course than 98% (130 out of 133) who spent 10 or more hours.

With an alpha level of .05, the effect of hours spent during a typical week on working (for pay) activities and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 659) = 9.88, p = .02$. However, it was neither statistically significant for public universities, $X^2(3, 326) = 3.21, p = .36$ nor for private universities, $X^2(3, 333) = 3.33, p = .34$.

Narrative for table 45: Universities, perception if hours spent on working activities aided student learning in the first accounting course, and first accounting course grade.

Table 45 in Appendix H shows 29% (190 out of 654) of respondents from Puerto Rican universities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 71% (464 out of 659) that disagreed. Of the respondents that agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting

course, 95% (180 out of 190) showed a higher achievement rate in the first accounting course than 89% (413 out of 464) that disagreed.

Table 45 also shows 25% (79 out of 321) of respondents from public universities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 75% (242 out of 321) that disagreed. Of the respondents that agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 91% (72 out of 79) showed a higher achievement rate in the first accounting course than 84% (204 out of 242) that disagreed.

Table 45 also shows 33% (111 out of 333) of respondents from private universities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 67% (222 out of 333) that disagreed. Of the respondents that agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 97% (108 out of 111) showed a higher achievement rate in the first accounting course than 94% (209 out of 222) that disagreed.

With an alpha level of .05, the effect of universities, perception if hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 654) = 9.25, p < .05$ and public universities, $X^2(3, 321) = 9.59, p < .05$. However, it was not statistically significant for private universities, $X^2(3, 333) = 1.93, p = .59$.

Narrative for tables 46: Hours spent on working activities, perception if hours spent on working activities aided student learning in the first accounting course, and the first accounting course grade in Puerto Rican universities.

The researcher combined the five categories for hours spent on external classroom factors in two categories (nine or fewer hours and 10 or more hours) for all external classroom factors analysis. The Chi-Square (X^2) application used only 634 valid cases for working (for pay) activities analysis with the combination of the following variables: (1) hours spent during a typical week on working (for pay) activities, (2) perception about degree of agreement and disagreement if hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, and (3) the first accounting course grade. The 126 missing cases were not considered.

Table 46 in Appendix H shows 67% (438 out of 653) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week on working (for pay) activities as compared to 33% (215 out of 653) who spent 10 or more hours. Table 46 also shows 26% (114 out of 438) of respondents from Puerto Rican universities who spent nine or fewer hours on working (for pay) activities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 74% (324 out of 438) that disagreed. Of respondents who spent nine or fewer hours on working (for pay) activities who agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 95% (108 out of 114) showed a higher achievement rate in the first accounting course than 86% (279 out of 324) that disagreed.

Table 46 also shows 35% (76 out of 215) of respondents from Puerto Rican universities who spent 10 or more hours during a typical week on working (for pay) activities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 65% (139 out of 215) that disagreed. Of the respondents who spent 10 or more hours during a typical week on working (for pay) activities who agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 95% (72 out of 76) showed a lower achievement rate in the first accounting course than 96% (133 out of 139) that disagreed. With an alpha level of .05, the effect of hours spent during a typical week on working (for pay) activities, perception if hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, and the first accounting course grade for Puerto Rican universities was neither statistically significant for respondents who spent nine or fewer hours on working (for pay) activities, $X^2(3, 438) = 7.31, p = .06$ nor for respondents who spent 10 or more hours, $X^2(3, 215) = 3.29, p = .35$.

Narrative for tables 47: Hours spent on working activities, perception if hours spent on working activities aided student learning in the first accounting course, and the first accounting course grade in public universities.

Table 47 in Appendix H shows 74% (239 out of 321) of respondents from public universities spent nine or fewer hours during a typical week on working (for pay) activities as compared to 26% (82 out of 321) who spent 10 or more hours. Table 47 also shows 20% (47 out of 239) of respondents from public universities who spent nine or fewer hours during a typical week on working (for pay) activities agreed that hours spent

during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 80% (192 out of 239) that disagreed. Of respondents who spent nine or fewer hours during a typical week on working (for pay) activities who agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 91% (43 out of 47) showed a higher achievement rate than 82% (158 out of 192) that disagreed.

Table 47 also shows 39% (32 out of 82) of respondents from public universities who spent 10 or more hours during a typical week on working (for pay) activities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 61% (50 out of 82) that disagreed. Of respondents who spent 10 or more hours during a typical week on working (for pay) activities who agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 91% (29 out of 32) showed a lower achievement rate compared to 92% (46 out of 50) that disagreed. With an alpha level of .05, the effect of hours spent during a typical week on working (for pay) activities, perception if hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, and the first accounting course grade for public universities was neither statistically significant for respondents who spent nine or fewer hours on working (for pay) activities, $X^2(3, 239) = 5.30, p = .15$ nor for respondents who spent 10 or more hours, $X^2(3, 82) = 5.23, p = .16$.

Narrative for tables 48: Hours spent on working activities, perception if hours spent on working activities aided student learning in the first accounting course, and the first accounting course grade in private universities.

Table 48 in Appendix H shows 60% (199 out of 332) of respondents from private universities spent nine or fewer hours during a typical week on working (for pay) as compared to 40% (133 out of 332) who spent 10 or more hours. Table 48 also shows 34% (67 out of 199) of respondents from private universities who spent nine or fewer hours during a typical week on working (for pay) activities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 66% (132 out of 199) that disagreed. Of respondents who spent nine or fewer hours during a typical week on working (for pay) activities who agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 97% (65 out of 67) showed a higher achievement rate in the first accounting course than 92% (121 out of 132) that disagreed.

Table 48 also shows 33% (44 out of 133) of respondents from private universities who spent 10 or more hours during a typical week on working (for pay) activities agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course as compared to 67% (89 out of 133) that disagreed. Of respondents who spent 10 or more hours during a typical week on working (for pay) activities who agreed that hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, 98% (43 out of 44) showed the same achievement rate in the first accounting course as 98% (87 out of 89) that disagreed. With an alpha level of .05, the effect of hours spent during a typical week on working (for pay) activities, perception if hours spent during a typical week on working (for pay) activities aided student learning in the first accounting course, and the first accounting course grade in private universities was neither statistically significant for

respondents who spent nine or fewer hours on working (for pay) activities, $X^2(3, 199) = 2.82$, $p = .42$ nor for respondents who spent 10 or more hours, $X^2(3, 133) = .33$, $p = .95$.

Narrative for table 49: Hours spent studying for the first accounting course and the first accounting course grade.

Table 49 in Appendix H shows 90% (591 out of 659) of respondents from Puerto Rican universities spent nine or fewer hours during a typical week studying for the first accounting course as compared to 10% (68 out of 659) who spent 10 or more hours. Of respondent who spent nine or fewer hours during a typical week studying for the first accounting course, 90% (529 out of 591) showed a lower achievement rate in the first accounting course than 99% (67 out of 68) who spent 10 or more hours.

Table 49 also shows 91% (296 out of 326) of respondents from public universities spent nine or fewer hours during a typical week studying for the first accounting course as compared to 9% (30 out of 326) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week studying for the first accounting course, 84% (250 out of 296) showed a lower achievement rate in the first accounting course than 97% (29 out of 30) who spent 10 or more hours.

Table 49 also shows 89% (295 out of 333) of respondents from private universities spent nine or fewer hours during a typical week studying for the first accounting course as compared to 11% (38 out of 333) who spent 10 or more hours. Of respondents who spent nine or fewer hours during a typical week studying for the first accounting course, 95% (279 out of 295) showed a lower achievement rate in the first accounting course than 100% (38 out of 38) who spent 10 or more hours.

With an alpha level of .05, the effect of hours spent during a typical week studying for the first accounting course and the first accounting course grade was statistically significant for Puerto Rican universities, $X^2(3, 659) = 11.92, p < .01$. However, it was neither statistically significant for public universities, $X^2(3, 326) = 4.53, p = .21$ nor for private universities, $X^2(3, 333) = 7.62, p = .06$.

Fifth: Supported or Rejected Hypotheses Consistent with Findings

Research statements and hypotheses

The first part of this study covered the number of student failures in the first accounting course.

Research statement

It seemed that the high number of student failures in the first accounting course at universities in Puerto Rico was coming from private universities.

Null hypothesis

There is no difference in the number of student failures in the first accounting course between private and public (state) universities.

Directional hypothesis

H1: The number of student failures in the first accounting course from private universities was higher than those from public (state) universities.

Table 9 in Appendix H shows 326 (49.4%) respondents from public universities as compared to 334 (50.6%) respondents from private universities. Of the 660 valid cases, 63 respondents failed in the first accounting course, representing a 10% failure. Respondents from public universities showed three time more failures than private

universities, 47 (14%) and 16 (5%) respectively, and was statistically significant at $p < 0.01$.

The Chi-Square results did not confirm the statement the number of student failures in the first accounting course from private universities was higher than those from public (state) universities. The null hypothesis was rejected and the directional hypothesis one was not supported.

The second part of the study was related to the internal classroom factors influencing students' academic performance in the first accounting course. Internal classroom factors were independent variables directly related to the students' academic performance during the 2003 fall semester, including class schedule, class size, text, accounting concepts and real facts, classroom environment, accounting concepts easy to understand, accounting concepts and homework, role played by professor in the classroom, accounting terminology and exams, and technology. The researcher formulated research statements and hypotheses related to internal classroom factors influencing students' academic performance in the first accounting course.

Research statement

It seems that the internal classroom factors have a positive influence on students' academic performance in the first accounting course at universities in Puerto Rico.

Null hypothesis

There is no difference in the students' performance in the first accounting course between the students who agreed that the internal classroom factors aided their learning in the first accounting course and the students who disagreed.

Primary directional hypotheses

H2: Students who agreed that the internal classroom factors aided their learning in the first accounting course will outperform students who disagreed.

First, the 4-point Likert scale, with items ranging from (1) totally disagree, (2) disagree, (3) agree to (4) totally agree, was converted to 2-point scale, (1) totally disagree and disagree and (2) totally agree and agree, to obtain the minimum number of items required in each cell by the Chi Square test analysis for better results. Based on this new 2-point scale, a t-test was applied to determine the combined internal classroom factors average mean, which resulted in 1.78, with 1.74 and 1.81 for Puerto Rican, public, and private universities respectively. The t-test results demonstrated on Table 19 in Appendix H that Puerto Rican, public, and private universities had the same tendency to agree (more than 1.50 in the combined 2-point scale) that internal classroom factors aided student leaning in the first accounting course.

And second, the Chi-Square test results (Table 20 in Appendix H) demonstrated that 93% of the respondents from Puerto Rican universities who agreed that combined internal classroom factors aided student learning in the first accounting course, showed a higher achievement rate in the first accounting course than 63% of respondents from Puerto Rican universities that disagreed, and was statistically significant at $p < 01$. Table 20 also shows 89% of respondents from public universities who agreed that combined internal classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course than 53% that disagreed, statistically significant at $p < .01$. Table 20 also shows 96% of respondents from private universities who agreed that combined internal classroom factors aided student learning

in the first accounting course showed a higher achievement rate in the first accounting course than 80% that disagreed, and was statistically significant at $p < .01$.

The Chi-Square test results confirmed that Puerto Rican universities, and public and private universities on its own have a tendency to agree on the statement student that agreed that internal classroom factors aided student learning in the first accounting course outperformed student that disagreed. The null hypothesis was rejected and the directional hypothesis two was supported.

H3: Students who agreed that accounting text, written in English, aided student's learning in the first accounting course will outperform students who disagreed.

First, Table 16 in Appendix H shows 91% of respondents from Puerto Rican universities who acquired the text had a higher achievement rate in the first accounting course compared to 89% that did not. Table 16 also shows 85% of respondents from public universities who acquired the text had a lower achievement rate in the first accounting course compared to 88% that did not. The effect of textbook, written in English, acquisition was neither statistically significant for Puerto Rican nor for public universities, $X^2(3, 659) = 5.98, p = .11$ or $X^2(3, 325) = 4.37, p = .22$, respectively. Table 16 also shows 97% of respondents from private universities who acquired the text had a higher achievement rate in the first accounting course compared to 90% that did not, statistically significant at $p < .05$.

Second, Table 17 in Appendix H shows 97% of respondents from Puerto Rican universities who agreed that the text aided student's learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 85% that disagreed, and was statistically significant at $p < .01$. Table 17 also shows 94% of the

respondents from public universities who agreed that the text aided student's learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 79% that disagreed, and was statistically significant at $p < .01$. Table 17 also shows 99% of the respondents from private universities who agreed that the text aided student's learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 92% that disagreed, and was statistically significant at $p < .01$.

And third, the Chi-Square test results (Table 18 in Appendix H), demonstrate 96% of the respondents from Puerto Rican universities who acquired the text agreed that the text aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 85% that disagreed, and was statistically significant at $p < .01$. Table 18 also shows 100% of the respondents from Puerto Rican universities who did not acquire the text agreed that the text aided student learning in the first accounting course show a higher achievement rate in the first accounting course compared to 84% that disagreed. The effect of the text book acquisition, the students perception if text book, written in English, aided student's learning in the first accounting course and first accounting course grade was not statistically significant, $X^2(3, 84) = 4.54, p = .21$.

Table 18 also demonstrates 94% of the respondents from public universities who acquired the text agreed that the text aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 78% that disagreed, and was statistically significant at $p < .01$. Table 18 also shows 100% of the respondents from public universities who did not acquire the text agreed that the text

aided student learning in the first accounting course shows a higher achievement rate in the first accounting course compared to 85% that disagreed. The effect of the text book acquisition, the students perception if text book, written in English, aided student's learning in the first accounting course and first accounting course grade was not statistically significant, $X^2(3, 17) = 1.65, p = .65$.

Table 18 also demonstrates 99% of the respondents from private universities who acquired the text agreed that the text aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 85% that disagreed, and was statistically significant at $p < .01$. Table 18 also shows 100% of the respondents from private universities who did not acquire the text agreed that the text aided student learning in the first accounting course show a higher achievement rate in the first accounting course compared to 84% that disagreed. The effect of the text book acquisition, the students perception if text book, written in English, aided student's learning in the first accounting course and first accounting course grade was not statistically significant, $X^2(3, 67) = 4.16, p = .25$.

The Chi-Square test results confirmed that respondents from Puerto Rican, public and private universities concurred on the statement, students who agreed that the accounting text, written in English, aided students' learning in the first accounting course outperformed students who disagreed. The Chi-Square test results also confirmed that respondents from Puerto Rican, public, and private universities that acquired the text had a tendency to agree on the statement student that agreed that the accounting text, written in English, aided student learning in the first accounting course outperformed students who disagreed. However, the Chi-square test results were not statistically significant to

analyze the data for respondents from Puerto Rican, public, and private universities that did not acquire the text.

The null hypothesis was rejected and the directional hypothesis three was supported for respondents from Puerto Rican, public, and private universities when the variables acquisition of text, students' perception that text aided student learning in the first accounting course, and the first accounting course grade were analyzed together. Also, hypothesis three was supported for respondents from Puerto Rican, public and private universities when the variables students' perception that text aided student learning in the first accounting course and the first accounting course grade were analyzed together.

H4: Students who agreed that technology was essential in the teaching-learning process, which aided student learning in the first accounting course, will outperform students who disagreed.

The Chi-Square test results, Table 27 in Appendix H, demonstrates 95% of the respondents from Puerto Rican universities who agreed that technology was essential in the teaching-learning process, which aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 86% that disagreed, and was statistically significant at $p < .01$. Table 27 also demonstrates that respondents from public and private universities that agreed, reflected a higher achievement rate than respondents that disagreed. However, the effect of degree of agreement or disagreement if technology was essential in the teaching-learning process aided student learning in the first accounting course, and the first accounting course grade

was neither statistically significant for public universities, $X^2(3, 324) = 3.94, p = .27$ nor for private universities, $X^2(3, 333) = 6.93, p = .07$.

The Chi-Square results confirmed for Puerto Rican universities the statement students who agreed that technology was essential in the teaching-learning process, which aided student learning in the first accounting course, will outperform students who disagreed. The null hypothesis was rejected and the directional hypothesis four was supported only for Puerto Rican universities.

Sub-hypotheses

H5: Students who agreed that the material covered in the course was very simple (easy to understand) will outperform students who disagreed.

The Chi-Square test results, Table 23 in Appendix H, demonstrates 95% of the respondents from Puerto Rican universities who agreed that the material covered in the course was very simple (easy to understand), which aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 73% that disagreed, and was statistically significant at $p < .01$. Table 23 also shows 92% of the respondents from public universities who agreed that the material covered in the course was very simple (easy to understand), which aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 62% that disagreed, and was statistically significant at $p < .01$. Table 23 also shows 97% of the respondents from private universities who agreed that the material covered in the course was very simple (easy to understand), which aided student learning in the first accounting course showed a higher achievement rate in the first

accounting course compared to 86% that disagreed, and was statistically significant at $p < .01$.

The Chi-Square results confirmed for Puerto Rican, public and private universities the statement students who agreed that the material covered in the course was very simple (easy to understand), which aided student learning in the first accounting course, will outperform students who disagreed. The null hypothesis was rejected and the directional hypothesis five was supported for Puerto Rican, public and private universities.

H6: Students who agreed that small class size aided their learning in the first accounting course will outperform students who disagreed.

First, Table 13 in Appendix H shows 88% of the respondents from Puerto Rican universities who fell under a class size of 25 or less had a lower achievement rate in the first accounting course compared to 96% that fell under class size of 26 or more, and was statistically significant at $p < .01$. Table 13 also shows 84% respondents from public universities who fell under a class size of 25 or less had a lower achievement rate in the first accounting course compared to 96% that fell under class size of 26 or more, and was statistically significant at $p < .01$. Respondents from public universities did not have a class size of more than 35. Table 13 also shows 95% of the respondents from private universities who fell under a class size of 25 or less had a lower achievement rate in the first accounting course compared to 96% class size of 26 or more. The effect of class size and first accounting course grade was not statistically significant for private universities, $X^2(3, 334) = .69, p = .88$.

Second, Table 14 in Appendix H shows 93% of the respondents from Puerto Rican universities who agreed that class size aided student's learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 80% that disagreed, and was statistically significant at $p < .01$. Table 14 also shows 90% of the respondents from public universities who agreed that class size aided student's learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 71 % that disagreed, and was statistically significant at $p < .01$. Table 14 also shows 97% of the respondents from private universities who agreed that class size aided students' learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 89% that disagreed. However, the effect of perception if class size aided student learning in the first accounting course and the first accounting course grade was not statistically significant for private universities, $X^2(3, 334) = 7.35, p = .06$.

And third, the Chi-Square test results on Table 15 in Appendix H demonstrate 92% of respondents from Puerto Rican universities in a class size of 25 or less who agreed that class size aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 72% that disagreed, and was statistically significant at $p < .01$. Table 15 also demonstrates 97% of respondents from Puerto Rican universities in a class size of 26 or more who agreed that class size aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 92% that disagreed. However, the effect of class size, student perception if class size aided student learning in

the first accounting course, and first accounting course grade was not statistically significant for a class size of 26 or more, $X^2(3, 196) = 6.77, p = .08$.

Table 15 also demonstrates 88% of respondents from public universities in a class size of 25 or less who agreed that class size aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 65% that disagreed, and was statistically significant at $p < .01$. Table 15 also demonstrates 100% of respondents from public universities in a class size of 26 or more who agreed that class size aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 89% that disagreed, and was statistically significant at $p < .05$.

Table 15 demonstrates 97% of respondents from private universities in a class size of 25 or less who agreed that class size aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 84% that disagreed, and was statistically significant at $p < .01$. Table 15 also demonstrates 96% of respondents from private universities in a class size of 26 or more who agreed that class size aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 94% that disagreed. However, the effect of class size, student perception if class size aided student learning in the first accounting course, and first accounting course grade was not statistically significant for a class size of 26 or more, $X^2(3, 147) = 2.72, p = .44$.

There are some contradictions in the results obtained for hypothesis six. Table 13 demonstrated that students in large class size (26 or more students) outperformed students in small class size (25 or less students) for Puerto Rican and public universities. On the

other hand, Tables 14 demonstrated that respondents from Puerto Rican and public universities perceived that students in small class size outperformed students in large class size, and Table 15 also demonstrated that respondents from Puerto Rican, public, and private universities in small class size (25 or less students) who agreed that small class size aided the student in his/her learning in the first accounting course outperformed students who disagreed.

Tables 13 results rejected the null hypothesis and supported the alternative hypothesis for Puerto Rican and public universities. However, the results were not statistically significant for private universities to analyze the data.

Tables 14 results confirmed for Puerto Rican and public universities, and Table 15 confirmed for Puerto Rican, public and private universities with class size of 25 or less the statement students who agreed that small class size aided student's learning in the first accounting course will outperform students who disagreed. The null hypothesis was rejected and the directional hypothesis six was supported for Puerto Rican, public, and private universities. However, the effect of class size was neither statistically significant for private universities on Table 14, nor for Puerto Rican, nor for private universities with class size of 26 or more on Table 15.

H7: Students who agreed that classroom environment aided their learning in the first accounting course will outperform students who disagreed.

The Chi-Square test results, Table 22 in Appendix H, demonstrate 92% of respondents from Puerto Rican universities who agreed that classroom environment aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 80% that disagreed, and was statistically significant

at $p < .01$. Table 22 also shows 88% of respondents from public universities who agreed that classroom environment aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 76% that disagreed, and was statistically significant at $p < .05$. Table 22 also demonstrates 97% of respondents from private universities who agreed that classroom environment aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 86% that disagreed, and was statistically significant at $p < .05$.

The Chi-Square results confirmed for Puerto Rican, public and private universities the statement students who agreed that classroom environment aided student learning in the first accounting course will outperform students who disagreed. The null hypothesis was rejected and the directional hypothesis seven was supported.

H8: Students who agreed that the role played by the professor in the teaching-learning process aided student learning in the first accounting course will outperform students who disagreed.

The Chi-Square test results, Table 25 in Appendix H, demonstrate 93% of the respondents from Puerto Rican universities who agreed that the role played by the professor in the teaching-learning process aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 73% that disagreed, and was statistically significant at $p < .01$. Table 25 also demonstrates 89% of respondents from public universities who agreed that the role played by the professor in the teaching-learning process aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 68%

that disagreed, and was statistically significant at $p < .01$. Table 25 also demonstrates 97% of respondents from private universities who agreed that the role played by the professor in the teaching-learning process aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 79% that disagreed, and was statistically significant at $p < .01$.

The Chi-Square results confirmed for Puerto Rican, public and private universities the statement students who agreed that the role-played by the professor in the teaching-learning process aided student learning in the first accounting course, will outperform students who disagreed. The null hypothesis was rejected and the directional hypothesis eight was supported.

The third part of the study was related to the external classroom factors influencing students' academic performance in the first accounting course. External classroom factors were independent variables indirectly related to the students' academic performance in the first accounting course during the 2003 fall semester, including extracurricular, family and work for pay activities. The researcher formulated research statements and hypotheses related to external classroom factors influencing students' academic performance in the first accounting course.

Research statement

It seems that the student who spent fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform in the first accounting course students who spent more hours.

Null hypothesis

There is no difference in the students' performance in the first accounting course between the students who spent more hours on external classroom factors (extracurricular, family and work for pay activities) than the students who spent fewer hours.

Primary Hypothesis

Hypothesis 9: Students who spent fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform in the first accounting course students who spent more hours.

First, the 4-point Likert scale, with items ranging from (1) totally disagree, (2) disagree, (3) agree to (4) totally agree, was converted to 2-point scale, (1) totally disagree and disagree and (2) totally agree and agree, to obtain the minimum number of items in each cell in the Chi Square analysis for better results. Based on this new 2-point scale, a t-test was applied to determine the combined external classroom factors average mean (Table 28 in Appendix H), which resulted in 1.35, with 1.29 and 1.41 for Puerto Rican, public and private universities respectively. The t-test results demonstrated that Puerto Rican, public and private universities had the same tendency to disagree (less than 1.50 in the combined 2-point scale) that external classroom factors aided student learning in the first accounting course.

Second, the Chi-Square test results (Table 29 in Appendix H) demonstrate that respondents from Puerto Rican universities who spent nine or fewer hours showed a lower achievement rate of 89% (477 out of 533) compared to 94% (120 out of 127) that spent 10 or more hours. The effect of combined external classroom factors was not statistically significant, $X^2(3, 660) = 5.02, p = .17$. Table 29 also shows that respondents

from public universities who spent nine or fewer hours showed a lower achievement rate of 85% (231 out of 273) compared to 90% (48 out of 53) that spent 10 or more hours.

The effect of combined external classroom factors was not statistically significant, $X^2(3, 326) = 3.60, p = .31$. Table 29 also shows that respondents from private universities who spent nine or fewer hours showed a lower achievement rate of 95% (246 out of 260) compared to 97% (72 out of 74) that spent 10 or more hours. The effect of combined external classroom factors was not statistically significant, $X^2(3, 334) = 1.46, p = .69$.

Third, the Chi-Square test results (Table 30 in Appendix H) demonstrate 94% of respondents from Puerto Rican universities who agreed that combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 89% that disagreed, and was statistically significant at $p < .05$. Table 30 also shows 88% of respondents from public universities who agreed that combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 83% that disagreed, and was statistically significant at $p < .05$. Table 30 also shows 97% of respondents from private universities who agreed that combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 94% that disagreed. The effect of combined external classroom factors was not statistically significant, $X^2(3, 334) = 4.59, p = .20$.

And fourth, when the researcher combined the hours spent, respondents' perception if the hours spent on the combined external classroom factors aided student learning in the first accounting course, and the first accounting course grade on Table 31

in Appendix H, the Chi-Square test results demonstrates that 93% of respondents from Puerto Rican universities who spent nine or fewer hours agreed that the combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 87% that disagreed, and was statistically significant at $p < .05$. The effect of combined external classroom factors for respondents who spent 10 or more hours was not statistically significant, $X^2(3, 127) = 1.79, p = .62$.

Table 32 in Appendix H shows 88% of respondents from public universities who spent nine or fewer hours agreed that the combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 83% that disagreed, and was statistically significant at $p < .05$. The effect of combined external classroom factors for respondents who spent 10 or more hours was not statistically significant, $X^2(3, 53) = 1.12, p = .77$.

Table 33 in Appendix H shows 96% of respondents from private universities who spent nine or fewer hours agreed that the combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 93% that disagreed. The effect of combined external classroom factors for respondents who spent nine or fewer hours was not statistically significant, $X^2(3, 260) = 5.19, p = .16$.

Table 33 also shows 100% of respondents from private universities who spent 10 or more hours agreed that the combined external classroom factors aided student learning in the first accounting course showed a higher achievement rate in the first accounting course compared to 95% that disagreed. The effect of combined external classroom

factors for respondents who spent 10 or more hours was not statistically significant, $X^2(3, 74) = 2.13, p = .55$.

There are some contradictions in the results obtained for hypothesis nine. Table 29 demonstrated that students who spent more hours on combined external classroom factors outperformed students who spent fewer hours. However, hours spent on combined external classroom factors was neither statistically significant for Puerto Rican, nor for public, nor for private universities.

On the other hand, Table 28 demonstrated that respondents from Puerto Rican, public and private universities had the same tendency to disagree that external classroom factors aided student learning in the first accounting course, and Table 30 shows those respondents who agreed outperformed respondents who disagreed for Puerto Rican and public universities. However, the effect of combined external classroom factors was not statistically significant for private universities to analyze the data.

Table 31 for Puerto Rican universities and Table 32 for public universities results also demonstrated respondents that spent nine or fewer hours who agreed that combined external classroom factors aided student learning in the first accounting course outperformed students who disagreed. However, the effect of combined external classroom factors on Tables 31 and 32 were not statistically significant for 10 or more hours to analyze the data. Table 33 shows private universities results for the hours spent on combined external classroom factors, perception if combined external classroom factors aided student learning, and the first accounting course grade, but the effect of combined external classroom factors was neither statistically significant for nine or fewer hours nor for 26 or more hours to analyze the data.

Respondents' perception results on Table 28, Table 30, and Tables 31 and 32 with nine or fewer hours confirmed for Puerto Rican and public universities the statement students who spent fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform in the first accounting course students who spent more hours. The null hypothesis was rejected and the directional hypothesis nine was supported for Puerto Rican and public universities.

In contrast, hours spent results in Table 29 did not confirm for Puerto Rican, public, private universities the statement students who spent fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform in the first accounting course students who spent more hours. The null hypothesis was rejected and the alternative hypothesis nine was supported for Puerto Rican and public universities.

Secondary Hypotheses

H10: Students who spend fewer hours on extracurricular activities will outperform in the first accounting course students who spend more hours.

Table 34 in Appendix H reflects the results of the Chi-Square test that was applied, including hours spent on extracurricular activities (independent variable) and first accounting course grades (dependent variable), to show how the respondents perform in the first accounting course based on the hours spent categories. Contrary to the statement of hypothesis ten, Table 34 results also demonstrated for Puerto Rican, public and private universities that students who spent fewer hours (nine or fewer hours) on extracurricular activities did not outperform in the first accounting course students who spent more hours (10 or more hours). However, the effect of hours spent on

extracurricular activities was neither statistically significant for Puerto Rican, nor for public, nor for private universities to analyze the data for hypothesis ten.

H11: Students who spend fewer hours on family activities will outperform in the first accounting course students who spend more hours.

Table 39 in Appendix H shows the results of the Chi-Square test that was applied including hours spent on family activities (independent variable) and first accounting course grades (dependent variable), to show how the students perform in the first accounting course based on the hours spent categories. Table 39 also demonstrates for Puerto Rican and public universities that students who spent fewer hours (nine or fewer hours) on family activities outperformed students who spent more hours (10 or more hours), which concurred with the statement of hypothesis eleven.

Contrary to the statement of hypothesis eleven, Table 39 also demonstrates for private universities that students who spent fewer hours (nine or fewer hours) on family activities did not outperform students who spent more hours (10 or more hours).

However, the effect of hours spent on family activities was neither statistically significant for Puerto Rican, nor for public, nor for private universities to analyze the data for hypothesis eleven.

H12: Students who spend fewer hours on work for pay activities will outperform in the first accounting course students who spend more hours.

Table 44 in Appendix H reflects the results of the Chi-Square test that was applied including hours spent on work for pay activities (independent variable) and first accounting course grades (dependent variable), to show how the students perform in the first accounting course based on the hours spent categories. Contrary to the statement of

hypothesis twelve, Table 44 results also demonstrated for Puerto Rican, public and private universities that students who spent fewer hours (nine or fewer hours) on work for pay activities did not outperform in the first accounting course students who spent more hours (10 or more hours). The effect of working for pay activities was statistically significant for Puerto Rican universities at $p < .05$, but it was neither statistically significant for public nor for private universities.

The Chi-Square test results did not confirm that students from Puerto Rican universities who spent fewer hours (nine or fewer hours) during a typical week on working activities outperformed in the first accounting course students who spent more hours (10 or more hours). The null hypothesis was rejected and hypothesis twelve was not supported for Puerto Rican universities. The effect of working for pay activities was neither statistically significant for public nor for private universities to analyze the data for hypothesis twelve.

H13: Students who spend more hours studying for first accounting course will outperform students who spend fewer hours.

Table 49 in Appendix H reflects the results of the Chi-Square test that was applied; including hours spent studying for first accounting course (independent variable) and first accounting course grades (dependent variable), to show how the students perform in the first accounting course based on the hours spent categories. Table 49 results also demonstrated for Puerto Rican, public, and private universities that students who spent more hours (10 or more hours) studying for the first accounting course outperformed students who spent fewer hours (nine or fewer hours), which concurred with the statement of hypothesis thirteen. The effect of hours spent studying for first

accounting course was statistically significant for Puerto Rican universities at $p < .01$, but it was neither statistically significant for public nor for private universities.

The Chi-Square test results rejected the null hypothesis and support hypothesis thirteen for Puerto Rican universities. However, the effect of hours spent for studying for first accounting course was neither statistically significant for public or for private universities to analyze the data for hypothesis thirteen.

Sixth: a summary of results.

In summary, findings of the first part of the study about perception that the number of failures in the first accounting course from private universities was higher than public universities did not concur with the first hypothesis. The grade distribution reports from private universities (Figure 3 in Appendix I) reflected a failure rate between 40 to 50 percent for the six semesters before the 2003 fall semester, which was the semester used for this study. The 2003 fall semester reflected about 40% of failures in the first accounting course in the grade distribution report from private universities. The grade distribution reports, which contain the actual final first accounting course grade, revealed that the high failure rate in the first accounting course is a reality, not a perception, in private universities in Puerto Rico.

The other two parts of the study could be summarized in the following simple statement: the findings of the study show that the combined internal classroom factors reflected a tendency to favorably influence student's academic performance in the first accounting course, while the combined external classroom factors did not reflect the same tendency. The internal classroom factors that reflected a tendency to influence the students' academic performance in the first accounting course were course schedule,

small class size, business reality scenario, classroom environment, accounting concepts simplicity, homework, professor's role in the classroom and exams. The internal classroom factors that did not reflect the tendency to influence student's academic performance in the first accounting course were the accounting textbook and technology.

Even though the accounting text, written in English, was the lowest mean average in the combined internal classroom factors, as an individual factor the respondents perceived that students who acquired text outperformed students who did not. Even though technology was the second lowest mean average in the combined internal classroom factors, as an individual factor the respondents perceived that technology was essential in the teaching-learning process only for Puerto Rican universities. The effect of technology was neither statistically significant for public nor for private universities.

None of the external classroom factors nor their hours spent reflected a tendency to influence students' academic performance in the first accounting course. Respondents' perceptions appeared to agree that hours spent in extracurricular, family and work activities did not influence student's academic performance in the first accounting course.

Summary of Results

Hypotheses		Statistically Significant			Hypotheses' Support			Literature Review		
Num.	Description	Table	Puerto			Puerto			On hand	Agree
			Rican	Public	Private	Rican	Public	Private		
H1	Number of student failure in the first accounting course	T9	p < .01	N/A	N/A	N	N/A	N/A	Y	N
H2	Combined internal classroom factors-means	T19	N/A	N/A	N/A	Y	Y	Y	Y	N
H2	Internal factors: perception-first accounting course grade	T20	p < .01	p < .01	p < .01	Y	Y	Y	Y	N
H3	Text acquisition-first accounting Course grade	T16	N	N	p < .05	Y	N	Y	N	N/A
H3	Text: Perception-first accounting course grade	T17	p < .01	p < .01	p < .01	Y	Y	Y	N	N/A
H3	Text acquisition-perception-first accounting course grade	T18	p < .01	p < .01	p < .01	Y	Y	Y	N	N/A

Summary of Results (continued)

Hypotheses		Statistically Significant			Hypotheses' Support			Literature Review		
Num.	Description	Table	Puerto			Puerto			On hand	Agree
			Rican	Public	Private	Rican	Public	Private		
H3	No text acquisition-perception-first accounting course grade	T18	N	N	N	Y	Y	Y	N	N/A
H4	Technology: perception-first accounting course grade	T27	p < .01	N	N	Y	Y	Y	Y	N
H5	Acct material easy: perception-first accounting course grade	T23	p < .01	p < .01	p < .01	Y	Y	Y	N	N/A
H6	Class size-grade performance	T13	p < .01	p < .01	N	N	N	N	Y	Y
H6	Class size: perception-first accounting course grade	T14	p < .01	p < .01	N	Y	Y	Y	Y	N
H6	Small class size-perception-first accounting course grade	T15	p < .01	p < .01	p < .01	Y	Y	Y	Y	N

Summary of Results (continued)

Hypotheses		Table	Statistically Significant			Hypotheses' Support			Literature Review	
Num.	Description		Puerto Rican	Public	Private	Puerto Rican	Public	Private	On hand	Agree
H6	Large class size-perception-first accounting course grade	T15	N	p < .05	N	Y	Y	Y	Y	N/A
H7	C/R environment: perception-first accounting course grade	T22	p < .01	p < .05	p < .05	Y	Y	Y	N	N/A
H8	Professor role: perception-first accounting course grade	T25	p < .01	p < .01	p < .01	Y	Y	Y	Y	N
H9	Combined external classroom factors- means	T28	N	N	N	Y	Y	Y	Y	Y/N
H9	E.F. Hours Spent and first accounting course grade	T29	N	N	N	N	N	N	Y	Y/N
H9	External factors: perception-first accounting course grade	T30	p < .05	p < .05	N	Y	Y	Y	Y	Y/N

Summary of Results (continued)

Hypotheses		Statistically Significant				Hypotheses' Support			Literature Review	
Num.	Description	Table	Puerto Rican	Public	Private	Puerto Rican	Public	Private	On hand	Agree
H9	E.F. $9 \leq$ hours-perception-first accounting course grade	T31	$p < .05$	N/A	N/A	Y	N/A	N/A	Y	Y/N
H9	E.F. $10 \geq$ hours-perception-first accounting course grade	T31	N	N/A	N/A	Y	N/A	N/A	Y	N/A
H9	E.F. $9 \leq$ hours-perception-first Accounting course grade	T32	N/A	$p < .05$	N/A	N/A	Y	N/A	Y	Y/N
H9	E.F. $10 \geq$ hours-perception-first accounting course grade	T32	N/A	N	N/A	N/A	N	N/A	Y	N/A
H9	E.F. $9 \leq$ hours-perception-first accounting course grade	T33	N/A	N/A	N	N/A	N/A	Y	Y	N/A

Summary of Results (continued)

Hypotheses		Statistically Significant			Hypotheses' Support			Literature Review		
Num.	Description	Table	Puerto			Puerto			On hand	Agree
			Rican	Public	Private	Rican	Public	Private		
H9	E.F. 10 \geq hours-perception-first accounting course grade	T33	N/A	N/A	N	N/A	N/A	Y	Y	N/A
H10	Extracurr. acts: hours-perception-first accounting course grade	T34	N	N	N	N	N	N	Y	N/A
H11	Family acts: hours-perception-first accounting course grade	T39	N	N	N	Y	Y	N	Y	N/A
H12	Work acts: hours-perception-first accounting course grade	T44	Y	N	N	N	N	N	Y	Y
H13	Studying: hours-perception-first accounting course grade	T49	Y	N	N	Y	Y	Y	N	N/A

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter starts with a synopsis of the problem, the methodology, and the findings of the study. The chapter ends with the conclusions, limitations, and recommendations.

Summary

Many universities are experiencing a high number of student failures and low academic performance in the first accounting course. Accounting practitioners, employers, and academics agreed that the problem with this course is a reality. Today, accountants have become increasingly concerned about the quality and quantity of entrants into the accounting profession (AAA, 1986; Big Six Accounting Firms [Perspective Paper], 1989; AECC, 1990).

The purpose of this study was to investigate if it is a reality that there are many failures in the first accounting course and to compare public and private university failures in the first accounting course in Puerto Rico. Also, to search out students' perception about factors that could influence their academic performance in the first accounting course, which the researcher clustered as internal or external classroom factors.

The researcher focused on three different parts. First, to determine how many failures were reported in each section in the first accounting course by each campus under study. Many accounting professors from private and public universities in Puerto Rico have experienced a high number of student failures in the first accounting course. The accounting professors perceived that student failure fluctuated between 30 and 40 percent, and in some occasions more than 40%, during the last ten or twelve years. Also

accounting professors in Puerto Rican universities have commented that the number of student failures in the first accounting course from private universities was higher compared to public universities.

Second, to have a better understanding of student perceptions about internal classroom factors that could influence students' academic performance in the first accounting course. A variety of researchers have conducted several studies in this area (Almer et al., 1998; Basile & D'Aquila, 2002; Beets & Lobingier, 2001; Hill, 1998; Ingram, 1998; Jones & Fields, 2001; Marcheggiani et al., 1999; Mintz & Cherry, 1993; Rosacker & Rosacker, 1995).

And third, to have a better understanding of student perceptions about external classroom factors that could influence students' academic performance in the first accounting course. A variety of researchers have conducted several studies in this area (Gist, Goedde, & Ward, 1996; Booker, 1991; Rumberger, 1990; Wooten, 1998).

The population for this study was students in the first accounting course at universities in Puerto Rico. The sample (n = 1721 students) included thirteen campuses from three different universities out of 65 campuses in Puerto Rico. All sections offered for the first accounting course at five campuses in the public (state) universities and eight campuses in private universities were included in the study.

The researcher created a questionnaire as the measuring instrument for this study (Appendix A). The questionnaire itself was anonymous; it was validated by six experts, and a pilot study was conducted before full administration to test its reliability. The instrument was deemed reliable after evaluating the pilot study results with a Cronbach's alpha coefficient of .87. Survey participants for this study responded to each statement

using a 4-point Likert scale with items ranging from (1) totally disagree, (2) disagree, (3) agree, to (4) totally agree, which the researcher converted to two point scale to increase the valid cells in the Chi Square test analysis for better results.

Each student in the first accounting course completed the questionnaire in their respective classroom, and hand delivered it to the responsible professor who conducted the first accounting course. The professor in turn, hand delivered the completed questionnaires to the department chair. The researcher traveled to each campus and picked up the completed questionnaires from the Department Chair's Office.

The Chi-Square test was the statistical tool applied to most of the analyses in this study. The first part of the study about perception that the number of failures in the first accounting course from private universities was higher than public universities was not like-minded with the findings of the study that supported the alternative hypothesis. The findings of the study also show that internal classroom factors (second part of the study) reflected a tendency to favorably influence student academic performance in the first accounting course, while external classroom factors (third part of the study) did not reflect the same tendency.

The following paragraphs reveal the conclusions, limitations, and recommendations of the study.

Conclusions

Even though the findings of this study could be applied to all college students in the first accounting course in the United States mainland, the researcher suggests the results apply only to college students in the first accounting course in Puerto Rico. The

researcher analyzed the data generated by the study to test thirteen hypotheses, with some tracking for future research.

Student Failure in the First Accounting Course

The findings support the accounting practitioner, employer, and academic concerns about high number of student failures and low academic performance in the first accounting course (accounting practitioner, employer, and academic comments heard by the researcher's sixteen years of academic experience). Also, the findings concurred with the accountants concerns about the quality and quantity of entrants into the accounting profession (AAA, 1986; Big Six Accounting Firms [Perspective Paper], 1989; AECC, 1990). Today, 2003, this study reflected the same tendency of twenty years ago, the accounting profession in Puerto Rico is still confronting the dilemma of low academic performance in the first accounting course.

H1: The number of student failures in the first accounting course from private universities was higher than those from public (state) universities.

The findings of this study did not support the first hypothesis. The academics' perception of the first hypothesis could be based on the strict admission requirement (a combination of high school GPA and college entrance examination score) in public universities, while in private universities the admission requirement is more flexible. The primary reason for this tradition is that high school students in Puerto Rico search for a public university as their first choice, because is cheaper than private universities; \$30 per credit hour versus \$110, respectively. Most of the high school students with a good academic performance will end up at public universities, while those remaining who are not accepted by public universities, will finally start their college studies at private

universities. Another factor that could influence the academics and practitioners to have this perception is the tradition that a large number of students who passed the CPA exam come from public universities.

However, the findings of this study are opposite of academics and practitioners' perceptions. The findings of this study for the second hypothesis, which the researcher analyzed after hypothesis one in this chapter, demonstrated that respondents from public and private universities agreed that internal classroom factors aided student learning in the first accounting course. However, it highlighted that respondents from public universities reflected lower average means (representing degree of agreement or disagreement) for most internal classroom factors (8 out of 10) compared to private universities. Except for the average means for accounting concepts with real facts (public universities were higher with a slight difference) and tests administered (both with the same mean), the remainder of the factors were lower. These results appeared to coincide with the academics' and practitioners' perceptions that faculty from public universities is more conservative than faculty from private universities, which may result in less student-professor relationship in the teaching-learning process in public universities. The students from public universities appeared to be more independent in their study habits than private universities. Since the students in private universities in Puerto Rico represent the lowest GPA average and lowest college entrance examination scores, the administration and faculty from private universities may look for a closer student-professor relationship in the teaching-learning process. Looking for this closer relationship, the faculty from private universities appeared to provide a variety of teaching strategies (conferences, teaching transparencies, power point slide shows, team

teaching, team projects, problem solving with accounting software and worksheets, assessment techniques, etc.), and a variety of evaluating techniques (like compensating students for class attendance and homework, individual and team special projects with or without computer accounting software, etc.) to help with student attention and motivation. Even though the students from private universities did not appear to be more independent, their academic performance reflected a lower failure rate than students from public universities.

Internal Classroom Factors

H2: Students who agreed that the internal classroom factors aided their learning in the first accounting course will outperform students who disagreed.

The findings of this study supported the second hypothesis for Puerto Rican public and private universities. Private universities reflected a higher academic performance and a higher degree of agreement about the combined internal classroom factors compared to public universities.

The difference of academic performance and the degree of agreement about the combined internal classroom factors between the public and private universities could be influenced by an academic conservative attitude of the public universities compared to an academic avant-garde attitude in line with the actual student behavior, real business environment and needs, and social, economic and political changes. Private universities offer more alternatives to facilitate student life during their career development than public universities (like course schedule, class size, tutorial services, day and night courses, special non-traditional student services, extended administrative service hours, different enrollment and payment methods, etc.). The conservatism of public universities

may force students to be more independent (a lower student/professor academic relationship) compared to the broadmindedness of private universities that may encourage the student to be more dependent (a closer student/professor academic relationship).

The internal classroom factors that influenced students' academic performance in the first accounting course were course schedule, small class size, accounting concepts with business reality scenarios, classroom environment, accounting concepts simplicity, homework, professor's role in the classroom and exams. The internal classroom factors that did not influence students' academic performance in the first accounting course were the textbook and technology.

Ward et al. (1994) demonstrated that students who failed their first accounting course attributed that failure to a lack of study, inability to apply the material covered, speed of coverage of the material, and the instructor, among other possible factors. Even though most of the factors included in Wards' study were not the same as the factors incorporated in this study, Wards findings were not in accordance with this researcher's findings.

There was no other study that considered all combined internal classroom factors incorporated in this study to make an appropriate comparison. However, the researcher established other hypotheses for some of these internal classroom factors in order to compare them with other studies presented in the literature review section.

H3: Students who agreed that accounting text, written in English, aided student's learning in the first accounting course will outperform students who disagreed.

The findings of this study supported the third hypothesis for Puerto Rican public and private universities. Private universities reflected a higher academic performance and a higher degree of agreement about the text, written in English, compared to public universities. The conservatism of public universities may force the student to be more independent (a lower student/professor academic relationship) compared to the broadmindedness of private universities that may encourage the student to be more dependent (a closer student/professor academic relationship). Students from public universities appear to independently study with the accounting English text more, compared to private universities.

Even though English is not the primary language in Puerto Rico (Table 5 in Appendix H), students in Puerto Rican universities are accustomed to study with English texts in the Business Administration courses, especially in accounting. Another reason could be that the Certified Public Accountant (CPA) candidates must take and pass the United States national CPA exam in English to be licensed as a CPA in Puerto Rico, like any other of the 50 states. Since the accounting English text is a concern with Puerto Rico university students, there was not literature available to compare these findings.

H4: Students who agreed that technology was essential in the teaching-learning process in the first accounting course will outperform students who disagreed.

Even though 52% of the respondents disagreed that technology was essential in the teaching-learning process in aiding student learning in the first accounting course, the findings supported the fourth hypothesis only for Puerto Rican universities. Public universities reflected twice as much disagreement (70%) compared to private universities

(34%). However, the effect of technology was not statistically significant for public or private universities, as a separate cluster.

The findings of this study did not concur with the findings of Basile and D'Aquila (2002) that found that most students were comfortable with the computer and the internet and those in the computer-mediated instructional setting reported fairly positive attitudes. Survey results revealed no significant differences between the two groups in attitudes about the course. The study did not concur with the findings of Beets and Lobingier (2001) that provide no evidence of overall differences in student learning among the three methods (use of a chalkboard, use of an overhead projector, and use of computer-projected software).

Technology appears to be a good accounting tool to facilitate handling high volume of data and its analysis, which is good for the student. However, apparently it makes no difference if the student learns accounting with or without technology.

H5: Students who agreed that the material covered in the course was very simple (easy to understand), in the first accounting course, will outperform students who disagreed.

The findings of this study supported the fifth hypothesis for Puerto Rican public and private universities. Private universities reflected a higher academic performance and a higher degree of agreement about clear accounting concepts compared to public universities. The conservatism of public universities may force the student to be more independent (a lower student/professor academic relationship) compared to the broadmindedness of private universities that may encourage the student to be more dependent (a closer student/professor academic relationship). Also, the role played by

accounting professors in private universities appeared to be voluntarily forced to provide a variety of teaching strategies and evaluating techniques to increase student attention and motivation.

Most of the respondents perceived that the material covered in the course was simple. Even though the text was in English, the professor conducted the class in Spanish. The homework was in English, the classroom discussion was in Spanish; and the exams could be written in English, Spanish or Spanglish (a combination of Spanish with the accounting terminology in English). Professors and students, as a team, brought into play all these efforts during the teaching-learning process that might simplify accounting course material in Puerto Rican universities.

H6: Students who agreed that the small class size aided their learning in the first accounting course will outperform students who disagreed.

The findings of the study supported hypothesis six for Puerto Rican public and private universities based on students' perceptions (Tables 14 and 15 in Appendix H). Private universities reflected a higher academic performance and a higher degree of agreement about class size compared to public universities.

The conservatism of public universities may force the student to be more independent (a lower student/professor academic relationship) compared to the broadmindedness of private universities that may encourage the student to be more dependent (a closer student/professor academic relationship). The norm for class size is a maximum of 30 students in public universities and it is strictly followed, and with 35 students in private universities, which were more flexible and could go up to 55.

This part of the study did not agree with the findings of Hill (1998) that investigated the effect of large sections on accounting student performance and perceptions in the introductory courses. An ANCOVA model showed that students in large classes outperformed students in small classes when other explanatory variables were considered (attendance, GPA).

However the findings were contradictory when class size was analyzed with the first accounting course grade at the moment the questionnaire was completed (Table 13 in Appendix H). A class size of 25 or less (representing 70% of the respondents) showed a lower academic achievement rate compared to a class size of 26 or more. This part of the study did not support hypothesis six for Puerto Rican public universities, but agreed with the findings of Hill (1998) when larger class sizes outperformed students in smaller class sizes. The researcher did not consider it appropriate to compare the findings for class size and the first accounting course grade for private universities, because the effect of class size was not statistically significant.

Even though the students perceived that the smaller class size is a better academic environment than larger class sizes for a satisfactory academic performance in the first accounting course, the findings about class size and the first accounting course grade turned out to be the opposite. The findings of Hill (1998) and this study were opposed the old academic' myth that a small class size is a better environment than a large class size.

H7: Students who agreed that the classroom environment aided their learning in the first accounting course will outperform students who disagreed.

The findings of this study supported hypothesis seven for Puerto Rican public and private universities. Private universities reflected a higher academic performance and a

higher degree of agreement about classroom environment compared to public universities.

The conservatism of public universities may force the student to be more independent (a lower student/professor academic relationship) compared to the broadmindedness of private universities that may encourage the student to be more dependent (a closer student/professor academic relationship). Private universities appeared to provide more comfortable classroom facilities in line with the education technology development and customer satisfaction (service business oriented) compared to public universities with conservative classroom facilities (service government oriented).

Since Puerto Rico has a tropical environment, the weather conditions are very hot all year around. Most of the universities in Puerto Rico provide a classroom environment with air conditioning, academically and technologically equipped, and with the appropriate maintenance schedule. This classroom environment might provide a physically and intellectually healthy attitude, which aided student learning in the first accounting course. The researcher did not find articles related to classroom environment during the literature review process.

H8: Students who agreed that the role played by the professor in the teaching-learning process aided their learning in the first accounting course will outperform students who disagreed.

The findings of this study supported hypothesis eight for Puerto Rican public and private universities. Private universities reflected a higher academic performance and a

higher degree of agreement about the role played by the professor, compared to public universities.

The conservatism of public universities may force the student to be more independent (a lower student/professor academic relationship) compared to the broadmindedness of private universities that may encourage the student to be more dependent (a closer student/professor academic relationship). Also, the role played by accounting professors in private universities appeared to provide a variety of teaching strategies and evaluating techniques to increase the student's attention and motivation.

The findings reflected a tendency of a favorable influence in the students' academic performance in the first accounting course with the professor's role in the teaching-learning process. This finding did not agree with Ward's findings. Ward et al. (1994) found that students who failed their first accounting course attributed that failure to a lack of study, inability to apply the material covered, the speed of coverage of the material, and *the instructor*, among other possible factors. The *instructor* (professor in this study), one of the variables used in the research by Ward et al. (1994) was one of the possible factors for student failure, while in this study the professor (*instructor* in Ward's study) was one of the possible factors that favorably influenced student's academic performance in the first accounting course.

External Classroom Factors

H9: Students who spend fewer hours on external classroom factors (extracurricular, family and work for pay activities) will outperform first accounting course students who spend more Hours.

The study reflected contradictory results for combined external classroom factors. First, hypothesis nine was not supported, (Table 29 Appendix H). However, the effect of hours spent on combined external classroom factors was not statistically significant for Puerto Rican universities. Even though it was not statistically significant, the first part of the results for hypothesis nine, concurred with Wooten's (1998) findings, which reflected that extracurricular activities and work responsibilities did not have a significant impact on motivation on student performance in the first accounting course. However, the study disagreed with Wooten's (1998) findings that reflected that family responsibilities influenced the amount of effort the students put forth in the first accounting course.

Second, the findings of this study supported hypothesis nine: (1) When the average means (representing degree of agreement or disagreement) of combined external classroom factors (Table 28 in Appendix H) disagreed that combined external classroom factors aided student learning in the first accounting course for Puerto Rican public and private universities; (2) Students disagreed that combined external classroom factors aided student learning in the first accounting course for Puerto Rican and public universities (Table 30 in Appendix H). Even though private universities reflected the same tendency as public universities, it was not statistically significant; and (3) Students who spent nine or fewer hours agreed that combined external classroom factors aided student learning in the first accounting course, outperformed students who disagreed (Tables 31 and 32 in Appendix H, respectively). The effect of the combined external classroom factors was not statistically significant for private universities (Table 33 in Appendix H) who spent nine or fewer hours, or for Puerto Rican public or private universities who spent 10 or more hours.

The second part of the results for hypothesis nine coincided with Wooten's (1998) findings that reflected that family responsibilities influenced the amount of effort the students put forth in the first accounting course, but disagreed with Wooten's (1998) findings about extracurricular activities and work responsibilities. Wooten (1998) stated that for both traditional and nontraditional students, it is difficult to explain why the extracurricular activities and the work activities variables did not have a significant effect on effort. All instructors hear students complain of busy schedules that take away from study hours. Perhaps it has become so commonplace today for students to be involved in outside activities and to be working that they perceive it to be a regular part of the college experience and do not view it as a distraction that is unique to them.

The researcher concurred with Wooten's (1998) comment when it is applied to the real student life in Puerto Rico. Many of the students in Puerto Rico are involved in extracurricular, work and family activities, because they get married, have children, must work, and must get involved in different kinds of extracurricular activities with their kids, co-workers, and other students in their education process. Since these have been accepted as a common practice, it appears that students got used to them during their student career development.

H10: Students who spend fewer hours on extracurricular activities will outperform on first accounting course students who spend more hours.

The findings of the study did not support hypothesis ten for Puerto Rican public and private universities. However, the effect of hours spent on extracurricular activities was not statistically significant.

H11: Students who spend fewer hours on family activities will outperform on first accounting course students who spend more hours.

The findings of the study supported hypothesis eleven for Puerto Rican public universities, but not for private universities.

H12: Students who spend fewer hours on working for pay activities will outperform on first accounting course students who spend more hours.

The findings of the study did not support hypothesis twelve for Puerto Rican universities, but agreed with Wooten's (1998) findings that reflected that working responsibilities did not have a significant impact on motivation on student performance in the first accounting course. Probably, in the last ten or twenty years, working responsibilities had become part of the student's career development process at universities. Many of the students in Puerto Rican universities feel the need to obtain some extra cash to handle their personal financial situation and probably they will make all efforts to get a job while studying. The effect of working for pay activities was neither statistically significant for public nor for private universities.

H13: Students who spend more hours studying for the first accounting course will outperform students who spend fewer hours.

The findings of the study supported hypothesis thirteen for Puerto Rican universities. The findings of the study shows that most of the students from Puerto Rican universities spent nine or fewer hours studying for the first accounting course, which represents approximately 2.25 hours of study for each credit hour in the classroom. If 90% of respondents from Puerto Rican universities approved the first accounting course, and most of them spent nine or fewer hours during a typical week studying for the first

accounting course, the findings of the study demonstrated that probably it is not necessary to spend more than twice the credit hours studying for the first accounting course to pass it. However, the effect of hours spent studying for the first accounting course was neither statistically significant for public or for private universities.

Importance of the Study

First, the findings of the study provided vast information about the academic performance in the first accounting course at universities in Puerto Rico for future research. The researcher recommends the study results be made available and shared with all this information with students, professors or practitioners who are interested to investigate about the student's academic performance in the first accounting course. And second, the students' perceptions about the internal classroom factors analyzed in this study may provide some directions to the academic professionals in Puerto Rico to search for possible changes in the first accounting course syllabus considering these factors in developing appropriate classroom academic and evaluation strategies that may improve the students' academic performance in the first accounting course.

Limitations and Recommendations

The study had a few limitations. First and one of the most unconstructive limitations was the restrictions imposed by the Family Educational Rights and Privacy Act (FERPA) about the confidentiality of the students' records. Due to this restriction, most universities operating with federal funding did not provide any individual information about their students. Furthermore, the researcher did not have control over either the participants (students) or the professor teaching the first accounting course, who administered the questionnaire to the students. The researcher did not have control

over either student drop outs before the end of the semester nor the student's absence when the questionnaire was administered. Second, the researcher could not obtain the grade distribution report for each section of the first accounting course for the previous six semesters of the 2003 fall semester (term under study) and the 2003 fall semester from public universities. The comparison between public and private universities about the actual failure rate track for the last three years before the term under study was not possible. The researcher obtained the grade distribution report by section only from private universities, which was used as a sample to present the failure rate track of Puerto Rican universities. Third, only one campus from public university did not participate due to class schedule time limitations, which reduced the sample size. And fourth, the study was conducted based on student perceptions. Even though the first accounting course grade provided by each respondent was not final, it was compared with the Final Grade Distribution Report for the 2003 Spring Semester provided by private universities, reflecting a close matching between both grades (Figure 4 in Appendix I). However, the probability of incorrect information exists, which could affect the findings of the study.

Student Failure in the First Accounting Course

Since it is a reality that 40 to 50 percent of the students failed in the first accounting course in Puerto Rico universities (Figure 3 in Appendix I, page 257), various studies could be conducted to find out the root or factors of the failures in the first accounting course. Ward et al. (1994) is a good example about the study of students who failed their first accounting course, which consider various factors such as: lack of study, inability to apply the material covered, the speed of coverage of the material, and the instructor, among other possible factors. Wards' study could be replicated or combined

with other factors for Puerto Rican universities. The researcher also recommends future research of the perception about the students' dependence or independence related to the student/professor academic relationship in public and private universities at Puerto Rico and the influence of this relationship to the academic performance in the first accounting course.

Internal Classroom Factors

The study included ten internal classroom factors that students perceived that influenced their academic performance in the first accounting course. The findings of this study could be expanded with a diversity of studies searching for the reasons of the influence or student behavior related to these internal classroom factors. The studies could be combined with other internal classroom factors not considered by the researcher of this study.

External Classroom Factors

Since the researcher considered internal and external classroom factors together in this study, which emphasized the student's perception, as suggested for the internal classroom factors, the researcher also suggests that a deeper study could be carried out with the external classroom factors that influence the academic performance in the first accounting course in Puerto Rican Universities. Wooten's (1998) study is a good example of the external classroom factors that could be replicated or combined with other external factors for Puerto Rican universities.

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Appendix A

Appendix A: Questionnaire

Argosy University, Sarasota, Florida
Doctoral Program of Business Administration (DBA) in Accounting
Questionnaire

Dear student:

This information is being collected as part of a research study. Your participation in this research will provide the Accounting Profession with valuable information to reach to a better understanding of how different factors influence students' academic performance on the first accounting course (first accounting course) at Universities in Puerto Rico. This study will add more statistical data to prior accounting research, which will be used to improve the content, format, quality and teaching-learning process of the first accounting course. Different accounting organizations and associations are interested in transforming the first accounting course into an effective mechanism that can be used by accounting professors to show the existence of excellent career opportunities (specifically, the accounting specialty) to students coming from high school to Universities. Your participation in this research is strictly voluntary. You may refuse to participate or chose to stop your participation at any point, without fear of penalty or negative consequences of any kind. Your responses are held in the strictest confidence.

Sincerely,

Herminio Rodríguez Príncipe
Student of Doctoral Program of Business Administration in Accounting

Please read and follow the instructions before answering any question.

Control Number.

At what University / Campus are you studying?

Section Number.

Which is your major?	Code
Accounting	1
Finance	2
Human Resources	3
International Business	4
Management	5
Management Information Systems	6
Marketing	7
Office Information Systems (Secretarial)	8
Other (Include Non-business majors)	9

<i>Demographic Information</i>						
1.	Where did you graduate from high school?	Public A			Private B	
2.	Gender	Female A			Male B	
3.	Is English your primary language?	Yes A			No B	
4.	Indicate your academic credits load.	Full Time (12 credits or more) A			Part Time (Less than 12 credits) B	
5.	Age	17 years or less A	18-24 years B	25-34 years C	35-44 years D	45 years or more E

The next questions are related to the first accounting course (first accounting course) you are taking during this semester.						
6.	Course Schedule	Morning (7-11:55 a.m.) A		Noon (12-5 p.m.) B		Evening (5-11 p.m.) C
7.	Class size	15 or less students A	16-25 students B	26-35 students C	36-45 students D	46 or more students E
8.	Did you acquire the Text Book?	Yes A			No B	
9.	Thinking of the first day of class, what grade you were expecting on the first accounting course?	90-100 =A A	80-89 = B B	70-79 =C C	Less than 69 =D or F D	I do not know E
10.	Indicate your grade on the first accounting course at the moment you are answering this questionnaire.	90-100 =A A	80-89 =B B	70-79 =C C	Less than 69 =D or F D	I do not know E

During the past semester, how much hours did you spend during a typical week doing the following activities?		<i>Zero Hours</i>	<i>Less than 5 hours</i>	<i>5-9 hours</i>	<i>10-14 hours</i>	<i>More than 14 hours</i>
11.	21. Extracurricular activities (socializing with friends, exercise/sports, partying, student clubs/groups, watching TV, playing video games, and any other activity not related with the first accounting course).	A	B	C	D	E
12.	Family activities	A	B	C	D	E
13.	Working (for pay)	A	B	C	D	E
14.	Studying for the first accounting course.	A	B	C	D	E

Answer items 15 to 28 using the scale to the right. Indicate how much do you agree or disagree on the following statements related to the first accounting course.		<i>Totally Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Totally Agree</i>
15.	The course schedule aided my learning.	A	B	C	D
16.	The class size aided my learning.	A	B	C	D
17.	The accounting textbook, written in English, aided my learning.	A	B	C	D
18.	The professor related the accounting concepts discussed in the classroom to the real facts of the daily business operation, which aided my learning.	A	B	C	D
19.	The classroom environment aided my learning. (Consider ventilation, illumination, and physical facilities).	A	B	C	D
20.	The accounting concepts discussed in the classroom were clear (easy to understand), which aided my learning.	A	B	C	D

Answer items 15 to 28 using the scale to the right. Indicate how much do you agree or disagree on the following statements related to the first accounting course.		<i>Totally Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Totally Agree</i>
21.	The homework's exercises and problems agreed with the accounting concepts discussed in the classroom, which aided my learning.	A	B	C	D
22.	The role played by the professor in the teaching process aided my learning.	A	B	C	D
23.	The tests administered were prepared based on the accounting terminology discussed in the classroom, which aided my learning.	A	B	C	D
24.	Technology was essential in the teaching-learning process, which aided my learning.	A	B	C	D
25.	The hours spent on extracurricular activities aided my learning (socializing with friends, exercise/sports, partying, student clubs/groups, watching TV, playing video games, and any other activity not related with the first accounting course).	A	B	C	D
26.	The hours spent on family activities aided my learning.	A	B	C	D
27.	The hours spent working for pay aided my learning.	A	B	C	D
28.	The hours spent studying for the first accounting course aided my learning.	A	B	C	D

Appendix B

Appendix B: Presentation Letter

November 2003

Fellow student:

As a student in the first accounting course (first accounting course), during the semester of August-December 2003, at the Inter American University of Puerto Rico, Bayamón Campus, you have been selected to participate in a student college academic performance study. This study will investigate different factors that influence student's academic performance on the first accounting course at universities in Puerto Rico.

This study is very important for four reasons. First, your participation in this research will provide the Accounting Profession with valuable information to a better understand how different factors influence students' academic performance in the first accounting course at universities in Puerto Rico. Second, it will add more statistical data to prior accounting research, which will be considered in the process to improve the content, format, quality and teaching-learning process of the first accounting course. Third, different accounting organizations and associations are interested in transforming the first accounting course into a more effective mechanism that can be used by accounting professors to demonstrate the existence of excellent career opportunities (specifically in accounting) in today's complex and technological business scenario for students coming from high school to universities. And fourth, the professors and academic advisors could use this information to offer better alternatives on when the students could take the first accounting course in the future.

A questionnaire will be administered to obtain the necessary information for this study. The student will answer it in a short period of time, from 15 to 20 minutes, in the first accounting course classroom. The Principal Investigator (PI) will provide a questionnaire for each student with the instructions, one scantron answer sheet, and #2 pencil. The PI or his assistant and the professor in charge of the first accounting course will coordinate the questionnaire administration date. It is very important that each of you is present to answer the questionnaire in order to have a good representation from your campus.

Please complete the questionnaire following the instructions. Direct any question to the PI or his assistant. **Your participation in this research is strictly voluntary. You may refuse to participate or chose to stop at any point in the research, without fear of penalty or negative consequences of any kind.** Your responses will be held in the strictest confidence.

Your collaboration is extremely appreciated and I wish each of you success in your student college life.

Herminio Rodríguez Príncipe
Student of Doctoral Program of Business Administration in Accounting
P.O. Box 1082, Coto Laurel, P.R. 00780
Tel. 787-260-1959, 787-284-1912, ext. 2273 o 787-402-7770
Email: hrodriguez@embanet.com o principe@ponce.inter.edu

Appendix C

Appendix C: Instructions to Answer the Questionnaire

Argosy University, Sarasota, Florida
 Doctoral Program of Business Administration (DBA) in Accounting
 Questionnaire Instructions

Title: Factors influencing students' academic performance on the first accounting course (first accounting course) at Universities in Puerto Rico

The Principal Investigator (PI) or his assistant will provide you with the following items to complete the questionnaire: cover letter, informed consent letter, instructions to complete the questionnaire, a questionnaire, and a Scantron answer sheet.

Read the cover letter. If you have any questions, please ask the Principal Investigator or his assistant.

Instructions to complete the questionnaire

Your responses will be read by an optical mark-reader. Your careful observance of these few simple rules will be most appreciated; please read and follow them carefully. First, read all the instructions. If you have any questions, please ask the Principal Investigator.

Control Number:

This number was assigned by the Principal Investigator to account for the number of subjects participating in the study, which is located at the top/right corner of the questionnaire. Use the space provided in the scantron answer sheet (top/right corner) identified as **SPECIAL CODES** to write this control number using one square for each number and make a heavy black mark that fills the oval that identifies each number you wrote.

In which section are you studying?

Each section that is participating in this study has been identified with a **CODE NUMBER**. Please refer to the first page of your package and select the code that applies to the section you are studying. Use the space provided in the Scantron answer sheet (top/right corner) identified as Identification number to write this code number using one square for each number and make a heavy black mark that fills the oval that identifies each number you wrote. If your section falls in the number from 1 to 9, make sure that you precede the number with "0" on.

Which is your major?

There are nine majors identified for this study, which are identified with a **CODE NUMBER**. Please refer to the first page of the questionnaire and select the code that applies to your major. Use the space provided in the Scantron answer sheet (top/right corner) identified as **YR** to write this code number using one square for the number and make a heavy black mark that fills the oval that identifies the number you wrote.

Answer all the remaining questions on the questionnaire. Circle the letter you

At what University/Campus are you studying? _____

Each university/campus participating in this study has been identified with a **CODE NUMBER**. Please refer to the first page of your package and select the code that applies to the university/campus you are studying. Use the space provided in the Scantron answer sheet (top/right corner) identified as **DAY** to write this code number using one square for each number and make a heavy black mark that fills the oval that identifies each number you wrote. If your campus falls in the number from 1 to 9, make sure that you precede the number with "0" on.

are selecting for each of your answers. Transfer each of your answers from the questionnaire to the Scantron answer sheet as follows:

Make a heavy black mark that fills the oval on the scantron answer sheet that identifies each of your answers from the questionnaire.

Erase clearly any answer you wish to change.

Make no stray marks of any kind.

Example on the Scantron answer sheet:

Will marks made with ballpoint or felt-tip marker be properly read?



Yes



No

Appendix D

Appendix D: Letter to each Chancellor of the Selected Campuses Asking for their
Authorization to Participate in the Study

28 de abril de 2003

Rector
Recinto
Universidad
Address

Los estudiantes del Primer Curso de Contabilidad (PCC), durante el semestre de agosto a diciembre de 2003, de la Universidad Interamericana de Puerto Rico (UIPR), Recinto de Aguadilla, fueron seleccionados por este servidor para participar en un estudio de aprovechamiento académico universitario para la disertación requerida para terminar el grado doctoral en Administración de Empresas en Contabilidad. Este estudio investiga algunos factores que influyen el aprovechamiento académico de los estudiantes en el PCC en las Universidades de Puerto Rico.

Este estudio es sumamente importante por cuatro razones. Primero, su participación en esta investigación proveerá a la profesión de contabilidad información valiosa para llegar a un mejor entendimiento de cómo distintos factores influyen el aprovechamiento académico en el PCC en las Universidades de Puerto Rico. Segundo, este estudio aportará más información estadística a las investigaciones de contabilidad realizadas en el pasado, la cual se considerará en el proceso para mejorar el contenido, formato, calidad y el proceso de enseñanza-aprendizaje del primer curso de contabilidad. Tercero, diferentes organizaciones y asociaciones de contabilidad están interesadas en transformar el PCC en un mecanismo efectivo que pueda ser utilizado por los profesores de contabilidad para demostrar la existencia de excelentes oportunidades de carreras profesionales (específicamente en contabilidad), en el actual complejo y tecnológico escenario de los negocios, para los estudiantes que vienen de las escuelas superiores a las Universidades. Y cuarto, los profesores y orientadores pueden usar esta información para ofrecer mejores alternativas de cuándo los estudiantes pueden tomar el PCC en el futuro.

Se administrará un cuestionario para obtener la información necesaria para el estudio. El estudiante contestará el mismo en un periodo de 15 a 20 minutos en el salón de la clase del PCC. Se le proveerá el cuestionario y las instrucciones, una hoja de "scantron" y un lápiz #2 para contestar el mismo. El Investigador Principal (IP) y el profesor a cargo del PCC coordinarán la fecha para administrar el cuestionario.

Respetuosamente solicito su autorización para llevar a cabo este estudio. Cuento y agradezco su gentil colaboración al progreso académico.

Atentamente,

Herminio Rodríguez Príncipe
Estudiante doctoral
P.O. Box 1082, Coto Laurel, P.R. 00780
Tels. 787-260-1959, 787-284-1912, ext. 2273 o 787-402-7770 o Fax: 787-848-0493
Email: piriprincede@yahoo.com ó principe@ponce.inter.edu

Autorización

Autorizo a Herminio Rodríguez Príncipe, estudiante doctoral y Principal Investigador en el estudio: *Factores que Influyen el Aprovechamiento Académico de los Estudiantes en el Primer Curso de Contabilidad (PCC) en las Universidades en Puerto Rico*, a administrar el cuestionario para obtener la información necesaria de los estudiantes del PCC, del semestre de agosto a diciembre de 2003, en la Universidad Interamericana de Puerto Rico (UIPR), Recinto de Aguadilla, para dicho estudio.

Rector
Recinto
Universidad

Fecha

Appendix E

Appendix E: Informed Consent Letter from Participant Student

Informed consent letter

Please read carefully this document and sign it at the bottom of the page if you consent to participate in this investigation project.

The purpose of this research is to analyze different factors that could influence the students' academic performance at Universities in Puerto Rico as part of a doctoral dissertation. If you participate in this research you will be asked to complete a questionnaire with the following: control number, demographic information, and questions related to the first accounting course and its learning environment. There will be neither risk nor discomforts to you with the participation in this research. The subject will take 15 to 20 minutes to complete the questionnaire.

Your participation in this research is strictly voluntary. You may refuse to participate at all, or chose to stop your participation at any point in the research, without fear of penalty or negative consequences of any kind.

The information you provide for this research will be treated confidentially, and all raw data will be kept in a secured area by the researcher. Results of the research will be reported as aggregate summary data only, and no individually identifiable information will be presented.

You also have the right to review the results of the research if you wish to do so. A copy of the results may be obtained by contacting the researcher at: Herminio Rodríguez Príncipe, P.O. Box 1082, Coto Laurel, P.R. 00780 or hrodriguez@embanet.com or principe@ponce.inter.edu or telephone number 787-284-1912 Ext. 2273.

Your participation in this research will provide the Accounting Profession with valuable information to reach to a better understanding on how different factors influence students' academic performance in the first accounting course at Universities in Puerto Rico. The objective is to improve the content, format, quality and teaching-learning process of the first accounting course.

Any question related to your rights protection privilege as a human subject participant could be directed it to UIPR-IRB, making a telephone call at 787-766-1912.

I have read and understand the foregoing information explaining the purpose of this research and my rights and responsibilities as a subject my signature below designates my consent to participate in this research, according to the terms and conditions outlined above.

Print Name

Signature

Date

Appendix F

Appendix F: General Purpose Answer Sheet

NAME (Last, First, M.I.)

Blank lines for writing the name.

Large grid of bubbles for marking answers, organized by letter (A-Z) and number (1-5).

SEX
M
F

GRADE OR EDUC

Vertical column of bubbles for marking sex and grade/education level.

GENERAL PURPOSE INK READ - NCS® - ANSWER SHEET
SEE IMPORTANT MARKING INSTRUCTIONS ON SIDE 2

Grid of 50 numbered items (1-50) for marking answers, each with five bubbles labeled A, B, C, D, E.

Grid of 50 numbered items (51-100) for marking answers, each with five bubbles labeled A, B, C, D, E.

Form for recording birthdate (MO., DAY, YR.), identification number (A-P), and special codes (K-P).



Appendix G

Appendix G: Questionnaire (Spanish version)

Universidad de Argosy, Sarasota, Florida
Programa Doctoral en Administración de Empresas en Contabilidad

Cuestionario

Estimado estudiante:

Esta información se solicita como parte de un estudio de investigación. Su participación en este proceso proveerá a la profesión de Contabilidad información valiosa para llegar a un mejor entendimiento sobre cómo distintos factores influyen en el aprovechamiento académico en el primer curso de Contabilidad en las universidades de Puerto Rico. Este estudio aportará más información a las investigaciones realizadas en el pasado y se considerará para mejorar el contenido, formato, calidad y el proceso de enseñanza-aprendizaje del primer curso de Contabilidad. Las diferentes organizaciones y asociaciones de Contabilidad están interesadas en transformar el Primer Curso de Contabilidad en un mecanismo efectivo para mostrar la existencia de oportunidades de carreras profesionales en esta disciplina para los estudiantes que vienen de las escuelas superiores a las universidades. Sus respuestas serán tratadas con estricta confidencialidad.

Atentamente,

Herminio Rodríguez Príncipe

Estudiante del Programa Doctoral en Administración de Empresas en Contabilidad

Por favor lea y siga las instrucciones antes de contestar las preguntas del cuestionario.

Número de Control.

¿En cuál Universidad / recinto está estudiando?

Número de sección.

¿Cuál es su concentración?	Código
Contabilidad	1
Finanzas	2
Recursos Humanos	3
Negocios Internacionales	4
Gerencia	5
Gerencia de Sistemas de Información	6
Mercadeo	7
Sistemas de Información de Oficinas (Secretarial)	8
Otras (Administración de Empresas y otras)	9

Información demográfica

1. ¿De cuál escuela se graduó?	Pública A	Privada B
2. Género	Femenino A	Masculino B

3. ¿Es el Inglés su primer lenguaje? (El más común en su vida diaria)	Sí A	No B			
4. Clasificación por carga académica.	Carga Completa (12 créditos o más) A		Carga Parcial (Menos de 12 créditos) B		
5. Edad	17 años ó menos A	18-24 años B	25-34 años C	35-44 años D	45 años ó más E

Las siguientes preguntas están relacionadas con el primer curso de Contabilidad que usted está tomando en este semestre.					
6. Horario de la clase	Mañana (7-11:55 a.m.) A		Tarde (12-5 p.m.) B		Noche (5-1p.m.) C
7. 7. Tamaño de la clase	15 ó menos estudiantes A	16-25 estudiantes B	26-35 estudiantes C	36-45 estudiantes D	46 ó más estudiantes E
8. ¿Adquirió el libro de texto (comprado o prestado)?	Sí A			No B	
9. Pensando en el primer día de clases, ¿Qué nota usted esperaba obtener en el primer curso de Contabilidad?	90-100 =A A	80-89= B B	70-79 =C C	Menos de 69 =D o F D	Desconozco E
10. Indique la nota que usted tiene en el primer curso de Contabilidad hasta el momento de contestar el cuestionario.	90-100 =A A	80-89= B B	70-79 =C C	Menos de 69 =D o F D	Desconozco E

Durante el semestre que acaba de terminar, ¿Cuántas horas dedicó, durante una semana típica, a las siguientes actividades?					
	Cero Horas	Menos de 5 Horas	5-9 Horas	10-14 Horas	Más de 14 Horas
11. Actividades extracurriculares (socializar con amigos, ejercicios y deportes, fiestas, fraternidades, viendo televisión, juegos de vídeo, y cualquier otra actividad no relacionada con el primer curso de Contabilidad)	A	B	C	D	E
12. Actividades familiares	A	B	C	D	E
13. Trabajando (por paga)	A	B	C	D	E
14. Estudiando para el primer curso de Contabilidad.	A	B	C	D	E

Las preguntas 15 a la 28 están relacionadas con el primer curso de Contabilidad. Utilice la escala a la derecha.	Totalmente en desacuerdo	En desacuerdo	De acuerdo	Totalmente de acuerdo
15. El horario de la clase facilitó mi aprendizaje.	A	B	C	D
16. El tamaño de la clase facilitó mi aprendizaje.	A	B	C	D
17. El libro de texto de Contabilidad, escrito en inglés, facilitó mi aprendizaje.	A	B	C	D
18. El profesor relacionó los conceptos de Contabilidad discutidos en el salón de clase con hechos reales en las operaciones de los negocios, lo que facilitó mi aprendizaje.	A	B	C	D
19. El ambiente del salón de clases facilitó mi aprendizaje. (Considere ventilación, iluminación y facilidades físicas)	A	B	C	D
20. Los conceptos de Contabilidad que se discutieron en el salón de clase estuvieron claros (fáciles de entender), lo que facilitó mi aprendizaje.	A	B	C	D

Las preguntas 15 a la 28 están relacionadas con el primer curso de Contabilidad. Utilice la escala a la derecha.	Totalmente en desacuerdo	En desacuerdo	De acuerdo	Totalmente de acuerdo
21. Los ejercicios y problemas asignados para la casa estuvieron de acuerdo con los conceptos de contabilidad discutidos en el salón de clase, lo que facilitó mi aprendizaje.	A	B	C	D
22. El profesor desempeñó un papel clave en el proceso de enseñanza-aprendizaje, lo que facilitó mi aprendizaje.	A	B	C	D
23. Los exámenes administrados fueron preparados con la terminología de Contabilidad discutida en el salón de clase, lo que facilitó mi aprendizaje.	A	B	C	D
24. La tecnología fue un elemento esencial en el proceso de enseñanza-aprendizaje, lo que facilitó mi aprendizaje.	A	B	C	D
25. Las horas dedicadas a las actividades extracurriculares extracurriculares (socializar con amigos, ejercicios y deportes, fiestas, fraternidades, viendo televisión, juegos de video, y cualquier otra actividad no relacionada con el primer curso de contabilidad) facilitó mi aprendizaje.	A	B	C	D
26. Las horas dedicadas a las actividades familiares facilitó mi aprendizaje.	A	B	C	D
27. Las horas dedicadas al trabajo con paga facilitó mi aprendizaje.	A	B	C	D
28. Las horas dedicadas para estudiar el primer curso de Contabilidad facilitó mi aprendizaje.	A	B	C	D

Appendix H

Appendix H: Tables

Table 1

Sample, Participants, and Valid and Missing cases from Universities in Puerto Rico.

Campus	Sample	Participants		Valid cases		Missing cases	
		N	%	N	%	N	%
2	270	49	18%	44	90%	5	10%
3	120	79	66%	73	92%	6	8%
4	217	101	47%	95	94%	6	6%
5	234	125	53%	114	91%	11	9%
6	75	-	-	-	-	-	-
Total Publics	916	354	39%	326	92%	28	8%

Campus	Sample	Participants		Valid cases		Missing cases	
		N	%	N	%	N	%
1	137	106	77%	71	67%	35	33%
7	108	28	26%	26	93%	2	7%
8	89	35	39%	35	100%	0	0%
9	40	31	78%	25	80%	6	20%
10	279	123	44%	109	89%	14	11%
11	63	35	56%	27	77%	8	23%
12	65	37	57%	30	81%	7	19%
13	24	11	42%	11	100%	0	0%
Total Privates	805	406	50%	334	82%	72	18%
Puerto Rican	1721	760	44%	660	87%	100	13%

Table 2

Major and the First Accounting Course Grade.

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
Accounting	10	7%	32	22%	57	38%	49	33%	148
Other than accounting	37	21%	59	33%	50	28%	32	18%	178
Private universities**									
Accounting	1	1%	12	13%	38	41%	42	45%	93
Other than accounting	15	6%	60	25%	68	28%	98	41%	241

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities**									
Accounting	11	5%	44	18%	95	39%	91	38%	241
Other than accounting	52	12%	119	29%	118	28%	130	31%	419

Note: Other than accounting major included: Finance, Human Resources, International Business, Management, Management Information System, Marketing, Office Information Systems, and non-business administration.

N = 660.

**p < .01.

Table 3

Graduates from High School and the First Accounting Course Grade.

	Grades								
	D or F		C		B		A		Total
	N	%	n	%	n	%	n	%	N
High school									
Public universities*									
Public high school	30	12%	73	28%	89	34%	68	26%	260
Private high school	17	26%	18	27%	18	27%	13	20%	66
Private universities									
Public high school	13	5%	55	21%	83	32%	109	42%	260
Private high school	3	4%	17	23%	23	31%	31	42%	74

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
Public high school	43	8%	128	25%	172	33%	177	34%	520
Private high school	20	14%	35	25%	41	29%	44	32%	140

N = 660.

*p < .05.

Table 4

Gender and the First Accounting Course Grade.

Gender	Grades								
	D or F		C		B		A		Total
	N	%	n	%	n	%	n	%	N
Public universities**									
Female	22	11%	48	24%	67	33%	64	32%	201
Male	25	20%	43	34%	40	32%	17	14%	125
Private universities									
Female	8	4%	46	23%	61	31%	83	42%	198
Male	8	6%	26	19%	45	33%	57	42%	136

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities*									
Female	30	7%	94	24%	128	32%	147	37%	399
Male	33	13%	69	26%	85	33%	74	28%	261

N = 660.

*p < .05. **p < .01.

Table 5

English as a Primary Language and the First Accounting Course Grade.

English language.	Grades								
	D or F		D		C		A		Total
	N	%	n	%	n	%	n	%	N
Public universities									
Yes	2	22%	1	12%	3	33%	3	33%	9
No	45	14%	90	28%	104	33%	78	25%	317
Private universities									
Yes	1	5%	4	21%	5	26%	9	48%	19
No	15	5%	68	22%	101	32%	131	41%	315

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
Yes	3	11%	5	18%	8	28%	12	43%	28
No	60	10%	158	25%	205	32%	209	33%	632

N = 660.

Table 6

Academic Credit Load and the First Accounting Course Grade.

Academic credit load.	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
Full time	47	15%	91	28%	105	32%	80	25%	323
Part time	0	0%	0	0%	2	67%	1	33%	3
Private universities									
Full time	13	4%	66	22%	101	34%	121	40%	301
Part time	3	9%	6	18%	5	15%	19	58%	33

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities*									
Full time	60	10%	157	25%	206	33%	201	32%	624
Part time	3	8%	6	17%	7	19%	20	56%	36

N = 660.

*p < .05.

Table 7

Age and the First Accounting Course Grade.

Age	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
24 or less years	46	14%	90	28%	105	33%	80	25%	321
25 or more years	1	20%	1	20%	2	40%	1	20%	5
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities									
24 or less years	10	4%	58	22%	90	33%	109	41%	267
25 or more years	6	9%	14	21%	16	24%	31	46%	67
Total private	16	5%	72	21%	106	32%	140	42%	334

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
24 or less years	56	10%	148	25%	195	33%	189	32%	588
25 or more years	7	10%	15	21%	18	25%	32	44%	72
Total Puerto Rican	63	10%	163	25%	213	32%	221	33%	660

N = 660.

Table 8

Grade Expectation and the First Accounting Course Grade.

Grade expectation	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
Less than 69= D/F	0	0%	3	75%	1	25%	0	0%	4
70-79 = C	11	39%	4	14%	10	36%	3	11%	28
80-89 = B	21	18%	44	39%	31	27%	18	16%	114
90-100 = A	8	5%	33	21%	59	38%	56	36%	156

Major	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Private universities**									
Less than 69= D/F	1	25%	2	50%	1	25%	0	0%	4
70-79 = C	7	20%	12	34%	9	26%	7	20%	35
80-89 = B	5	5%	30	28%	45	42%	26	25%	106
90-100 = A	2	1%	20	11%	48	28%	104	60%	174
Puerto Rican universities**									
Less than 69= D/F	1	13%	5	62%	2	25%	0	0%	8
70-79 = C	18	29%	16	25%	19	30%	10	16%	63
80-89 = B	26	12%	74	33%	76	35%	44	20%	220
90-100 = A	10	3%	53	16%	107	32%	160	49%	330

N = 621.

**p < .01.

Table 9

Universities and the First Accounting Course Grade.

Universities**	Grades								Total N
	D or F		C		B		A		
	n	%	n	%	n	%	n	%	
Public universities	47	14%	91	28%	107	33%	81	25%	326
Private universities	16	5%	72	21%	106	32%	140	42%	334
Puerto Rican universities	63	10%	163	25%	213	32%	221	33%	660

N = 660.

**p < .01.

Table 10

Course Schedule and the First Accounting Course Grade.

Schedule	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities*									
Morning	20	11%	45	24%	61	33%	58	32%	184
Noon	22	18%	39	32%	38	32%	22	18%	121
Evening	5	24%	7	33%	8	38%	1	5%	21
Private universities									
Morning	9	4%	46	21%	74	35%	85	40%	214
Noon	0	0%	9	18%	15	29%	27	53%	51
Evening	7	10%	17	25%	17	25%	28	41%	69

Schedule	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
Morning	29	7%	91	23%	135	34%	143	36%	398
Noon	22	13%	48	28%	53	31%	49	28%	172
Evening	12	13%	24	27%	25	28%	29	32%	90

N = 660.

*p < .05.

Table 11

Perception if Course Schedule Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
Totally Disagree & Disagree	17	22%	30	38%	16	20%	16	20%	79
Totally Agree & Agree	30	12%	61	25%	91	37%	65	26%	247
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities**									
Totally Disagree & Disagree	6	17%	9	25%	9	25%	12	33%	36
Totally Agree & Agree	10	3%	63	21%	97	33%	128	43%	298
Total private	16	4%	72	22%	106	32%	140	42%	334

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities**									
Totally Disagree & Disagree	23	20%	39	34%	25	22%	28	24%	115
Totally Agree & Agree	40	7%	124	23%	188	35%	193	35%	545
Total Puerto Rican	63	10%	163	25%	213	32%	221	33%	660

N = 660.

**p < .01.

Table 12

Course Schedule, Student Perception if Course Schedule Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Schedule	Perception	Grades								
		D or F		C		B		A		Total
		n	%	n	%	n	%	n	%	N
Morning	Totally Disagree & Disagree	6	13%	12	25%	14	29%	16	33%	48
	Totally Agree & Agree	23	7%	79	23%	121	34%	127	36%	350
Noon**	Totally Disagree & Disagree	10	22%	19	41%	7	15%	10	22%	46
	Totally Agree & Agree	12	10%	29	23%	46	36%	39	31%	126
Evening**	Totally Disagree & Disagree	7	33%	8	38%	4	19%	2	10%	21
	Totally Agree & Agree	5	7%	16	23%	21	31%	27	39%	69

N = 660.

**p < .01.

Table 13

Class Size and the First Accounting Course Grade.

Class size	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
25 or less students	45	16%	81	29%	91	33%	60	22%	277
26 or more students	2	4%	10	20%	16	33%	21	43%	49
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities									
25 or less students	10	5%	38	20%	61	33%	78	42%	187
26 or more students	6	4%	34	23%	45	31%	62	42%	147
Total private	16	5%	72	21%	106	32%	140	42%	334

Class size	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities**									
25 or less students	55	12%	119	25%	152	33%	138	30%	464
26 or more students	8	4%	44	23%	61	31%	83	42%	196
Total Puerto Rican	63	10%	163	25%	213	32%	221	33%	660

N = 660.

**p < .01.

Table 14

Perception if Class Size Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
Totally Disagree & Disagree	21	29%	17	23%	18	25%	17	23%	73
Totally Agree & Agree	26	10%	74	30%	89	35%	64	25%	253
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities									
Totally Disagree & Disagree	7	11%	16	25%	19	29%	23	35%	65
Totally Agree & Agree	9	3%	56	21%	87	32%	117	44%	269
Total private	16	5%	72	21%	106	32%	140	42%	334

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities**									
Totally Disagree & Disagree	28	20%	33	24%	37	27%	40	29%	138
Totally Agree & Agree	35	7%	130	25%	176	34%	181	34%	522
Total Puerto Rican	63	10%	163	25%	213	32%	221	33%	660

N = 660.

**p < .01.

Table 15

Class Size, Student Perception if Class Size Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Univ.	Class size	Perception	Grades								
			D or F		C		B		A		Total
			n	%	N	%	n	%	n	%	N
Public	25 or less**	Totally Disagree & Disagree	19	35%	12	22%	16	29%	8	14%	55
		Totally Agree & Agree	26	12%	69	31%	75	34%	52	23%	222
	26 or more*	Totally Disagree & Disagree	2	11%	5	28%	2	11%	9	50%	18
		Totally Agree & Agree	0	0%	5	16%	14	45%	12	39%	31
Private	25 or less**	Totally Disagree & Disagree	5	16%	5	16%	10	32%	11	36%	31
		Totally Agree & Agree	5	3%	33	21%	51	33%	67	43%	156
	26 or more	Totally Disagree & Disagree	2	6%	11	32%	9	27%	12	35%	34
		Totally Agree & Agree	4	4%	23	20%	36	32%	50	44%	113

Univ.	Class size	Perception	Grades								
			D or F		C		B		A		Total
			n	%	N	%	n	%	n	%	N
Puerto Rican	25 or less**	Totally Disagree & Disagree	24	28%	17	20%	26	30%	19	22%	86
		Totally Agree & Agree	31	8%	102	27%	126	33%	119	32%	378
	26 or more	Totally Disagree & Disagree	4	8%	16	31%	11	21%	21	40%	52
		Totally Agree & Agree	4	3%	28	19%	50	35%	62	43%	144

N = 660.

*p < .05. **p < .01.

Table 16

Accounting Textbook, Written in English, Acquisition and the First Accounting Course Grade.

Textbook	Grades								Total N
	D or F		C		B		A		
	n	%	n	%	n	%	n	%	
Public universities									
Yes	45	15%	84	27%	104	34%	75	24%	308
No	2	12%	7	41%	2	12%	6	35%	17
Private universities*									
Yes	9	3%	52	20%	90	34%	115	43%	266
No	7	10%	20	29%	16	24%	25	37%	68
Puerto Rican universities									
Yes	54	9%	136	24%	194	34%	190	33%	574
No	9	11%	27	32%	18	21%	31	36%	85

N = 659.

*p < .05.

Table 17

Perception if Accounting Textbook, Written in English, Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	N	%	N
Public universities**									
Totally Disagree & Disagree	39	21%	58	32%	50	27%	37	20%	184
Totally Agree & Agree	8	6%	33	23%	57	40%	44	31%	142
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities**									
Totally Disagree & Disagree	14	8%	43	25%	58	33%	59	34%	174
Totally Agree & Agree	2	1%	27	17%	48	31%	81	51%	158
Total private	16	5%	70	21%	106	32%	140	42%	332

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	N	%	N
Puerto Rican universities**									
Totally Disagree & Disagree	53	15%	101	28%	108	30%	96	27%	358
Totally Agree & Agree	10	3%	60	20%	105	35%	125	42%	300
Total Puerto Rican	63	10%	161	24%	213	32%	221	34%	658

N = 658.

**p < .01.

Table 18

Textbook Acquisition, Student Perception if Text, Written in English, Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Textbook acquisition		Perception	Grades								
			D or F		C		B		A		Total
			n	%	n	%	n	%	n	%	N
Public Universities	Yes**	Totally Disagree & Disagree	37	22%	53	31%	48	28%	32	19%	170
		Totally Agree & Agree	8	6%	31	22%	56	41%	43	31%	138
	No	Totally Disagree & Disagree	2	15%	5	39%	1	7%	5	39%	13
		Totally Agree & Agree	0	0%	2	50%	1	25%	1	25%	4
Private Universities	Yes**	Totally Disagree & Disagree	7	5%	31	24%	47	37%	44	34%	129
		Totally Agree & Agree	2	1%	20	15%	43	32%	71	52%	136
	No	Totally Disagree & Disagree	7	16%	12	27%	11	24%	15	33%	45
		Totally Agree & Agree	0	0%	7	32%	5	23%	10	45%	22

Textbook acquisition			Grades								
			D or F		C		B		A		Total
Perception			n	%	n	%	n	%	n	%	N
Puerto Rican Universities	Yes**	Totally Disagree & Disagree	44	15%	84	28%	95	32%	76	25%	299
		Totally Agree & Agree	10	4%	51	19%	99	36%	114	41%	274
	No	Totally Disagree & Disagree	9	16%	17	29%	12	21%	20	34%	58
		Totally Agree & Agree	0	0%	9	35%	6	23%	11	42%	26

N = 657.

**p < .01.

Table 19

Combined Internal Classroom Factors Average Means.

Variable	Puerto Rican universities		Public universities		Private universities	
Course schedule	760	1.82	354	1.75	406	1.88
Class size	760	1.79	354	1.77	406	1.81
Accounting text	758	1.44	354	1.42	404	1.45
Accounting concepts and real facts	760	1.93	354	1.94	406	1.92
Classroom environment	760	1.85	354	1.82	406	1.87
Accounting concepts easy to understand	760	1.77	354	1.75	406	1.80
Homework exercises and problems	760	1.90	354	1.88	406	1.91
Role played by the professor	760	1.88	354	1.85	406	1.90

Variable	Puerto Rican universities		Public universities		Private universities	
Tests administered and accounting concepts	760	1.91	354	1.91	406	1.91
Technology	757	1.50	352	1.30	405	1.67
Combined factors	757	1.78	352	1.74	403	1.81

N = 760.

Table 20

Universities, Perception if Combined Internal Classroom Factors Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	15	47%	9	27%	4	13%	4	13%	32
	Totally Agree & Agree	32	11%	82	28%	103	35%	77	26%	294
		47		91		107		81		326
	Totally Disagree & Disagree	4	20%	7	35%	2	10%	7	35%	20
	Totally Agree & Agree	12	4%	65	21%	104	33%	133	42%	314
		16		72		106		140		334

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
Puerto Rico**	Totally Disagree & Disagree	19	37%	16	31%	6	11%	11	21%	52
	Totally Agree & Agree	44	7%	147	24%	207	34%	210	35%	608
	Total	63		168		213		221		660

N = 660.

**p < .01.

Table 21

Perception if Professor Related Accounting Concepts to Real Facts Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
Totally Disagree & Disagree	6	35%	4	24%	3	17%	4	24%	17
Totally Agree & Agree	41	13%	87	28%	104	34%	77	25%	309
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities*									
Totally Disagree & Disagree	4	16%	7	28%	7	28%	7	28%	25
Totally Agree & Agree	12	4%	65	21%	99	32%	133	43%	309
Total private	16	5%	72	21%	106	32%	140	42%	334

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities*									
Totally Disagree & Disagree	10	24%	11	26%	10	24%	11	26%	42
Totally Agree & Agree	53	9%	152	24%	203	33%	210	34%	618
Total Puerto Rican	63	10%	163	25%	213	32%	221	33%	660

N = 660.

*p < .05.

Table 22

Perception if Classroom Environment Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities*									
Totally Disagree & Disagree	14	24%	20	35%	13	22%	11	19%	58
Totally Agree & Agree	33	12%	71	27%	94	35%	70	26%	268
Total public	47	14%	91	28%	107	33%	81	25%	326
Private universities*									
Totally Disagree & Disagree	6	14%	10	23%	12	27%	16	36%	44
Totally Agree & Agree	10	3%	62	21%	94	33%	124	43%	290
Total private	16	5%	72	21%	106	32%	140	42%	334

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities**									
Totally Disagree & Disagree	20	20%	30	29%	25	25%	27	26%	102
Totally Agree & Agree	43	8%	133	24%	188	33%	194	35%	558
Total Puerto Rican	63	10%	163	25%	213	32%	221	33%	660

N = 660.

*p < .05. **p < .01.

Table 23

Perception if Accounting Concepts Easy to Understand Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Public universities**										
Totally Disagree & Disagree	28	38%	25	34%	11	15%	9	13%	73	
Totally Agree & Agree	19	8%	66	26%	96	38%	72	28%	253	
Total	47	14%	91	28%	107	33%	81	25%	326	
Private universities**										
Totally Disagree & Disagree	9	14%	19	29%	21	32%	16	25%	65	
Totally Agree & Agree	7	3%	53	20%	85	31%	124	46%	269	
Total	16	5%	72	21%	106	32%	140	42%	334	

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Puerto Rican universities**										
Totally Disagree & Disagree	37	27%	44	32%	32	23%	25	18%	138	
Totally Agree & Agree	26	5%	119	23%	181	35%	196	37%	522	
Total	63	10%	163	25%	213	32%	221	33%	660	

N = 660.

**p < .01.

Table 24

Perception if Homework Agreed with Acct. Concepts Discussed in Classroom Aided Student Learning in the First Accounting Course and First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
Totally Disagree & Disagree	11	31%	16	44%	7	19%	2	6%	36
Totally Agree & Agree	36	12%	75	26%	100	35%	79	27%	290
Total	47	14%	91	28%	107	33%	81	25%	326
Private universities									
Totally Disagree & Disagree	3	11%	10	37%	6	22%	8	30%	27
Totally Agree & Agree	13	4%	62	20%	100	33%	132	43%	307
Total	16	5%	72	21%	106	32%	140	42%	334

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Puerto Rican universities**										
Totally Disagree & Disagree	14	22%	26	41%	13	21%	10	16%	63	
Totally Agree & Agree	49	8%	137	23%	200	34%	211	35%	597	
Total	63	10%	163	25%	213	32%	221	33%	660	

N = 660.

**p < .01.

Table 25

Perception if Role Played by Professor Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities**									
Totally Disagree & Disagree	15	32%	19	40%	8	17%	5	11%	47
Totally Agree & Agree	32	11%	72	26%	99	36%	76	27%	279
Total	47	14%	91	28%	107	33%	81	25%	326
Private universities**									
Totally Disagree & Disagree	7	21%	8	25%	9	27%	9	27%	33
Totally Agree & Agree	9	3%	64	21%	97	32%	131	44%	301
Total	16	5%	72	21%	106	32%	140	42%	334

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Puerto Rican universities**										
Totally Disagree & Disagree	22	27%	27	34%	17	21%	14	18%	80	
Totally Agree & Agree	41	7%	136	23%	196	34%	207	36%	580	
Total	63	10%	163	25%	213	32%	221	33%	660	

N = 660.

**p < .01.

Table 26

Perception if Tests Administered Based on Acct. Terminology Discussed Aided Student Learning in the First Accounting Course and First Accounting Course Grade.

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Public universities**										
Totally Disagree & Disagree	14	47%	7	23%	6	20%	3	10%	30	
Totally Agree & Agree	33	11%	84	28%	101	34%	78	27%	296	
Total	47	14%	91	28%	107	33%	81	25%	326	
Private universities										
Totally Disagree & Disagree	2	7%	9	32%	9	32%	8	29%	28	
Totally Agree & Agree	14	5%	63	20%	97	32%	132	43%	306	
Total	16	5%	72	21%	106	32%	140	42%	334	

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Puerto Rican universities**										
Totally Disagree & Disagree	16	28%	16	28%	15	25%	11	19%	58	
Totally Agree & Agree	47	8%	147	24%	198	33%	210	35%	602	
Total	63	10%	163	25%	213	32%	221	33%	660	

N = 660.

**p <.01.

Table 27

Perception if Technology in the Teaching-Learning Process Aided Student Learning in the First Accounting Course and the First Accounting Course Grade.

Perception	Grades								N	
	D or F		C		B		A			
	n	%	n	%	n	%	n	%		
Public universities										
Totally Disagree & Disagree	36	16%	67	29%	68	30%	56	25%	227	
Totally Agree & Agree	11	11%	23	24%	39	40%	24	25%	97	
Total	47	14%	90	28%	107	33%	80	25%	324	
Private universities										
Totally Disagree & Disagree	10	9%	23	20%	37	33%	42	38%	112	
Totally Agree & Agree	6	3%	48	22%	69	31%	98	44%	221	
Total	16	5%	71	21%	106	32%	140	42%	333	

Perception	Grades									
	D or F		C		B		A		Total	
	n	%	n	%	n	%	n	%	N	
Puerto Rican universities**										
Totally Disagree & Disagree	46	14%	90	26%	105	31%	98	29%	339	
Totally Agree & Agree	17	5%	71	22%	108	34%	122	39%	318	
Total	63	10%	161	25%	213	32%	220	33%	657	

N = 657.

**p < .01.

Table 28

Combined External Classroom Factors Average Means.

Variable	Puerto Rican universities		Public universities		Private universities	
Extracurricular activities	759	1.38	354	1.31	405	1.44
Family activities	753	1.38	348	1.31	405	1.44
Working (for pay) activities	732	1.30	328	1.24	404	1.34
Combined factors	732	1.35	328	1.29	403	1.41

N = 759.

Table 29

Hours Spent on Combined External Classroom Factors and the First Accounting Course Grade.

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
Nine or fewer hours	42	15%	76	28%	92	34%	63	23%	273
10 or more hours	5	10%	15	28%	15	28%	18	34%	53
Total	47		91		107		81		326
Private universities									
Nine or fewer hours	14	5%	58	23%	81	31%	107	41%	260
10 or more hours	2	3%	14	19%	25	34%	33	44%	74
Total	16		72		106		140		334

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
Nine or fewer hours	56	11%	134	25%	173	32%	170	32%	533
10 or more hours	7	6%	29	23%	40	31%	51	40%	127
Total	63		163		213		221		660

N = 660.

Table 30

Universities, Perception if Combined External Classroom Factors Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	35	16%	71	31%	71	31%	48	22%	225
	Totally Agree & Agree	12	12%	20	20%	36	35%	33	33%	101
Public*	Subtotal	47		91		107		81		326
	Totally Disagree & Disagree	12	6%	35	19%	63	34%	76	41%	186
	Totally Agree & Agree	4	3%	37	25%	43	29%	64	43%	148
Private	Subtotal	16		72		106		140		334

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	47	11%	106	26%	134	33%	124	30%	411
	Totally Agree & Agree	16	6%	57	23%	79	32%	97	39%	249
Puerto Rican*	Total	63		163		213		221		660

N = 660.

*p < .05.

Table 31

Hours Spent on and Perception if Combined External Classroom Factors Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Puerto Rican universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours*	Totally Disagree & Disagree	42	13%	86	26%	112	33%	94	28%	334
	Totally Agree & Agree	14	7%	48	24%	61	31%	76	38%	199
	Total	56	11%	134	25%	173	32%	170	32%	533
10 or more hours	Totally Disagree & Disagree	5	6%	20	26%	22	29%	30	39%	77
	Totally Agree & Agree	2	4%	9	18%	18	36%	21	42%	50
	Total	7	6%	29	23%	40	31%	51	40%	127

N = 660.

*p < .05.

Table 32

Hours Spent on and Perception if Combined External Classroom Factors Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Public universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours*	Totally Disagree & Disagree	32	17%	59	31%	61	33%	36	19%	188
	Totally Agree & Agree	10	12%	17	20%	31	36%	27	32%	85
	Total	42	15%	76	28%	92	34%	63	23%	273
10 or more hours	Totally Disagree & Disagree	3	8%	12	32%	10	28%	12	32%	37
	Totally Agree & Agree	2	13%	3	19%	5	31%	6	37%	16
	Total	5	10%	15	28%	15	28%	18	34%	53

N = 326.

*p < .05.

Table 33

Hours Spent on and Perception if Combined External Classroom Factors Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Private universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	10	7%	27	18%	51	35%	58	40%	146
	Totally Agree & Agree	4	4%	31	27%	30	26%	49	43%	114
	Total	14	5%	58	23%	81	31%	107	41%	260
10 or more hours	Totally Disagree & Disagree	2	5%	8	20%	12	30%	18	45%	40
	Totally Agree & Agree	0	0%	6	18%	13	38%	15	44%	34
	Total	2	3%	14	19%	25	33%	33	45%	74

N = 334.

Table 34

Hours Spent on Extracurricular Activities and the First Accounting Course Grade.

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
Nine or fewer hours	35	16%	57	26%	71	33%	56	25%	219
10 or more hours	12	11%	34	32%	36	34%	25	23%	107
Total	47		91		107		81		326
Private universities									
Nine or fewer hours	13	5%	60	24%	77	31%	99	40%	249
10 or more hours	3	4%	12	14%	29	34%	41	48%	85
Total	16		72		106		140		334

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
Nine or fewer hours	48	10%	117	25%	148	32%	155	33%	468
10 or more hours	15	8%	46	24%	65	34%	66	34%	192
Total	63		163		213		221		660

N = 660.

Table 35

Universities, Perception if Hours Spent on Extracurricular Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	35	16%	71	31%	71	31%	48	22%	225
	Totally Agree & Agree	12	12%	20	20%	36	35%	33	33%	101
Public*	Subtotal	47		91		107		81		326
	Totally Disagree & Disagree	12	6%	34	19%	63	34%	76	41%	185
	Totally Agree & Agree	4	3%	37	25%	43	29%	64	43%	148
Private	Subtotal	16		71		106		140		333

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	47	11%	105	26%	134	33%	124	30%	410
	Totally Agree & Agree	16	6%	57	23%	79	32%	97	39%	249
Puerto Rican*	Total	63		162		213		221		659

N = 659.

*p < .05.

Table 36

Hours Spent (TS) on and Perception if TS on Extracurricular Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Puerto Rican universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours*	Totally Disagree & Disagree	36	12%	72	25%	98	34%	85	29%	291
	Totally Agree & Agree	12	7%	44	25%	50	28%	70	40%	176
	Total	48	10%	116	25%	148	32%	155	33%	467
10 or more hours	Totally Disagree & Disagree	11	9%	33	28%	36	30%	39	33%	119
	Totally Agree & Agree	4	5%	13	18%	29	40%	27	37%	73
	Total	15	8%	46	24%	65	34%	66	34%	192

N = 659.

*p < .05.

Table 37

Hours Spent (TS) on and Perception if TS on Extracurricular Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Public universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	27	18%	44	29%	48	31%	33	22%	152
	Totally Agree & Agree	8	12%	13	20%	23	34%	23	34%	67
	Total	35	16%	57	26%	71	32%	56	26%	219
10 or more hours	Totally Disagree & Disagree	8	11%	27	37%	23	32%	15	20%	73
	Totally Agree & Agree	4	12%	7	21%	13	38%	10	29%	34
	Total	12	11%	34	32%	36	34%	25	23%	107

N = 326.

Table 38

Hours Spent (TS) on and Perception if TS on Extracurricular Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Private universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	9	6%	28	20%	50	37%	52	37%	139
	Totally Agree & Agree	4	4%	31	28%	27	25%	47	43%	109
	Total	13	5%	59	24%	77	31%	99	40%	248
10 or more hours	Totally Disagree & Disagree	3	7%	6	13%	13	28%	24	52%	46
	Totally Agree & Agree	0	0%	6	15%	16	41%	17	44%	39
	Total	3	4%	12	14%	29	34%	41	48%	85

N = 333.

Table 39

Hours Spent on Family Activities and the First Accounting Course Grade.

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
Nine or fewer hours	37	13%	78	28%	93	34%	68	25%	276
10 or more hours	10	20%	13	26%	14	28%	13	26%	50
Total	47		91		107		81		326
Private universities									
Nine or fewer hours	14	5%	58	22%	83	32%	109	41%	264
10 or more hours	2	3%	14	20%	23	33%	31	44%	70
Total	16		72		106		140		334

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities									
Nine or fewer hours	51	9%	136	25%	176	33%	177	33%	540
10 or more hours	12	10%	27	22%	37	31%	44	37%	120
Total	63		163		213		221		660

N = 660.

Table 40

Universities, Perception if Hours Spent on Family Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	35	16%	71	31%	71	31%	48	22%	225
	Totally Agree & Agree	12	12%	20	20%	36	35%	33	33%	101
Public*	Subtotal	47		91		107		81		326
	Totally Disagree & Disagree	12	6%	34	19%	63	34%	76	41%	185
	Totally Agree & Agree	4	3%	37	25%	43	29%	64	43%	148
Private	Subtotal	16		71		106		140		333

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	47	11%	105	26%	134	33%	124	30%	410
	Totally Agree & Agree	16	6%	57	23%	79	32%	97	39%	249
Puerto Rican*	Total	63		162		213		221		659

N = 659.

*p < .05

Table 41

Hours Spent on and Perception if Hours Spent on Family Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Puerto Rican universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours*	Totally Disagree & Disagree	39	12%	89	26%	112	33%	98	29%	338
	Totally Agree & Agree	12	6%	47	23%	64	32%	79	39%	202
	Total	51	9%	136	25%	176	33%	177	33%	540
10 or more hours	Totally Disagree & Disagree	8	11%	16	22%	22	31%	26	36%	72
	Totally Agree & Agree	4	9%	10	21%	15	32%	18	38%	47
	Total	12	10%	26	22%	37	31%	44	37%	119

N = 659.

*p < .05.

Table 42

Hours Spent on and Perception if Hours Spent on Family Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Public universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours*	Totally Disagree & Disagree	28	15%	61	32%	62	33%	39	20%	190
	Totally Agree & Agree	9	10%	17	20%	31	36%	29	34%	86
	Total	37	13%	78	28%	93	34%	68	25%	276
10 or more hours	Totally Disagree & Disagree	7	20%	10	28%	9	26%	9	26%	35
	Totally Agree & Agree	3	20%	3	20%	5	33%	4	34%	15
	Total	10	20%	13	26%	14	28%	13	26%	50

N = 326.

*p < .05.

Table 43

Hours Spent on and Perception if Hours Spent on Family Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Private universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	11	7%	28	19%	50	34%	59	40%	148
	Totally Agree & Agree	3	3%	30	26%	33	28%	50	43%	116
	Total	14	5%	58	22%	83	32%	109	41%	264
10 or more hours	Totally Disagree & Disagree	1	3%	6	16%	13	35%	17	46%	37
	Totally Agree & Agree	1	3%	7	22%	10	31%	14	44%	32
	Total	2	3%	13	19%	23	33%	31	45%	69

N = 333.

Table 44

Hours Spent on Working Activities and the First Accounting Course Grade.

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Public universities									
Nine or fewer hours	40	16%	67	28%	79	32%	58	24%	244
10 or more hours	7	9%	24	29%	28	34%	23	28%	82
Total	47		91		107		81		326
Private universities									
Nine or fewer hours	13	6%	44	22%	61	31%	82	41%	200
10 or more hours	3	2%	28	21%	44	33%	58	44%	133
Total	16		72		105		140		333

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities*									
Nine or fewer hours	53	12%	111	24%	140	32%	140	32%	444
10 or more hours	10	5%	52	24%	72	33%	81	38%	215
Total	63		163		212		221		659

N = 659.

*p < .05.

Table 45

Universities, Perception if Hours Spent on Working Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	38	16%	75	31%	78	32%	51	21%	242
	Totally Agree & Agree	7	9%	16	21%	28	35%	28	35%	79
Public*	Subtotal	45		91		106		79		321
	Totally Disagree & Disagree	13	6%	48	22%	67	30%	94	42%	222
	Totally Agree & Agree	3	3%	24	22%	38	34%	46	41%	111
Private	Subtotal	16		72		105		140		333

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	51	11%	123	27%	145	31%	145	31%	464
	Totally Agree & Agree	10	5%	40	21%	66	35%	74	39%	190
Puerto Rican*	Total	61		163		211		219		654

N = 654.

*p < .05.

Table 46

Hours Spent on and Perception if Hours Spent on Working Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Puerto Rican universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	45	14%	84	26%	99	30%	96	30%	324
	Totally Agree & Agree	6	5%	27	24%	39	34%	42	37%	114
	Total	51	12%	111	26%	138	31%	138	31%	438
10 or more hours	Totally Disagree & Disagree	6	4%	39	28%	45	33%	49	35%	139
	Totally Agree & Agree	4	5%	13	17%	27	36%	32	42%	76
	Total	10	5%	52	24%	72	33%	81	38%	215

N=653

Table 47

Hours Spent on and Perception if Hours Spent on Working Activities Aided Student Learning in the First Accounting Course,
and the First Accounting Course Grade.

Public universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	34	18%	56	29%	62	32%	40	21%	192
	Totally Agree & Agree	4	9%	11	23%	16	34%	16	34%	47
	Total	38	16%	67	28%	78	33%	56	23%	239
10 or more hours	Totally Disagree & Disagree	4	8%	19	38%	16	32%	11	22%	50
	Totally Agree & Agree	3	9%	5	15%	12	38%	12	38%	32
	Total	7	9%	24	29%	28	34%	23	28%	82

N = 321.

Table 48

Hours Spent on and Perception if Hours Spent on Working Activities Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Private universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours	Totally Disagree & Disagree	11	8%	28	21%	37	28%	56	43%	132
	Totally Agree & Agree	2	3%	16	24%	23	34%	26	39%	67
	Total	13	7%	44	22%	60	30%	82	41%	199
10 or more hours	Totally Disagree & Disagree	2	2%	20	22%	29	33%	38	43%	89
	Totally Agree & Agree	1	2%	8	18%	15	34%	20	46%	44
	Total	3	2%	28	21%	44	33%	58	44%	133

N = 332.

Table 49

Hours Spent Studying for the First Accounting Course and the First Accounting Course Grade.

Hours spent	Grades								Total N
	D or F		C		B		A		
	n	%	n	%	n	%	n	%	
Public universities									
Nine or fewer hours	46	16%	84	28%	94	32%	72	24%	296
10 or more hours	1	3%	7	23%	13	44%	9	30%	30
Total	47		91		107		81		326
Private universities									
Nine or fewer hours	16	5%	68	23%	91	31%	120	41%	295
10 or more hours	0	0%	3	8%	15	39%	20	53%	38
Total	16		71		106		140		333

Hours spent	Grades								
	D or F		C		B		A		Total
	n	%	n	%	n	%	n	%	N
Puerto Rican universities**									
Nine or fewer hours	62	10%	152	26%	185	31%	192	3%	591
10 or more hours	1	1%	10	15%	28	41%	29	43%	68
Total	63		162		213		221		659

N = 659.

**P < .01.

Table 50

Universities, Perception if Hours Spent Studying for First Accounting Course Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

		Grades								
		D or F		C		B		A		Total
Universities	Perception	n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	27		26		17		4		74
	Totally Agree & Agree	18		62		89		76		245
Public**	Subtotal	45		88		106		80		319
	Totally Disagree & Disagree	12		24		17		16		69
	Totally Agree & Agree	4		46		89		120		259
Private**	Subtotal	16		70		106		136		328

Universities	Perception	Grades								
		D or F		C		B		A		Total
		n	%	n	%	n	%	n	%	N
	Totally Disagree & Disagree	39		50		34		20		143
	Totally Agree & Agree	22		108		178		196		504
Puerto Rican**	Total	61		158		212		216		647

N = 647.

**p < .01.

Table 51

Hours Spent and Perception if Hours Spent Studying for the First Accounting Course Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Puerto Rican universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours**	Totally Disagree & Disagree	39	29%	49	36%	32	23%	17	12%	137
	Totally Agree & Agree	22	5%	99	22%	152	34%	171	39%	444
	Total	61	10%	148	25%	184	32%	188	33%	581
10 or more hours	Totally Disagree & Disagree	0	0%	1	17%	2	33%	3	50%	6
	Totally Agree & Agree	0	0%	8	14%	26	44%	25	42%	59
	Total	0	0%	9	14%	28	43%	28	43%	65

N = 646.

**p < .01.

Table 52

Hours Spent and Perception if Hours Spent Studying for the First Accounting Course Aided Student Learning in the First Accounting Course, and the First Accounting Course Grade.

Public universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours**	Totally Disagree & Disagree	27	37%	25	35%	16	22%	4	6%	72
	Totally Agree & Agree	18	8%	56	26%	77	35%	67	31%	218
	Total	45	16%	81	28%	93	32%	71	24%	290
10 or more hours	Totally Disagree & Disagree	0	0%	1	50%	1	50%	0	0%	2
	Totally Agree & Agree	0	0%	6	22%	12	44%	9	34%	27
	Total	0	0%	7	24%	13	45%	9	31%	29

N = 319.

**p < .01.

Table 53

Hours Spent and Perception if Hours Spent Studying for the First Accounting Course Aided student Learning in the First Accounting Course, and the First Accounting Course Grade.

Private universities		Grades								
		D or F		C		B		A		Total
Hours spent	Perception	n	%	n	%	n	%	n	%	N
Nine or fewer hours **	Totally Disagree & Disagree	12	18%	24	37%	16	25%	13	20%	65
	Totally Agree & Agree	4	2%	43	19%	75	33%	104	46%	226
	Total	16	5%	67	23%	91	32%	117	40%	291
10 or more hours	Totally Disagree & Disagree	0	0%	0	0%	1	25%	3	75%	4
	Totally Agree & Agree	0	0%	2	6%	14	44%	16	50%	32
	Total	0	0%	2	5%	15	42%	19	53%	36

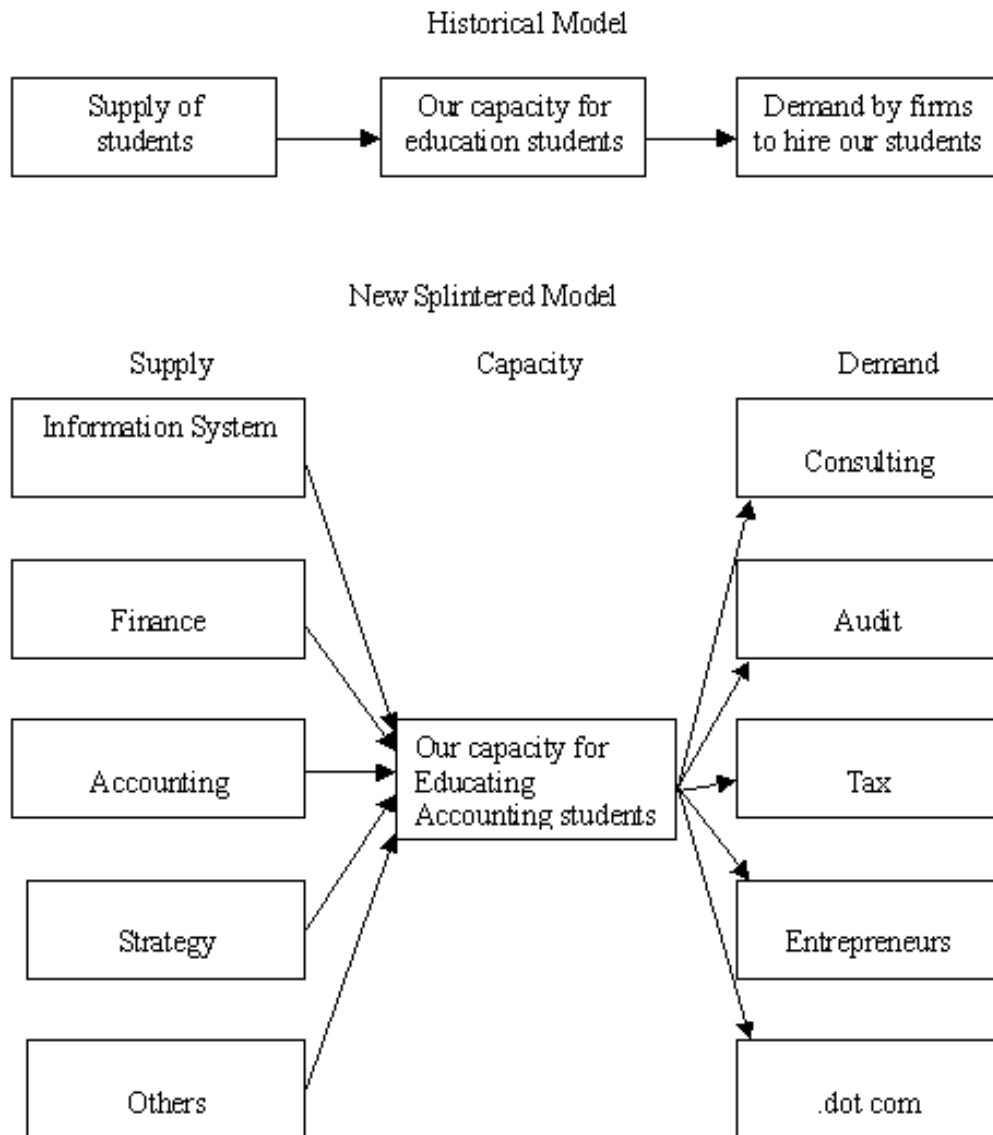
N = 327.

**p < .01.

Appendix I

Appendix I: Figures

Figure 1



Note. From “Accounting education: Charting the course through a perilous future,” by W. S. Albrecht and R. J. Stack, 1999, Accounting Education Series of American Accounting Association, 16, p. 14.

Figure 2

Salaries Paid to Undergraduate Business Students

Type of Employer	1990 Average Salary	1999 Average Salary	Percentage Increase
Public and Private Accounting	\$26,400	\$34,500	31
Investment Banking and Corporate Finance	\$29,100	\$37,100	28
Financial/Treasury Analysis	\$26,700	\$36,100	35
Information Systems/Computer Science	\$29,100	\$41,400	42
Consulting	\$28,700	\$42,600	48

Note: From National Association of Colleges and Employers (NACE) Report “Accounting Education: Charting the Course through a

Perilous Future,” by W. S. Albrecht and R. J. Stack, 1999, *Accounting Education Series of American Accounting Association*, 16, p. 9.

Figure 3

Private Universities Grades Distribution Report

