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LETTER FROM THE EDITORS

Welcome to the *Academy of Educational Leadership Journal.* The editorial content of this journal is under the control of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The mission of the *AELJ* is to publish theoretical, empirical, practical or pedagogic manuscripts in education. Its objective is to expand the boundaries of the literature by supporting the exchange of ideas and insights which further the understanding of education.

The articles contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

We intend to foster a supportive, mentoring effort on the part of the referees which will result in encouraging and supporting writers. We welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

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ACCOUNTING STUDENT PERCEPTIONS OF ETHICAL BEHAVIOR: INSIGHT INTO FUTURE ACCOUNTING PROFESSIONALS

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ABSTRACT

Governmental and organizational directives often mandate ethical behavior. Much of the research into ethics relies on whether the participant believes a situation is ethical or not. This study extends ethics research by examining accounting students' perceptions of ethical situations on a continuous scale. Our results suggest that an individual's perception may be influenced by his or her position in the scenario or by his or her gender. We find that perception of ethical behavior is affected by the threat of consequences. These findings can be used to improve ethics training in both organizations and business schools.

INTRODUCTION

The Public Accounting Reform and Investor Protection Act of 2002, better known as the Sarbanes-Oxley (SOX) Act, was developed in response to corporate scandals such as those involving Enron, Tyco International, and WorldCom. WorldCom's earnings management techniques overstated income by hiding bad debt, understating expenses, and backdating contracts. Tyco International executives sold company stock without proper reporting to the United States Securities and Exchange Commission (SEC), gave unapproved bonuses to buy silence within the organization, and gave themselves interest-free or low interest loans for personal use. Enron executives made false statements to banks and auditors and participated in insider trading, bribery, irregular accounting practices, bank fraud, securities fraud, wire fraud, money laundering, and conspiracy. These three scandals ended in bankruptcy and caused significant financial loss to employees and investors.

The United States Congress responded to the scandals by passing SOX, which has effectively changed the business environment in which both accountants and business managers operate. The Sarbanes-Oxley Act attempts to regulate and reinforce ethical behavior within companies in the United States. Corporate chief executive officers and chief financial officers must attest to the accuracy of the company's financial statements. Corporations cannot make personal loans to

executives or directors, and top-level management must attest that the company has effective internal controls in place to prevent or detect misstatements and improprieties.

Section 404 of the Sarbanes-Oxley Act (H.R. 3763) requires that an organization's external auditor assess the internal controls and issue an opinion on the management's report regarding internal controls over financial reporting. The 1992 report of the Committee of Sponsoring Organizations of the Treadway Commission (Committee of Sponsoring Organizations of the Treadway Commission, 1994), The *Internal Control- Integrated Framework*, is the standard used by auditors and managers to evaluate controls. The report outlines the key components of a good internal control structure. The first component is the organization's control environment. The framework outlines that the control environment sets the tone of an organization and influences the control consciousness of its people. The control environment includes the integrity, ethical values and competencies of the entity's people, management's philosophy and operating style, the process used by management to assign authority and responsibility and to organize and develop its people; and the attention and direction provided by the board of directors. An ethical corporate governance system requires an ethical, underlying internal control structure.

External auditors and managers are expected to evaluate whether an organization sufficiently incorporates ethics into the control environment. If they recognize an action is unethical but at the same time perceive the action is commonly accepted or less unethical than another, couldn't this affect the evaluation of risk? This study is part of an ongoing effort to identify factors that influence future managers' and accountants' opinions relating to what is ethically acceptable and unacceptable. This study extends prior research by using a continuous scale instead of the typical dichotomous scale (Kreie & Cronan, 1998; McMahon & Harvey, 2005). The degree to which participants believe the situation is ethical/acceptable or unethical/unacceptable is revealed. The results provide supervisors and academics insight into the ethical perception of future professionals.

MANDATED BUSINESS ETHICS

The need to influence ethical behavior in the business community is not new. Questionable corporate political campaign finance practices and corrupt foreign practices in the 1970s prompted the SEC and the United States Congress to enact campaign finance law reforms. The 1977 Foreign Corrupt Practices Act (FCPA) made it illegal to extend bribes to foreign government officials in order to obtain or retain business within that country, and required evidence of compliance from organizations doing business abroad. In response, a private-sector initiative, the National Commission on Fraudulent Financial Reporting (commonly known as the Treadway Commission), was formed in October 1985. The Treadway Commission issued its initial report in 1987, and among other items, recommended that the organizations sponsoring the Commission work together to develop integrated guidance on internal control.

As a result of this initial report, the Committee of Sponsoring Organizations (COSO) was formed and retained Coopers & Lybrand, a major CPA firm, to study the issues and author a report regarding an integrated framework of internal control. The report titled "Internal Control - Integrated Framework" was issued in 1992 and re-published with minor amendments in 1994. This report presented a common definition of internal control and provides a framework against which internal control systems can be assessed and improved. This report is the standard that U.S. companies use to evaluate compliance with FCPA (1998) and SOX. In 1998, the FCPA was updated; one of the changes was to include employees or officers of public international organizations, including, among others, the Red Cross and the World Health Organization. As a result, many organizations were forced to revisit their compliance policies. SOX further necessitated reviews of ethical behavior in organizations.

SOX outlines the need for internal controls and calls for both financial and criminal penalties for unethical behavior specific to financial reporting. Section 404 requires that companies "provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of (its) assets that could have a material effect on the financial statements" (Securities and Exchange Commission, 2003, p. 11). Section 409 requires all data about financial changes be brought forth and disclosed rapidly and currently. This may include anything that affects the company's financial situation such as stock price and intellectual property. Some issues that may fall into this reportable area include virus attacks, large systems outages, important data loss, and security violations (Cunningham, 2005). Section 802 requires that companies maintain records relating to audits and reviews for five years. The maintenance of this and similar information increases storage requirements and further increases the risk of unintentional information leaks, thus requiring more diligence on the part of the organization along with a focus on appropriately secure technology. Table 1 summarizes some the technology related requirements of the Sarbanes-Oxley Act (Pasley, 2006).

Table 1: Some Technology-related Requirements of the Sarbanes-Oxley Act

Statute	Summary	Threat
Section 302 - Corporate Responsibility for Financial Reports	Requires executives to certify the accuracy of corporate financial reports.	Unauthorized modification of data; data fraud.
Section 404 - Management Assessment of Internal Controls	Requires executives and auditors to confirm the effectiveness of internal controls for financial reporting.	Unauthorized access to data, data deletion.
Section 409 - Real Time Issuers Disclosures	Requires any material changes to financial state of issuer be communicated quickly and with supporting data to public.	Non-availability of data, data recoverability issues, backup, and restore.

A study conducted by Oracle indicated that 42% of the information technology professionals surveyed did not believe their company could adequately protect their information. In addition, 45% of those surveyed did not think their company could appropriately notify their customers in the event of a breach. These professionals cited a need for automated audit and security controls to combat privacy and security risks (Oracle, 2007). Clearly, the intent of SOX and the reality facing most organizations differs, underscoring the need for adequate risk assessment during audits.

The post SOX financial audit requires that auditors expand their concept of risk to include technology issues, and perhaps evaluate their own perceptions of risk related to technology. Prior research indicates that individuals do not regard digital piracy as important or unethical (Al-Rafeem & Cronan, 2006; Im & Van Epps, 1991; Reid & Thompson, 1992). Auditors and managers must identify and evaluate the risks affecting an organization in order to understand, implement, and test the controls operating in the organization in order to provide reasonable assurance that transactions are properly recorded, assets protected, and SOX requirements are met. If individuals do not regard data piracy as important or unethical, they may not assign an appropriate level of risk to technology issues when implementing and evaluating controls.

BUSINESS ETHICS AMONG ACCOUNTING STUDENTS

New accounting graduates have a foundation in business, accounting, and auditing. The context of SOX has been taught; some schools offer classes in business ethics. However, few studies exist to indicate how the average accounting student views ethics in a business environment. Extant studies generally use a dichotomous (ethical, not ethical) scale (Kreie & Cronan, 1998; McMahon & Harvey, 2005). Our study uses a continuous scale to investigate the degree to which business students perceive the unethical/unacceptability of technology scenarios versus a typical unacceptable accounting scenario. This measure may better indicate the level of risk young professionals would assign when evaluating control systems, and provide managers and academics insight for practical application.

This study was conducted in sophomore level core accounting classes at a large southeastern university. There were 174 respondents; 53% were female. Two respondents were freshman, 94 were sophomores, 44 juniors, 27 seniors, and seven did not complete the question. A total of 159 participants were between 19 and 23, seven were 24-30, one was 36-40, and seven did not complete the question. Participants were awarded ten bonus points for completing the survey. Those that did not wish to complete the survey were offered extra homework to earn ten bonus points. Approximately 20% of the students chose this option, for a response rate of 80%.

The survey included three scenarios, two current IT related scenarios, and one accounting related scenario. Scenario one relates to inappropriate use and potential damage of employer resources. Scenario two relates to data privacy, and scenario three relates to earnings management. The scenarios and questions were amended to represent issues common to general business and

accounting disciplines from the scenarios used in a previous study using students in computing classes (Leonard & Cronan, 2005) and are shown below

Scenario 1: "While surfing the web at work, and employee unknowingly downloads a file containing a virus. The person opens the file and a message appears informing the person that the virus has been released on the computer. The computer is connected to the company network and is shared by several users. The computer appears to be operating normally, and when rebooted shows no sign of trouble. The person tells no one about the virus."

Scenario 2: "A fellow employee asks the database administrator working for a large health care organization to give them a copy of the data stored on the database. The information stored in the database comes from a questionnaire filled out on the company website. In exchange for completing the questionnaire (containing specific questions about prescription use and medical conditions), visitors to the website are provided access to a medical encyclopedia and drug interaction program. The database administrator copies the information and gives it to the employee."

Scenario 3: "A manager at a large, international corporation is reviewing the monthly financial reports. The manager finds that his division will fall short of his projected net income by $20,000. The manager was promised a bonus if the net income projection was met. He remembers he increased the estimated loss on accounts receivable for the month by $24,000 (an acceptable accounting practice). This resulted in a decrease in net income for the month of $24,000. He contacts the accounting department and tells them he overestimated the loss by $20,000. Since the estimate is based on the manager's calculation, accounting makes the change; the manager receives the bonus, and next month the manager increases the estimated loss back to $24,000."

Participants were asked whether they believed the behavior described in each scenario was ethical/acceptable or not ethical/not acceptable. The question was repeated several times asking the participants to put themselves in the position of the employee, the supervisor of the employee, or the friend of the employee. The participants were also asked their opinion when there would be consequences if the behaviors were reported.

ANOVAs were completed using scenarios as the factor and ethics/acceptability on the continuous scale as the response variable. The scale is zero (acceptable) to thirteen (unacceptable). There is a significant difference between the scenarios (Table 2).

Scenario two relates to data privacy. Participants felt less strongly about the unacceptability of sharing private data than about the release of a virus on the employer's computer system or about earnings management. This held true for questions one through three. Question one refers to a theoretical employee's behavior. Question two indicates the participant is the employee, and question three indicates the participant is the supervisor in-charge of the employee. The lower mean indicates participants believed less strongly that the behavior was unacceptable in scenario two than scenario one or three.

Questions three and four ask the respondent the acceptability of the behavior from the perspective of being the supervisor or the friend of the employee. Again the data sharing is perceived as less unacceptable than the other two scenarios. Question 5 indicates that the individual would be caught. Only in this instance is data piracy more unacceptable than virus reporting.

Table 2: ANOVA Analysis Results

Scenario 1	Mean	Scenario 2	Mean	Scenario 3	Mean	df	P-value
1. The employee did not report the virus.	9.905	1. The administrator providing the employee a copy of the information.	7.683	1. The manager changing the estimate.	9.709	2	.000
2. If I were the employee, not reporting the virus would be	10.112	2. If I were the administrator, copying the information would be	8.182	2. If I were the manager, changing the estimate would be:	9.598	2	.000
3. If I were the supervisor, I would find the employee's behavior:	10.208	3. If I were the supervisor, I would find the administrator's behavior	8.504	3. If I were the supervisor, I would find the manager's behavior:	10.298	2	.000
4. As a friend of the employee, I would advise my friend to: 0 not report the virus; 13.2 report the virus.	10.283	4. As a friend of the administrator, I would advise my friend to: 0 copy the information; 13.2 not copy the information	8.736	4. As a friend of the manager, I would advise my friend to: 0 change the estimate; 13.2 not change the estimate	9.482	2	.000
5. If the employee knew that, if discovered, he (she) would be reprimanded, he(she) should:	9.423	5. If the administrator knew that, if discovered, he(she) would be reprimanded, he(she) should	10.61	5. If the manager knew that, if discovered, he (she) would be reprimanded, he(she) should	10.56	2	.000

Pairwise comparisons confirmed the differences between scenario 2 and the other two scenarios (Table 3). All results were confirmed using non-parametric measures.

Table 3: Pairwise Comparisons				
Question	Scenario	Scenario	Significance	Second Comparison
1	2	1 and 3	.000	1 to 3 not significant
2	2	1 and 3	.000	1 to 3 not significant
3	2	1 and 3	.000	1 to 3 not significant
4	1	2 and 3	.000 and .028	2 to 3 not significant
5	1	2 and 3	.000 and .001	2 to 3 not significant

DISCUSSION

Question one for each scenario describes the situation and asks the respondent in general whether the behavior is acceptable or not. Respondents rated scenario one, not reporting the introduction of a virus to the employer's computer network, and scenario three, changing an accounting estimate for personal gain, similarly with means of 9.7 – 9.9. The higher the mean, the more unacceptable the respondent perceives the behavior. However, scenario two, the database administrator providing private data to an employee, averaged 7.7. Respondents viewed scenario two as less unacceptable than the other two scenarios. The pairwise comparison indicates there is a statistically significant difference between scenario two and the other two scenarios, but not between scenarios one and three. Clearly, as a general behavior, data piracy is less important to accounting students than reporting a virus or changing estimates. Given that data piracy is a major issue both from a government mandate perspective and a consumer trust perspective, this finding is worrisome. Is this a general attitude for accounting students in particular, and potentially the generation about to enter the workforce? Do individuals at this stage simply have less concern because they have fewer items about which to worry (e. g., retirement accounts, credit history)? More investigation into these results may shed light on the foundations that facilitated these responses.

Question two asks the participant to respond assuming the participant is the employee, administrator, or manager performing the behavior. Scenario two is again scored as less unacceptable/unethical than the other two scenarios. Interestingly, the virus and data infractions are scored even more unacceptable than when considered as general behavior, while the accounting change is scored slightly less unacceptable. Although statistically insignificant, these differences are interesting. It would appear that students perceive data piracy and non-report of a virus more troublesome when they take ownership of the scenario, but changing an estimate less so. Nonetheless, data piracy was still statistically less important than either of the other scenarios. There were no significant differences between scenario one, not reporting the computer virus and scenario three, manipulating the accounting information.

Question three puts the participant in the position of supervisor. Scenario two is again scored less unacceptable/unethical than the other two scenarios. All three scenarios are scored more unacceptable/unethical for this question than questions one and two, perhaps indicating that students place a higher ethical standard on supervisors than supervisees. Although not statistically significant, this is an interesting finding. Would this general assertion (that supervisors should be held to a higher standard) be found in a general population? How would this change if working individuals were surveyed? Would there be a difference between supervisors and supervisees in their assumptions of unethical behavior?

Participants' responses to questions one through three all indicate that participants perceive the data privacy scenario differently than the virus or earnings management scenarios. Managers dealing with young professionals should take this possible bias into consideration when establishing controls and may want to reinforce the importance of data privacy and other technology related risks during training. Academics training future professionals should include technology ethical issues when addressing ethics in the classroom.

Question four puts the participant in the position of a friend and advisor to the person involved in the scenario. More participants would advise a friend to report the virus infection than would advise a friend not to copy the data or not to make the accounting change. This is the first question in which the data piracy scenario is not different from the others. There was no significant difference between the data privacy issue and the accounting manipulation, although the emphasis on an accounting change dropped from its position in question three. These results make us wonder why virus reporting is emphasized over data piracy or accounting changes when the participant takes on an advisory role. Is this because reporting a virus is largely non-consequential? The scenario does not state whether the original action (web surfing) was not permitted at the workplace. Assuming that the employee was surfing during a break, contracting a virus is less of a direct ethical issue than either data piracy or accounting changes. Therefore, suggesting that not reporting the virus has, apparently, fewer consequences. The participant's role as advisor allows him or her to maintain an ethical standard without causing issue for his or her friend. It is also important to note, that while participants more strongly recommended virus reporting than either preventing data piracy or accounting changes, the mean of the responses is still in excess of the midpoint, thus more respondents would recommend an ethical behavior.

Question five directly introduces consequences into the scenarios. If a reprimand would result, the mean is lower for reporting the virus than for choosing not to copy the data or not to change the accounting estimate. Clearly, the consequences of the action have a bearing on a participant's choice. The issue of data piracy being unethical is relatively low (mean = 7.683) whereas, once consequences are added, the mean jumps to 10.60 for the other two scenarios. For both data piracy and accounting changes, this question results in the highest level of perception of unethical behavior. Virus reporting, on the other hand, is perceived as the least unethical of all the questions. These results are different from those of question four where the participant is advising

a friend. It appears that, when reprimands are included, participants are more worried about avoiding reprimands (e.g., for data piracy) than for virus reporting.

Consequences seem to provide the most extreme responses for scenarios two and three. Managers should note that introducing consequences seems to have a varied affect on the intensity of the participants' responses. Specifically outlining consequences for undesirable actions may decrease the likelihood of young professionals engaging in certain activities, while providing an anonymous method to report similar activities may offer another way to decrease the risk related to these situations.

This survey was initially developed and used in ethics research in systems classes. Earlier studies of ethics found differences in ethical decisions between gender (Kreie & Cronan, 1998). Therefore, gender differences were analyzed. T-tests reveal a significant difference between means for males and females relative to virus reporting. Males averaged 10.49, while females mean was 9.06 ($df = 156$, $p=.000$). Therefore, males found not reporting the virus more unacceptable than females. Although the gap is closing, this finding may be explained by the gender gap that exists in technology (Bhattacharjee & Shaw, 2001). Overall, there are more men in the technical field; these individuals are more likely to understand the true impact of a virus. Therefore, they see failure to report a problem as being more troublesome. However, men were less likely to encourage a friend to report a virus (men=9.86; women=10.61, $p=.05$) than women. While this seems contrary on the surface, it may simply have to do with women being more collaborative and social, thus engaging in advise giving, whereas men are more solitary and hands-off, therefore less likely to engage in a casual advisory role (Brody, 1997; Carli & Eagly, 1999). No differences were detected for scenarios two and three.

CONCLUSION

In general, the participants in this study did not treat the scenarios the same, although most government and corporate mandates view ethical violations equally. While it would be true that the consequences may vary, each of these scenarios are in direct violation of ethical guidelines for technology use and financial reporting. It may be that organizations and business schools should focus on eliminating unethical behavior of any kind, rather than focus on the level of consequences attached thereto. FCPA, SOX, and other acts developed by the federal government are attempts to dictate acceptable, ethical business behavior. States have attempted to address the need for ethical behavior in the accounting industry by requiring certified public accountants pass ethics exams before renewing their licenses (Burke & D'Aquila, 2004). Accounting is not alone in this endeavor, but it is the industry that draws focus from the two acts discussed here.

This study extends our understanding of the relative degree to which accounting students interpret ethical and unethical behavior by using a continuous rather than dichotomous scale. This provides a better indication of the beliefs of the individuals involved and may provide better insight

into what their behavior might be given different situations. Management and auditors can also use this information to better design, implement, and evaluate the control environment in business today. The better our understanding of ethical behavior of students and employees, the better we can train future professionals to engage in ethical behavior and compliance.

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PROFESSORS' USE OF CASE DISCUSSION LEADERSHIP AT HARVARD AND DARDEN MBA PROGRAMS: CHARACTERISTICS OF A SUCCESSFUL CASE DISCUSSION

Rachel A. Smith, University of Indianapolis

ABSTRACT

The purpose of this study was to identify the key characteristics of a successful case discussion. The participants of this field-based case study were finance professors from Harvard Business School and the University of Virginia's Darden Graduate School of Business Administration, two top-ranked MBA programs that have used case discussion leadership as their primary philosophy of teaching and learning for many years. The methodology employed was a qualitative field study which utilized interviews of the finance professors, observations of case discussion courses, and analyses of relevant program documents. This article provides specific findings regarding the characteristics of a successful case discussion which can assist in developing the abilities and skills of educators to implement in the classroom across all disciplines.

INTRODUCTION

This study attempted to discover how professors in two top-ranked MBA programs describe and implement case discussion leadership in the classroom. The participants of the study were finance professors from Harvard Business School and the University of Virginia's Darden Graduate School of Business Administration, two top-ranked MBA programs that have used case discussion leadership as their primary philosophy of teaching and learning for many years. The methodology employed was a qualitative field-based case study which utilized interviews of the finance professors, observations of case discussion classes, and analyses of relevant program documents. This paper will present the primary qualities revealed as vital to the success of a case discussion. It will provide the relevant responses from interviews with the professors as well as observations from the processes and themes that were identified during actual case discussions in the classroom. The themes of successful case discussions revealed during this study include student preparation; multiple and diverse perspectives considered; quality, depth, and repetition versus quantity of coverage – effective, not efficient; energy, collaboration, and community in the classroom; maximum engagement of students; appropriate cases discussed; students discover a need for and

find value in the learning experience; environment of respect and support versus fear and intimidation; learning – deep, life-long, applied, retained, and personal; emphasis on application, decision-making, and developing an action-plan; the graphic presentation and use of technology, and overcoming challenges of case discussion leadership. Each of these themes will be discussed with supporting detail of the narrative from professor interviews and relevant observations from case discussions in the classroom.

STUDENT PREPARATION

Interviews were conducted with professors at University of Virginia's Darden Graduate School of Business and Harvard Business School. The interviews with the professors identified the following information about their views of student preparation for case discussions. Each of the professors discussed the vital importance of preparation on behalf of the students involved in case discussion classes. Professor Matthew McBrady stated, "Students must be prepared in order for an effective case discussion to take place." Professor Ron Wilcox stated that "the case discussion will not be successful without adequate student preparation. This allows them to contribute and challenge other students." Professor Nabil El-Hage stated that students will "lose a lot of learning if they are not prepared."

Classroom observations were made at both Darden and Harvard Business Schools. The classroom observations at Darden and Harvard demonstrated that the students are "ready to go" as soon as the case discussion begins. The observations revealed the following information that indicates the high level of preparation by students. The professor generally began the class with a question and immediately many hands were raised to answer the question. This continued throughout the entire class with students contributing their insights. The students often described a technical concept or model to the entire class. It was evident that the students had developed their views and opinions about the case before the in-class case discussion. Many students had developed an action-plan based on their research and preparation of the case. The students were often seen sitting with their study groups discussing the cases together either in the cafeteria, designated *study pods* in the MBA building hallways at HBS, or student lounges. The students often referred to specific details or numerical facts in the case to support their opinions or perspectives. This high level of preparation allowed them to contribute to the classroom learning experience and freed up their minds to engage in deeper analysis, application, and learning from other students because they were not concentrating on the case facts, attempting to learn the theory, or calculate the black and white computations of the case. Students had already secured the necessary theoretical or factual knowledge to engage in higher level discussions, analysis, and decision-making, based on their intense level of theoretical, quantitative, and case preparation before the in-class case discussion.

MULTIPLE AND DIVERSE PERSPECTIVES CONSIDERED

The interviews with the professors identified that an effective case discussion includes the consideration of multiple and diverse perspectives among the students and professor. Professor Matthew McBrady stated that "the case discussion is more successful when various perspectives and opinions are considered." Professor Ken Eades stated that a case discussion is effective and models the real-world environment because it requires students to consider a "variety of perspectives" rather than assuming that only one view will be considered and accepted in an organization. Professor Willis Emmons stated that in order for students to consider multiple points of view, they must listen intently to their fellow students' opinions and comments. He feels that this process of thoughtful listening and evaluating other students' perspectives is where students acquire significant learning. Professor Sherwood Frey stated that case discussions can provide different types of learning for different students due to their varied perspectives, backgrounds, and experiences. He stated that there are two broad categories of students which include the *poets* and the *engineers*. The poets in a finance class begin with a low level of finance knowledge, while the engineers possess a high level of finance knowledge. The poets leave the class with a clearer picture of the methodology and how it is applied. The engineers develop their ability to consider other perspectives, work through ambiguities and constraints, and articulate their theoretical knowledge more effectively. Because case discussions emphasize self-discovery and reveal a myriad of issues and perspectives, the same student can glean very different types of learning experiences from the same case discussion according to the interview with the professors.

The classroom observations revealed that each issue or question presented by the professor created a myriad of responses and perspectives. The differences in perspectives or opinions came from multiple sources. Many students had practical experience with implementing the theoretical model in the industry and would often "shed some light" on how the issue realistically plays out in the workplace. One student with a different, opposing experience in the same industry as another student stated, "I would take a different perspective on the issue." They then proceeded to describe their opposing perspectives based on their own practical experience. One student described her personal experience in the mutual fund industry which was relevant to the case discussion. The professor and the other students often returned to her throughout the case discussion to glean her view or opinion on the reality of the issue in the real world. Students in the case discussion seemed to possess significant practical experience which they used to contribute toward the learning process. Some students performed an additional computation that provided additional insight and understanding into a case issue. Other students referred to a specific footnote or detail in the case which had not been previously considered. One student challenged another student by asking them why they think diversification is negative and then referred them to a chart in the case which indicated an opposing view. Students often respectfully challenged one another, asked opposing questions, or stated that they disagreed with another student's comments and then explained why.

Some students had conducted external research on the topic, corporation, or industry being discussed in the case. In one instance, the class seemed to be coming to a consensus that the protagonist or CEO in the case was giving additional severance pay to the terminated employees because he understood their plight. A student raised his hand and stated that he read the biography of the CEO and then proceeded to read an excerpt from the book which revealed that the CEO's only concern was the bottom line profit of the organization and perhaps his own pocketbook, as hypothesized by the student based on the CEO's compensation package. Thus, because of this student's preparation and opposing viewpoint, the class took a different direction in discussing other motives for the CEO's seemingly benevolent actions. The interviewed professors explained that this emphasis on discussing and drawing out multiple perspectives of students provides a more realistic model of how multiple viewpoints exist in the workplace. It also provides students with an opportunity to challenge other students' views and assumption. It prevents the danger of *groupthink* in which students/employees that are simply seeking harmony or are being swayed by a few strong views, come to a subpar consensus. The professors stated that it often humbles students to recognize that their initial views are not always the best views. It causes them to develop flexibility and willingness to change their opinions based on new facts and perspectives of the problem. It helps them understand the benefits and value of collaboration and diverse points of view in discovering the best solution to a problem.

QUALITY, DEPTH, AND REPETITION VERSUS QUANTITY OF COVERAGE – EFFECTIVE, NOT EFFICIENT

Based on the professor interviews and classroom observations, it became apparent that a successful case discussion finds an optimal balance between the quantity of material covered and the quality, depth, or repetition of the subject being addressed. Professor Ken Eades stated that an effective case discussion provides coverage of the key ideas or themes for the class, but does not necessarily cover every outlined point or detail of the material. Professor Yiorgos Allayannis feels that "depth" and "thoughtfulness" of the material are criteria for a successful case discussion. Professor Ron Wilcox stated that a case discussion must include significant repetition within the class and among subsequent classes in order to acquire sufficient depth of knowledge for the material. He also stated that case discussion leaders must allocate enough time for each topic in order to provide students with the opportunity to fail and experience learning through self-discovery and collaboration with classmates. Professors Robert Bruner and Professor Peter Tufano stated that "the case method of learning is not efficient – but is extremely effective." They explained that case discussions require significant repetition of principles which takes extensive time. They also articulated that case discussions require in-depth discussion rather than simply a cursory examination of theory and principles. Case discussions investigate how a theory is used in the workplace and the ambiguities and difficult issues managers may face regarding the topic of study

which takes adequate time. The case discussions utilize questions to stimulate thought rather than giving the student the right, black and white, theoretical answer which also takes time. The case method relies on student self-discovery and discussion among students to consider multiple perspectives which requires time. The term case discussion is exactly that, a discussion of the application of the theory in practice rather than stopping at simply the presentation of the theory. These multiple case discussion objectives require time and thus it is not the most efficient method of teaching. However, according to the professor interviews, this inefficiency is exactly what makes case discussions more effective than passive methods of learning. They feel that the benefits of a case discussion in providing increased depth, understanding, and retention of knowledge surpasses the inefficiency and lower quantity of material covered as compared to passive methods of teaching.

ENERGY, COLLABORATION, AND COMMUNITY IN THE CLASSROOM

According to the interviews with the professors, an effective case discussion creates energy in the classroom, follows the direction of the energy in the classroom, and thrives on student collaboration and a sense of community in the classroom. Professor Ken Eades stated that a successful case discussion "creates energy and an experience." Professor Sherwood Frey stated that a successful case discussion "creates energy in the room around the issues discussed." Professor Robert Bruner stated that a successful case discussion "creates energy in the classroom. It is spirited – not flat. Everyone is working hard together to figure out the best solution. This energy motivates students to reflect and be engaged. It promotes learning." Professor Robert Bruner also stated that "a case discussion has been successful when the energy of the class has been pursued rather than meeting the initial class objectives." Professor Matthew McBrady stated that a successful case discussion will sustain the energy during the class and throughout the semester. Professor Yiorgos Allayannis stated that "a successful case discussion will keep the energy level in the class high."

The case discussion observations revealed a high level of energy in the classroom. The classes were stimulating, unpredictable, and captivated one's attention. The professors were upbeat, positive, encouraging, smiled, and frequently used humor throughout the case discussion. The professors seemed to focus on creating an optimal learning experience for the students. The professors spoke with inflection, often varying the intensity of their voices and sometimes even mildly yelling in a good-natured fashion. Some informal discussions with the students expressed that they especially enjoy professors that exude energy and enthusiasm during the case discussions. Each of the professors had their own style of maximizing the energy in the classroom. Professor Yiorgos Allayannis is from Greece and used some unique phrases which caught the attention of the class such as saying, "Come again" when he wanted a student to repeat their comment. Other professors frequently used movement in the classroom. They walked up and down the aisles, stood in the back of the room, and walked near the students to create energy in the classroom. Some professors attempted to create controversy by inserting opposing views or perspectives during the case

discussion to stimulate energy and thought. Another professor called students to the front of the room to work the problem on the board. It was clear that energy was created when the class was discovering new ideas, options, and perspectives as they attempted to produce practical solutions and decisions to solve the case problems. At the end of each class there was always a group of students waiting to speak with the professor which indicated their involvement and interest in the case discussion. Students were often heard speaking to each other about the case discussion after class. This included explaining difficult concepts to each other and offering different perspectives or opinions. Students who may have disagreed during class spoke with each other and further clarified their thoughts. This post-class discussion enhanced and stimulated continued energy and reflection over the material, even after the case discussion.

The professor interviews further expanded on this need to establish energy in the classroom. Professor Ken Eades stated that a case discussion leader can enhance the case discussion experience by allowing the conversation to go in a different direction than planned if it is creating energy and is engaging students. Professor Matthew McBrady stated that the key is in "knowing and guiding the 'rabbit trails' and discerning whether the new paths are intriguing versus wrong or irrelevant." Professor Nabil El-Hage stated that the case discussion leader must find a balance between keeping the case discussion in line with the teaching plan and straying with the energy of the discussion. He stated that this balance is achieved through experience, confidence, preparation, quickness, and developing the ability to weave in students' experiences and statements to the main points of the class.

The professor interviews revealed that a successful case discussion is created in an environment of community in which the students have a sense of belonging, unity, relationships, and collaboration. The students and professor feel as if they are joining in the journey of learning together. Professor Ken Eades believes that a community environment will often include the use of humor among the students and the professor. This high level of community and collaboration was apparent based on the case discussion observations. The environment was distinctly personal, with students and professors referring to each other by name. The students were obviously good friends, both inside and outside the classroom. They were often heard talking about weekend plans and parties which many in their class would attend. There was a lot of joking and laughing taking place among the students before and after class. Students felt comfortable to be humorous during class and often referred to an "inside joke" during class discussions. One student stated during class when referring to the creation of a possible weather derivative option, "There is danger in thinking there is no way to weather the weather – and this joke is good for me, because I am Russian." The entire class, including the professor, roared with laughter after the student's remark. After one class, the students in the section stayed after to discuss their upcoming spring break trip to Brazil. Approximately half of the class was there to discuss and learn about the final details of this voluntary, pleasure trip. The meeting was highly detailed and planned. The students often joked and made funny personal comments to each other during the presentation. At the beginning of one class

session, a student announced that a fellow student's father had passed away and asked for a period of silence for him. The professor, Peter Tufano, followed the silence by stating, "We are a community at HBS and we should never take that for granted." He stated that one of his best friends was a *sectionmate* from Harvard Business School during his time as a student there. Students sang "Happy Birthday" to each other before class. In one class, students had hearts hanging from the front of the table where they sit which were sent to them from other sectionmates on Valentine's Day one month earlier. After the conclusion of one class, two students voluntarily presented mid-term student awards for achievements such as overall improvement in the level of discussion contribution and one student's ability to stop saying the same phrase during his class comments – down from an average of 5 times per class to only 2.5 times per class.

At the end of each class in both schools, students broke into spontaneous clapping. According to Professor Willis Emmons, there are several reasons for the end of class clapping. First, he feels they are clapping because it was an excellent performance by the professor – similar to clapping for a theatre performance. Second, they are expressing their appreciation for the learning experience. Third, they have developed a strong relationship and respect for the contribution and preparation of the professor and feel that he merits the clapping. Fourth, this is a ritual or tradition that has been in place for many years. Students will discover this during their visitations to the school or during the student orientation of old students to the new students. Another tradition is that students at HBS knock on the table if they cannot hear a fellow student's comments. This informs the presenting student of the problem, helps students improve their ability to speak clearly and audibly during a presentation, improves the learning process by allowing all students to hear the comments, and allows the students, rather than the teachers to correct their fellow students. At the beginning of each classroom observation, the students required me to introduce myself and describe my purpose in observing their class. Most students clapped after I explained that the purpose of the research was to study the practices of case discussion leadership in the classroom. Professor Willis Emmons stated that it is an expectation and tradition that the professors introduce guests to the class. He stated that *outsiders* must be introduced because they are a close knit, cohesive, somewhat exclusive community or family and deserve the respect of knowing about strangers is their classroom. This level of community and collaboration among students and faculty seemed to make a significant contribution to the high level of energy that resonated throughout the classroom.

MAXIMUM ENGAGEMENT OF STUDENTS

The interviews with the professors revealed that a successful case discussion will engage and stimulate contribution from the maximum number of students. Professor Ken Eades stated that one of the primary goals of a case discussion is to achieve the maximum involvement of students. He stated that "anything students can think of is more powerful than what the professor says." He feels this is true because students can relate to each other more than the professor. He stated, "When the

students talk to each other, the payoff is even better." Professor Yiorgos Allayannis stated that a case discussion must "engage many students." Professor Sherwood Frey stated that "students are participants – not students." He also feels that in an effective case discussion, "students talk to each other, rather than the professor." Professor Mark Haskins stated that a case discussion should have "minimal faculty talk and more student to student talk." Professor Robert Bruner stated that an effective case discussion includes "depth of engagement of students." This may include some resolved frustration with the material or case, shock or surprise based on other students' responses or enhanced understanding, or new enthusiasm for the material and learning process. Professor Yiorgos Allayannis stated that the old style of questioning students was to stay with the same cold-called person for 15 minutes. He feels that this is boring and hinders the engagement of the maximum number of students. He believes that the new style is to pursue "maximum engagement of 100% of the students for 100% of the time." This requires the case discussion leader to be more intrusive and spontaneous by frequently moving to different students in order to maintain maximum engagement of each student in the class. This is achieved not just through questioning individual students but also through asking questions to the whole class and keeping the overall energy in the classroom high. During a case discussion, Allayannis often stated, "Mike [or whichever student was speaking] is speaking, but everyone else is thinking." He also frequently stated to the class, "Don't let your minds drift – stay with me." Professor Ron Wilcox believes that a successful case discussion requires the leader to develop the ability to "get students to interact." Professor Robert Bruner stated that creating a successful case discussion requires the leader to "take charge" of the learning experience by stimulating maximum engagement of the class, individual student contribution, and student to student conversation.

Professor Stuart Gilson used the techniques of visual examples and storytelling to stimulate student engagement in the case. He began class by showing a slide of newspaper clippings which announced massive layoffs at the company in the case. This seemed to create some level of interest in the unfolding of the case. He then proceeded to tell the story of the case by painting a vivid picture of the personality and characteristics of the CEO of the case that initiated the layoffs, describing him as "Hacker Al." He stated that "Al would not be your top pick for a neighbor." He then described the plight of the laid-off workers who do not have a degree, may have children in college, and live in a town with few job opportunities. This storytelling approach seemed to draw the students emotionally into the case by helping them create strong feelings and personal opinions about the case issues.

The observations also revealed that students often explained difficult material or concepts and answered the questions of other students, rather than relying on the professor to explain it to them. Students questioned each other to clarify what they were saying and asked other students to help them understand their comment or explanation of technical material. Students were often excited when they felt that another student had offered an excellent insight, analysis, or perspective. The students often clapped for another student when they provided the class with an excellent

answer or insight. Students in the case discussions constantly volunteered to speak and attempted to engage and contribute to the learning process.

APPROPRIATE CASES DISCUSSED

A successful case discussion depends on the selection of an appropriate case to enhance the discussion process, according to the professor interviews. Professor Ron Wilcox stated that an effective case discussion begins with a good case. The case should include a decision that must be made, some analytical framework, ambiguities, and multiple options of choices or possible directions. Professor Sherwood Frey stated that the cases must "require decision-making versus just describing why someone did what they did."

Professor Sherwood Frey described two different types of cases which may be appropriate in different situations. The first is the methodological case which is more black and white and directive in nature. The goal of this case is to drive towards closure and understanding of the method. The role of the case discussion leader in a methodological case is a drill-sergeant. The methodological case often has a right answer, especially in a quantitative class like finance. However, there is still opportunity to apply different assumptions or varying levels of risk aversion in a methodological case analysis and discussion. The second type of case is an open-ended case which has the goal of achieving an insightful use of the methodology. He stated that the goal of the open-ended case metaphorically is to "graze on green pasture and chew on different green grass." He feels that success in an open-ended case is achieved through broad coverage and exploring an interesting set of issues. Many of the professors expressed during the interviews that they often begin a new learning module with a more methodological case in order to ensure that students have the opportunity to practice and gain a strong mastery of the methodology. This is then followed by cases with increasing levels of ambiguity. This requires the students to acquire the "artful side" of using the methodology, recognizing that there are often no perfect or right answers, and realizing that financial managers must frequently use impressions to make decisions. Each module includes significant repetition of the key concepts in order to reinforce and ensure depth of knowledge in the students.

STUDENTS DISCOVER A NEED FOR AND FIND VALUE IN THE LEARNING EXPERIENCE

Professor interviews revealed that a successful case discussion stimulates students to discover the need for this learning experience, develop life-long learning attributes, and experience a personal awakening. Professor Yiorgos Allayannis stated that a successful case discussion causes students to "develop a continued search for knowledge and the desire to continually ask questions." He knows that a case discussion is effective when students are asking brilliant questions and moving

the discussion forward, through their desire to acquire new knowledge. Professor Sherwood Frey feels that in order for a case discussion to be effective, the leader must create in students "a perceived need for the learning experience and articulate the value of learning with cases." The students will then begin to personally recognize the benefits of learning through case discussions, based on their own individual experiences. Professor Robert Bruner stated that a successful case discussion stimulates some personal awakening. He explained that there are two types of personal awakenings that can occur in students in which they discover something vital about themselves or their beliefs. The first personal awakening is one which provides an insecure student with confidence and affirmation by recognizing that others are favorably discussing and responding to their ideas. The second type of personal awakening is one which confronts a "know-it-all" student with the reality of their mistaken views. This becomes evident to them through self-discovery via their fellow students confronting and challenging their assertions during the case discussion, rather than a teacher directly communicating to them that they are incorrect. This is often difficult for students to recognize but will be valuable to them in the future. Both types of personal awakenings provide a high level of learning and value to the student through self-discovery.

The classroom observations identified that the students have a high regard and respect for the value of case discussions at Harvard and Darden Business Schools. When I explained to the class that the purpose of the observation was to further understand the qualities of case discussion leadership in the classroom, the students would spontaneously clap because of their strong belief in case discussions over passive methods of learning. A brief informal interview with some students after class provided some reasons for their selection of Harvard Business School over other business schools. They stated that one of the primary reasons they chose HBS is because they like the case method of learning combined with the general management approach of the program. They feel that this style of learning provides a broader perspective of the many roles and interrelated issues across multiple disciplines that a manager must understand and learn how to juggle. One professor stated, "Get a Wharton MBA if you just want to calculate 100% - 95.6%." A student immediately responded, "That's why I didn't choose to go to Wharton or MIT," to which the remainder of the class clapped. These comments emphasized the students' and professors' strong belief in using case discussions and their belief that schools with a primary emphasis on passive methods of learning only know the technical, quantitative perspective of finance, rather than possessing the ability to make decisions and apply the financial concepts to real-world issues.

ENVIRONMENT OF RESPECT AND SUPPORT VERSUS FEAR AND INTIMIDATION

The interviews with the professors identified that a successful case discussion creates an atmosphere of respect and support for students, rather than fear and intimidation. Professor Ken Froot stated that in order for a case discussion to be effective, it must create an environment of confidence rather than intimidation and fear. He stated that this is even more important in an

intimidating, quantitative class like finance in order to build the confidence of all the students. He stated that the case discussion leader can create this environment based on how they respond to wrong answers. Professor Willis Emmons stated that a case discussion must display respect and fairness to students. He feels that it is important to have a least one cold call per class, but it is vital to conduct this correctly. It should never be punitive or unfair, should not include humiliation or embarrassment, and should not attempt to "pull the wool out from under them." He feels that the case discussion leader must find the optimal balance between respecting students and keeping a high-quality classroom experience, by challenging and stimulating student spontaneity with care. Professor Yiorgos Allayannis stated that the case discussion leader must "not be too intimidating to students" in order to create a culture of trust and respect in the classroom. This is shaped by the manner in which the professor responds to the students.

The classroom observations revealed that the professors attempted to create an atmosphere of confidence and support, rather than fear and intimidation through their responses to the students. The environment of a case discussion inherently has a level of intimidation for many students, due to the vulnerability required by students to verbally express their opinions and views in front of their fellow classmates. Their comments are then subject to the scrutiny and challenge of other students or the professor. However, the observations indicated that the professor often allowed the other students to challenge the speaking student, rather than challenging them himself. Although the students challenged their classmates, they followed the model of respect established by the professor by presenting their opposing view with respect, without an accusatory tone, and with kind language. Students also showed respect to the professor by raising their hands when they had a comment. This created an atmosphere of order and placed an emphasis on the person currently speaking, rather than allowing a "free for all" in which students were cutting other students off and interrupting each other. This custom contributed toward creating an environment of mutual trust and respect rather than fear and intimidation in the classroom.

The observed students offered their comments and opinions with confidence, rather than reluctance. The professor also set a tone of respect in the class by how he personally responded to the students. The professors were affirming and respectful to the students. They addressed every student by name and sometimes complemented them when they make a good comment by stating "good point" or "great comment." They used kind and encouraging responses to the students such as "perfect" and "outstanding." They often ignored a wrong or irrelevant comment and moved on to the next student or topic, rather than belittling the student in front of the class. However, the professor sometimes respectfully asked the student further questions or allowed other students to challenge the student. The professors carefully listened to each comment made by the students and then wrote that comment on the board. They often wove a student's previous comment into the discussion by stating, "This is similar to Jenny's point earlier about the importance of considering the dimensions of risk in this decision." The professors often called on students to comment on their personal experience in the workplace regarding the topic being discussed in the case. The professor

was able to do this as a result of the relationship they had developed with the students and the knowledge of the students that they possessed from studying their student biographical cards provided by the schools. One professor responded to a student's comment by stating, "I have no doubt that you are saying something very smart – let me get my head around this." The professor's responses and support of students in class seemed to create an environment and culture of respect, rather than hostility or antagonism. This same attitude was then repeated by the students in the class when speaking to each other and the professor. This seemed to be vital in order to achieve openness and the willingness of students to take risks in class, due to the vulnerability inherent in publicly expressing personal views during case discussions.

LEARNING – DEEP, LIFE-LONG, APPLIED, RETAINED, AND PERSONAL

An effective case discussion will result in deep student learning. Professor Robert Bruner described two types of student learning. The first is when he sees the "light bulb go on" for students. The case discussion leader may "see students' heads start nodding and eyes that are fixed on you. You know you have made a connection and meaningful learning has taken place." He stated that this type of learning is positive and affirming to the student. The second type of learning occurs when a student leaves class struggling with a dangling question that puzzles them. This type of learning creates a sense of suspense for future learning that needs to be gleaned in order to resolve the suspense and answer their questions. This type of learning stimulates outside research, reflection, and excitement for future knowledge that will be gleaned from subsequent case discussions. Both types of learning are effective and create meaningful learning experiences for students. Professor Peter Tufano stated that a successful case discussion achieves learning by both students and faculty. He stated that the key benefit of learning through case discussions is demonstrated in the type of learning that is experienced. He described the learning as "lasting and retained" because the students discover the knowledge themselves and engage in significant repetition and depth of coverage over the material. He stated that students of case discussions are able to combine technical skills and facts with judgment in order to make decisions. He stated that the ability to use judgment distinguishes case discussion students from students of passive methods. He stated that this ability to use judgment to make decisions is a criterion for deep learning as contrasted to simply memorizing formulas and facts. Professor Ken Eades stated that a successful case discussion will "stimulate students to make their own meaning and verbalize it in their own thought process." He feels that the ability to make their own meaning through self-discovery, collaboration with peers, and personal reflection, initiates a significantly deeper learning experience for the students.

Professor Yiorgos Allayannis feels that a successful case discussion will entice students to be life-long learners in a never-ending pursuit of knowledge, rather than feeling that they have reached a pinnacle in their knowledge level. It also causes them to recognize the significant impact that the context of the specific real-world situation will have on the decision-making process. This

could include varying employees, managers, economic uncertainty, regulatory environments, global competition or outsourcing, and shareholder demands. The case discussion process helps students develop the ability to "keep working, practicing, and learning" in order to navigate through each unique situation. It is vital for a case discussion leader to model this same commitment to life-long learning through research, an attitude of discovery with the students, and an ongoing commitment to improving their teaching abilities.

EMPHASIS ON APPLICATION, DECISION-MAKING, AND DEVELOPING AN ACTION-PLAN

The interviews with the professors revealed that an effective case discussion emphasizes application, decision-making, and developing an action-plan. Professor Sherwood Frey stated that an effective case discussion will provide students with "a broader and deeper understanding of the reasons for making decisions." Professor Peter Tufano stated that an effective case discussion will train students to integrate facts with judgment in order to make decisions. The gap between the facts and the decision-making, and thus judgment required, will vary based on the level of ambiguity and uncertainty. He stated that the case discussions help students recognize "what information is important, and know what to do with the information to turn it into something valuable in order to make a decision."

The case discussion observations indicated professors' significant emphasis on forcing decision-making and action-planning in students. The professors often forced students to use their judgment to take a stand, be decisive, and give their personal opinion, despite ambiguous, limited, or incomplete information. However, they also required them to support their opinions with case facts and financial theory. The professors stated that this ability to make decisions without complete current or future information is realistic and vital for a successful manager in the workplace. Professor Yiorgos Allayannis stated to his students, "We must be decisive in this class" despite the limited information in the case. Professors often asked students, "What would you do if you were the manager in this situation?" Professor Ron Wilcox stated to a student, "What is your gut feeling – would investors leave if you increased the management fees?" After the student answered, he asked, "What information in the case leads you to believe that?" Professor Stuart Gilson asked a student, "What would you do – keep both products – tissue, paper, or one or the other?"

The professors often challenged students to consider the pros and cons of each alternative decision, existing constraints, and projected outcomes of each decision. Professors would often ask one student to either agree or disagree with a student's action-plan or decision. Professor Stuart Gilson asked one student to "agree or disagree with another student's comment that diversification hurts." This caused students to consider varying sides of the issue, discover weaknesses in an argument, and consider their own views, rather than simply accepting the consensus of opinions. The professors also challenged students' assertions by asking them increasingly deeper questions

regarding the next logical step, further calculations, or their assumptions. Professors also took a class vote regarding the decision that each student would make and then follow up with students from each group with questions causing them to support their decision.

During the classroom observations, the professors stimulated students to recognize the ambiguities, risks, and practical challenges of making decisions. Professor Stuart Gilson asked students to describe the subjective and financial pros and cons and challenges of laying off 10,000 employees. Professor Peter Tufano stated to students when assessing varying risks of a decision, "We must go deeply into the risks, not just a cursory level. This requires you to use deep analysis and thinking." Professors forced students to be practical and specific in describing their action-plan. Professor Nabil El-Hage asked the students, "Which of these alternatives is most problematic – in one option we get fired, the second we lose our competitive position – so what do we do?" He then forced the students to consider practical solutions in real dollars, the realistic pros and cons of each alternative, and then determine which option had the most desirable features in practical terms. Professors challenged the students to be innovative and creative when considering alternatives for making decisions and action-plans. Professor Ken Froot challenged students to be creative in considering various types of investors that may be willing to hedge against weather risk on a farm. He stated, "Who could you find to invest in offsetting each others' risk?" A student creatively responded, "A vacation resort and farmer could offset each others' risk because vacation resorts' revenues are down during seasons of significant rain while farmers are more productive during rain and vice versa." The observations of the case discussion leaders revealed their implementation of varying strategies in order to stimulate students to make effective decisions, despite ambiguity and to be creative and specific in developing action-plans. This process of active learning and application is in direct contrast to simply acquiring facts and memorizing formulas.

GRAPHIC PRESENTATION AND USE OF TECHNOLOGY

Based on observations of the classrooms and professor interviews, an effective case discussion graphically presents key themes of the case discussion and discriminately uses technology to enhance, rather than hinder the discussion process. Both Harvard Business School and Darden Graduate School of Business Administration had a minimum of 11 blackboards available for their use. Most of the blackboards were layered behind each other and allowed the professors to flip a switch, in order to move them above the normally positioned blackboard. This allowed the students to view all the writing on the blackboards that had occurred during the entire class. It also prevented the case discussion leader from wasting time erasing boards. Based on the observations, the professors often used one board for each thematic question and answers. They wrote the overriding discussion question on the board after presenting it to the class and then wrote all of the students' comments and answers on the board in abbreviated form. This process of condensing students' comments on the board often required the students to clarify or reiterate their statements

into a more analytical and clear framework before writing it on the board. This also forced the students to state their opinion concisely so it could fit on the board, which the professors often required of the students. The blackboards created a natural progression of the discussion by presenting each key issue or discussion question on one board and then moving on to the next board and topic of discussion simultaneously. It also provided the students with the ability to take notes and have an understanding of the key themes and ideas from the class. The ability to simultaneously view all the blackboards allowed the students to refer back to different parts of the discussion when synthesizing ideas, making decisions, and developing an action-plan. It allowed them to refer back to specific numbers, details, and points developed previously during the discussion.

The case discussion leaders used their graphic presentation of the case to create continuity among the multiple sections of students in the first-year, MBA finance classes. Teaching notes were provided to the case discussion leaders of the same class in different section. These teaching notes provided a general guideline for the content that should be included on each board. However, the professors have significant leverage in the specific details included on each board. The planned graphic presentation on the board also helps the professors gauge their time by continually evaluating how many boards and discussion questions they have completed and the remaining time in the class. However, they are also seeking an optimal balance between achieving the optimal quantity of material to cover and pursuing the energy of the current case discussion.

According to interviews with the professors, the use of technology in the classroom was strategically utilized. The professors had a high-tech projector for articles, graphs, or writing notes which is projected on the screen without the use of transparency slides. However, the use of this technology was limited to a few graphs or articles in each case discussion. They also had the use of PowerPoint software and a projector, although it was only utilized several times during the observations for demonstrating the use of an Excel-based, financial modeling software to the students and a brief explanation of a theoretical model. The students were even responsible for guiding the professors through the use, assumptions, and outcomes of the modeling software. Although multiple options for the use of technology were available to the professors, they chose to use it only to enhance the natural discussion process, as in the layered, moveable blackboards. The professors explained that the reason for this limited use of technology is a result of the primary emphasis on student interaction, spontaneous questions, multiple directions of the discussion, and self-discovery rather than presenting pre-planned PowerPoint lectures which tell the student what they need to know. The emphasis of a case discussion class is on creating energetic student discussions and thus the professors feel that technology can often emphasize the rigid distribution of knowledge and hinder spontaneity and flexibility in the learning process.

OVERCOMING CHALLENGES OF CASE DISCUSSION LEADERSHIP

The interviews with the professors indicated that there are several challenges that case discussion leaders may encounter and must seek to improve, change, or overcome. An inexperienced or new case discussion leader often encounters the pitfall of over-focusing on the case facts, computations, and details. This may prevent them from ensuring that they effectively lead the process of an effective case discussion. Professor Matthew McBrady stated that an inexperienced case discussion leader often lacks confidence which may cause them to over-prepare for the discussion. He stated, "This can cause the case discussion leader to over-focus on knowing the case and the calculations rather than leading the case discussion." This can also lead to strict coverage, directiveness, and adherence to the material rather than allowing the energy of the class to direct the discussion. Professor Willis Emmons stated that a significant challenge is the ability to find "a balance of process and content – your mind is always working on 2 tracks – whether you have covered all the content versus doing an effective job at managing the process." He described the importance of process management in which professors must manage the time allocation of each class; know when to pursue "rabbit trails" initiated by students versus staying on course; discern how to speak and respond to students; use clear handwriting and blackboard presentation; engage in student background recall; grade participation; call on students who have not spoken as much versus the one who knows the answer; and make quick, spontaneous decisions.

Another challenge or risk is a lack of adequate preparation by the professor. This includes time preparing for the case discussion and developing relationships and knowledge of the students. Professor Mark Haskins stated that a case discussion leader must commit a significant amount of time to preparing for the case discussions including both process and content. This includes attending teaching group meetings with other faculty; knowing the theory and quantitative material; acquisition of the case facts, details, and key learning themes; anticipating potential directions of the discussion, incorrect thinking, and questions from students; writing cases; and learning about how to be a more effective leader of the process. This may require the professor to observe other professors, read about case discussion leadership practices, engage in self-reflection, and make changes based on student feedback. Professor Ron Wilcox stated that a lack of preparation by a professor may prevent them from possessing the depth of knowledge and confidence to move the discussion in different directions. A case discussion leader must also commit time to developing relationships, knowing the backgrounds and attributes of the students, and contextual dimensions of the class. The case discussion leader that does not possess significant knowledge and relationships with the students may lose opportunities to draw out excellent contribution from students with relevant experiences to the case issues. This relationship and respect also motivates students to adequately prepare for the case discussions. Professor Robert Bruner stated that a professor must be able to recognize the many conditional factors that influence their class both positively and

negatively. This could include fatigue, internal dissension, school controversies, or illness. This allows the professor to understand and adapt their leadership style appropriately.

According to the interviewed professors, another challenge for the case discussion leader is a lack of student preparation. Professor Robert Bruner stated that one of the major problems or challenges that a case discussion leader may face is "a lack of student preparation." Professor Mark Haskins stated that "the lack of student preparation" is detrimental to the case discussion, because the model assumes and depends on students as the primary co-contributors in the learning process. He feels this can be minimized during the admission process by only accepting students into the program that display high levels of commitment and motivation in their previous endeavors. It also requires creating a "peer environment" in which students desire to gain the respect of their peers and their professors and thus are motivated to engage in adequate preparation.

Another challenge that professors may face is diminishing student motivation. Specifically, several professors mentioned the challenge of ensuring that their second-year students maintain the same motivation and preparation level as their first-year students. Professor Yiorgos Allayannis stated that sometimes second-year students will take an elective with a professor simply because they like the style of the professor rather than possessing a sincere interest in the class material. This can lead to students that are not highly motivated, lack the ability to delve into more technical financial subjects, or do not want to go to the desired depth that the class is intended to take them. He suggested encouraging students to only take the elective if they have a sincere desire to learn the material and commit to the required level of preparation and motivation necessary to create an effective learning opportunity for the class. Professor Ron Wilcox stated that there are several reasons why second-year students can sometimes become less motivated and prepared than first-year students. It may be because their overall incentives are lower than first-year students. They realize that they have made it through the rigorous first year so they may feel more confident in their ability to succeed. They already possess some level of finance knowledge from the first-year finance courses they have completed and thus have a higher ability to "speak on the fly." They may feel that even if they do not get the highest grades they will still have their MBA and can get a reasonably good job or promotion. They may feel that only a few students move to the top of the class and receive awards and thus are willing to settle for mediocrity or "just getting by." They have often already formed their social networks and thus are less interested in impressing their fellow students in order to earn their respect and friendships. Many of them are interviewing for corporate positions in the second year which places significant demands on their time. In addition, many managers do not require a specific GPA in order to hire the students.

Professor Ron Wilcox stated that there are several methods for minimizing this lack of preparation and motivation in the second-year students. He stated that students must know there is a "credible failure option" for students that do not perform to the expected standards. In addition, the social networks they have formed should be strengthened in order to create a "fear of not looking good" to their fellow students. He also recommended that professors develop strong relationships

with their students so they "won't want to let you down and feel guilty when they do." Professor Yiorgos Allayannis advised regarding methods for stimulating motivation in second-year students, "We must always keep expectations high. We must never sacrifice quality and rigor." During the observations, several times the students approached the professor after class to apologize for their incorrect answer or inability to answer a question.

Professor also expressed that students that constantly insist or push a professor to provide takeaways or direct answers also present a challenge to the case discussion leader. Professor Yiorgos Allayannis stated that "students who are there for the right recipe" pose a challenge for professors. This attitude among students minimizes the emphasis on self-discovery in students and learning from their classmates. Case discussion leaders must remain strong and consistent by turning questions back on the student, presenting the questions to other students, minimizing takeaways, encouraging students in their ideas and syntheses, helping them develop confidence in their views, and reminding students of the value and depth of knowledge they will glean from self-discovery.

Another challenge that professors face is the ability to give up control and accept the unknown outcomes and direction of the case discussion. Professor Ken Eades stated that one of the challenges case discussion leaders face is "the ability to give control to the students and accept that it never goes the way you planned." He described this as a "high risk" but "high return" venture. Professor Yiorgos Allayannis stated that a challenge of the case discussion leader is developing the ability to redirect the discussion when it is moving in an unproductive direction. He stated that the challenge for the professor is to "bring the conversation back naturally" rather than telling the students they are wrong or forcing your views on them. Professor Nabil El-Hage stated that "disguised lectures are more dangerous than pure lectures" because professors are claiming to use case discussion leadership in theory but are confusing students by implementing high levels of directiveness, control, and "telling answers rather than asking questions" during the so called "case discussions." Professor Robert Bruner stated that case discussion leaders must be willing to let go of their need to control, humbly accept that they are not the source of all truth and knowledge, and embrace the belief that "students learn best, that which they teach themselves."

During the interviews, the professors revealed that a challenge that many case discussion leaders face is developing the ability to effectively balance the quantity of material covered with the optimal quality, depth, and retention of the material by the students. Several professors stated that one of their primary challenges is discovering and implementing the perfect balance between covering a sufficient breadth of material and key content areas while still providing sufficient depth through dialogue and repetition in order to ensure students are experiencing deep and retained learning. Professor Nabil El-Hage stated that a primary challenge for case discussion leaders is in "balancing the 'quantity' of material covered versus a high 'quality' of learning and to recognize that 'less is more' in case teaching." He stated that professors must determine the core issues that need to be mastered and then choose an optimal mix between quantity and quality. Professor Yiorgos Allayannis stated that his challenge is in balancing the quantity and quality of class

material. He strives to find the optimal mix of covering the key points while still providing sufficient repetition and pursuing other unintended but profitable learning paths. Professor Ron Wilcox stated that it requires significant time to achieve depth, retention, and self-discovery in students. He stated, "It requires a lot of repetition and opportunities to fail which requires more time spent over a lesser quantity of material." Professor Yiorgos Allayannis stated that this high level of repetition of the key concepts helps first-year students in their areas of weakness. Professor Peter Tufano stated that the case discussion method of teaching is "effective – not efficient." This emphasized that the case discussion style of learning results in covering less material but increased learning and retention for students. Professor Nabil El-Hage stated that effective case discussion leaders must have the "courage to accept that repetition is an important price to pay for the stickiness of the learning and retention in students."

A professor is faced with a difficult challenge when a poor case is selected for the case discussion. Professor Mark Haskins stated that a badly written case or incorrectly selected case can stunt potential for a successful case discussion. He stated that care must be taken to select cases that "are nebulous rather than black and white, non-directive, messy, ambiguous, provide opportunities for self-discovery and student 'ahas,' and present opportunities for multiple perspectives and opinions." He stated that optimal case selection is a necessary prerequisite for an effective case discussion.

During the interviews, the professors stated that a challenge or problem that professors must seek to avoid is creating an intimidating, antagonistic, or unsupportive atmosphere in the classroom. Professor Yiorgos Allayannis stated that professors must prevent any type of unsupportive atmosphere or environment in the class. This requires the professor to engage in self-awareness and reflection regarding how they respond to students, question students, and engage with students during case discussions and outside the classroom. They should seek to assume the role of co-learner, guide, and facilitator for the students rather than creating a demeaning or adversarial role or relationship with the students. When professors establish this model of support and encouragement to students they will often replicate this attitude in how they address and respond to the case discussion leader and other students. This attitude of respect and support in the class stimulates risk-taking and energetic conversation rather than squelching students' confidence and spontaneity. The case discussion leader must strive to protect and shelter their class from any adversarial attitudes which may challenge this vital environment.

CONCLUSION

This article provides findings based on the insights from interviews, document review, and observations of Harvard and Darden Business School professors regarding the necessary elements for creating a successful case discussion. The themes of successful case discussions revealed during this study include student preparation; multiple and diverse perspectives considered; quality, depth,

and repetition versus quantity of coverage – effective, not efficient; energy, collaboration, and community in the classroom; maximum engagement of students; appropriate cases discussed; students discover a need for and find value in the learning experience; environment of respect and support versus fear and intimidation; learning – deep, life-long, applied, retained, and personal; emphasis on application, decision-making, and developing an action-plan; the graphic presentation and use of technology; and overcoming challenges of case discussion leadership. This knowledge should be considered as a valuable resource for educators across all disciplines as a means to begin or enhance the use of cases in the classroom.

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THE USE/APPLICATION OF MNEMONICS AS A PEDAGOGICAL TOOL IN AUDITING

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ABSTRACT

Mnemonic techniques are learning strategies which can enhance learning and improve recall of the information learned. Research has proven that mnemonics are effective aids in learning new, abstract, and/or complex concepts. Most auditing courses are conceptual in nature. Students often experience difficulty understanding auditing concepts, which may appear abstract due to the students' lack of an adequate frame of reference necessary to analyze and understand these concepts. This difficulty can be attributed to students' lack of exposure to real-world accounting systems, source documentation, evidence accumulation, or report writing. Although coursework cannot provide the frame of reference achieved through work experience, accounting educators can provide students with techniques that boost their recall of auditing concepts, thereby, equipping students with a significant advantage academically and in the marketplace. This paper presents mnemonic techniques which can be applied to teach basic auditing concepts more effectively and better prepare students for professional auditing careers.

INTRODUCTION

Auditing encompasses a comprehensive, complex body of knowledge. Auditing students must demonstrate a detailed knowledge of auditing concepts in order to pass the auditing section of the CPA exam and enter public practice; a good general knowledge is insufficient. These students must also demonstrate a detailed knowledge of other accounting and business concepts to pass remaining sections of the exam. Given the amount and complexity of information the accounting student is required to learn, accounting educators must assist their students with the methodological aspects of learning the subject matter as well as the content itself. In other words, we must help our students learn how to learn. Accounting educators must break down the content to be learned to make it easier to comprehend and remember.

The Accounting Education Change Commission and the American Accounting Association (Francis, Mulder, and Stark, 1995) call for "intentional learning in the accounting curriculum" whereby students are called upon to be active learners rather than passive listeners, and accounting educators called to create classroom environments and employ teaching strategies to promote intentional (active) learning. Educators have to replace staid teaching methods with techniques that

motivate students to practice and learn. One such teaching technique, which is the focus of this paper, is the use of mnemonics to teach auditing. Using mnemonic devices to teach new, complex, abstract material has a long track record of proven learning effectiveness (Hutton, 1987; Iza & Gil, 1995; Male, 1996; Stephens & Dwyer, 1997). While auditing education literature is sparse, and there is a dearth of information relating the use of mnemonic techniques to accounting education, prior research does indicate the effectiveness of mnemonic techniques for learning a variety of other subject areas.

MNEMONIC INSTRUCTION

Mnemonic devices are defined as memory-enhancing techniques that improve learning and information recall through the use of imagery. Bellezza (1981) defined mnemonics as a strategy that creates and uses a cognitive cuing structure to organize and encode information for the express purpose of making it more memorable. Mnemonics appear to work to circumvent the limitations of working memory by retrieving information directly from long-term memory via a single association with an existing memory code (Levin, 1993; Wang & Thomas, 1995). Dominic O'Brien, the 2000 winner of the World Memory Championships, explains that the three keys to good memory formation are "imagination, association, and location" (Butcher, 2000). The important features of mnemonics are (a) they require the learner to practice the targeted material in order to integrate it into an existing memory representation and (b) they provide an effective means of information retrieval (Levin, 1993; McDaniel & Einstein, 1986; Wang & Thomas, 1995).

Mnemonics are not new learning devices. The ancient Greeks and Romans employed mnemonic techniques to improve memory and enhance oratory skills. Psychologists believe that mnemonic techniques are so effective in learning because they impose meaning and structure to material that otherwise would be unstructured or less meaningful (Butcher, 2000). This is accomplished by making associations between items to be learned and items already stored in long-term memory. Mnemonics require the learner to pay attention to relevant features of the material and to process the material more deeply than by simply rehearsing or memorizing it. Mnemonics empower students to learn by cuing memory through association. Prior research has demonstrated the learning effectiveness achieved with mnemonic devices (Muha, 2000; Butcher, 2000; Mastropieri & Scruggs, 1989; Forness, Kavale, Blum & Floyd, 1997; Atkinson, 1975; Atkinson & Raugh, 1975; Levin, 1993; Wang, Thomas & Ouellette, 1992). VanSandt (2005) found significant increases in students' test scores after implementation of mnemonic techniques to teach business ethics.

Accounting educators employ many methodologies in addition to verbal memory, including "hands-on" learning, collecting and processing data, inferring, predicting, thinking critically, sequencing historical data, establishing criteria and making decisions, solving problems, classifying,

and summarizing. Empirical support indicates that mnemonic strategies have been effective in promoting verbal memory objectives without detracting from other important learning objectives (Mastropieri, Sweda, & Scruggs, 2000). Processes such as critical thinking are meaningless when students cannot recall primary information about which to think. The effectiveness of mnemonic strategies was demonstrated to be consistent across a diverse population of subject areas, ages, and instructional settings (Scruggs & Mastropieri, 1998). Medical students often use mnemonic techniques to commit anatomical terms to memory (Hayden, 1999). Professional programs of study, such as medicine, law, and accounting, require comprehension of a large, complex body of knowledge. Licensing boards, through the administration of uniform examinations, insure that a specific, detailed knowledge of the subjects to be mastered is achieved prior to entering professional, public practice. Therefore, educators teaching in professional programs should provide students with learning techniques that equip them to remember and recall academic content.

Some educators may eschew mnemonic strategies as being odd or nonsensical. Mnemonics do not trivialize the underlying content or promote learning by memory "tricks" vs. substantive studying of the meaning of the content. Such concerns assume incorrectly that memory and comprehension objectives are mutually exclusive. They also ignore that students often understand the meanings of academic content but forget the verbal labels of this content, rendering their understandings inaccessible and useless in particular contexts (e.g. on exams).

Research also indicates that students respond positively to the use of mnemonic learning strategies (Mastropieri, Sweda, & Scruggs, 2000; Muha, 2000). Students find that mnemonics can be fun to use and make learning and recalling critical content easier. Mnemonics provide students with a technique for taking a mental snapshot of information to be learned. Daniele Lapp, a Stanford University researcher and noted memory trainer says, "Anyone can train themselves to develop habits that will facilitate recall" (Muha, 2000). Bower (1976) found that superior students make more use of mnemonics than less talented students. Carlson, Kincaid, Lance & Hodgson (2001) found the use of mnemonics to be associated with academic performance as measured by grade point average. Mnemonic devices can be applied to auditing, other accounting subjects and to other disciplines as well. In view of the importance of learning strategies in academic studies, the use of mnemonics constitutes an important recall facilitation strategy.

THEORETICAL BASIS

Memory is essential for everything we do in our daily lives: perceiving the world around us, analyzing and synthesizing information, and applying knowledge to new situations. Weiss (2000) states that, "Learning is the making of memory, which is laid down in our brains in chemical form." These chemical changes are created at the neuron level, and without them, there is no substance for our minds to work with.

According to the current model of memory, sensual input from our environment is processed through our perceptual memory in fractional seconds. If deemed important, either by the conscious or unconscious mind, the input is placed into short-term memory. One continual challenge for instructors is insuring that students perceive incoming information as important. From there, it is either discarded or transferred to long-term memory.

Eric Jensen, educator and author of *Teaching with the Brain in Mind*, notes that "learning and memory are two sides of a coin. You can't talk about one without the other." Ken Kosik, neurology professor at Harvard Medical School, explains that our brain changes with learning in functional ways. As we learn something new, each chemical message is laid down as a neuron chain called a neural network. Those connections become stronger the more often our brains access the network. New memories create new interconnecting pathways between neurons. When we learn something that stays with us for any length of time, it goes from short-term memory to long-term memory.

Because new information builds on prior existing information, making new linkages and new insights is crucial to building up useful long-term memory. Teaching directs the making of memory. As an instructor, you select different forms of memory and teach to the creation of those memories. For example, if teaching something in the form of visual recall, when assessing that learning, we must ask for performance related to something visual. It is essential to match the assessment with the types of memory used in instruction and practice. In short, we are teaching the student to access the memory.

Creating personal linkages is an approach educator Jeb Schenck uses to create long-term memories (Weiss, 2000). These linkages are concept maps (visual maps) showing relationships between ideas---a concept also using in mnemonic techniques. Two methodologies are often used to enhance long-term memory. First, using multiple forms of review enhances long-term memory. Another strategy to enhance recall of stored information is to provide a framework of retrieval cues. Creating cuing structures is the essence of mnemonic techniques.

Mnemonic techniques are strategies for organizing and/or encoding information which can enhance learning and improve later recall of information through an imagery eliciting process (Bellezza, 1981). These strategies work by generating and using cognitive curing structures during both learning and recall to organize and/or encode information for the sole purpose of making it more memorable. These cognitive cuing structures typically are composed of either visual images or of words and act as connectors between the signal to the learner to recall and the information to be remembered (Bellezza, 1981). The essence of learning with mnemonic techniques is to associate the information to be remembered with one or more cognitive cuing structures. These cuing structures are used later to facilitate recall by the learner through a self-cuing process.

All mnemonic techniques can be classified as either organizational or encoding. An organizational mnemonic associates in memory information that appears to be lacking any inherent structure. Therefore, a collection of separate items is stored in long-term memory as an integrated

whole. A system of self-cuing is used to facilitate recall. For example, acronyms aid recall by using the first letters of the words to be memorized as cues in retrieving the information. They integrate the information so that the cue to the item is contained in the mnemonic. The auditing mnemonics created in this paper use this type of mnemonic cuing structure. In encoding mnemonics, the learner recodes new information so that it becomes more associable.

Based on what we know about how people learn new, complex, and/or abstract material, two general approaches present themselves (Ausubel, 1968; Hutton, 1987; Iza & Gil, 1995; Male, 1996; Novak, 1991, 1993; Stephens & Dwyer, 1997). The first approach is to help students relate new concepts to things they already know. As Ausubel (1968) noted, the single most important factor in learning new material is what the student already knows. "Meaningful learning involves the assimilation of new concepts and propositions into existing cognitive structures" (Novak, 1993). "Not only has a consensus formed that students must choose to build their own meanings, but we also know that new meanings must be constructed on the basis of knowledge they already possess" (Novak, 1991). The second approach is the use of mnemonic devices to assist in remembering new material. Mnemonics enhance recall of stored information by providing a framework of retrieval cues associated with things the student already knows and understands. Facing the need to remember new, complex, and/or abstract material, the utilization of mnemonic techniques has been an effective, long-standing tool (Hutton, 1987; Iza & Gil, 1995; Male, 1996; Stephens & Dwyer, 1997; VanSandt, 2005). It is a well established principle in psychology that the ability to remember is dependent on a person's employment of mnemonic strategies (Wellman, 1978), which is, in turn, related to the person's knowledge of those strategies (Waters, 1982).

Thus, students must first be aware of the need for cognitive links and mnemonic aids and how to use them in order to effectively learn new material (VanSandt, 2005). Because our students are part of a generation reared in the information age characterized by computers, sound bites, IPods, information availability with the click of a mouse, and the discontinuity of visual images, their ability to remember has atrophied compared to previous generations (Hutton, 1987; Postman, 1985). Accordingly, our students may not be as adept at creating links connecting new material to existing cognitive structures, even if they recognize the need for mnemonics. As instructors, it is incumbent upon us to assist our students by not only providing content, but also assist in this methodological aspect of learning. Therefore, we must help our students learn how to learn (Novak, 1993).

Mnemonic devices are effective teaching tools because they provide assistance in both learning how to learn and in grasping new concepts. Higbee (1988) listed four properties leading to effective mnemonic systems: meaningfulness, organization, association, and visualization. Mnemonic strategies are firmly based in psychological theory (Mastropieri, Scruggs, & Levine, 1985). Mnemonic strategies are based on the roles of meaningfulness (Underwood & Schultz, 1960) and concreteness (Paivio, 1971) in promoting recall. Mnemonics are effective because they transform nonmeaningful information into concrete, meaningful proxies. Information is retrievable because it is explicitly elaborated. The mnemonic creates an association between the content to be

learned and a cue---keyword, phrase, or image with which the student is already familiar. This cue allows the student to visualize the critical content, which makes it more memorable. Mnemonics provide students with a technique for taking a mental snapshot of the information to be learned.

In the following section, we illustrate how first letter mnemonics in the form of acronyms can be used in teaching auditing. First letter mnemonics are the most popular form of mnemonics (Gruneberg & Morris, 1979). First letter cuing can be used as a combined encoding and retrieval system. Empirical studies demonstrating the effectiveness of first letter mnemonics include McKenzie and Sawyer (1986), Nelson and Archer (1972), Malhotra (1991), and Perewiznyk and Blick (1978). First letter mnemonics are a type of organizational mnemonic. As discussed earlier, organizational mnemonics facilitate learning and recall of information that appears to be lacking structure. This type of mnemonic is well suited to enhance learning of information that is inherently complex or highly abstract. Therefore, we have found it particularly suited to teaching auditing; an accounting class which is entirely conceptual in nature and for which students typically have no prior framework of knowledge or experience to relate to. As a result, for most students, the auditing concepts seem very abstract and have little, if any, connection to other things they already know. This lack of a connection can be a serious impediment to learning (Ausubel, 1968). We have found the use of mnemonic techniques to be effective learning tools for our auditing students.

AUDITING MNEMONICS---DEVELOPMENT AND APPLICATION

We developed our unique mnemonics for teaching basic auditing concepts by reviewing textbooks and selecting critical content that students must learn in satisfying course objectives as well as meeting CPA exam requirements. We also examined this body of critical content and tried to identify concepts that typically pose a problem for students. In this way, we were able to prioritize items for mnemonic development. For each critical content component, we developed mnemonics by associating the critical content with a word, phrase, or image with which the student is already familiar. Sometimes this was accomplished by linking the first letter of each component of content to a new word or phrase. Often, by looking at the spelling and sound of the concept, one can derive an easy, familiar word or phrase to be the keyword. The mnemonic device creates a cue or association which in turn makes the information more memorable. Presented below are examples of the mnemonics we have created for teaching auditing concepts.

To teach the ten Generally Accepted Auditing Standards, we developed the mnemonic:

T I P P I T O V E R

General Standards:

T The auditor must have adequate technical **Training** and proficiency to perform the audit.

I The auditor must maintain an **Independence** in mental attitude.

P The auditor must exercise due **Professional** care in the **Performance** of the audit and the **Preparation** of the report.

Standards of fieldwork:

P The auditor must adequately **Plan** the work and properly supervise assistants.

I The auditor must obtain a sufficient understanding of the entity and its environment, including, its **Internal** control, to assess the risk of material misstatement of the financial statements, whether due to error or fraud, and to design the nature, timing, and extent of further audit procedures.

T The **Third** standard of fieldwork requires the auditor to obtain sufficient appropriate audit evidence by performing audit procedures and **Tests** to afford an opinion regarding the financial statements.

Standards of Reporting:

O In expressing an **Opinion**, the auditor must state whether the financial statements are presented in accordance with generally accepted accounting principles (GAAP).

V The auditor must **Verify** that GAAP has been consistently applied in the current period in relation to the preceding period and identify inconsistencies.

E The auditor must **Evaluate** the financial statements to determine if informative disclosures are not adequate and so note in the auditor's report.

R The auditor must either express an opinion regarding the financial statements, taken as a whole, or state that an opinion cannot be expressed in the auditor's **Report**. When the auditor cannot express an overall opinion, **Reasons** should be stated in

the auditor's **Report**. In all cases where an auditor's name is associated with the financial statements, the auditor should clearly indicate the character of the auditor's work, if any, and the degree of **Responsibility** the auditor is taking in the auditor's **Report**.

In some cases, it may be helpful to combine double or triple mnemonic devices for related content. For example, the second standard of fieldwork requires the auditor to acquire a sufficient understanding of the entity and its environment, including its internal control system. We developed a second mnemonic to provide the students with cues about what this standard requires to be a "sufficient understanding." The auditor must "know" the business entity, therefore:

N E U M E

N Understanding the **Nature** of the client, including the client's application of accounting policies.

E The industry, regulatory, and other **External** factors affecting the client

U **Understanding** the client's strategies and objectives and related risks.

M **Methods** used to **Measure** and review performance.

E **Evaluating** the client's system of internal control.

This leads the student to the objective of a knowledge of the components of internal control, for which we developed the following mnemonic:

5 Components of Internal Control

C R E A M

C **Control A**ctivities

R **Risk** Assessment

E The Control **Environment**

A The **Accounting** Information and Communication System

M **Monitoring**

Another critical content area is "audit risk." We developed two mnemonics for audit risk.

3 Components of Audit Risk

C I D

C **Control Risk:** The risk of material misstatement (RMM) will not be prevented or detected on a timely basis by the client's internal control.

I **Inherent** Risk: The RMM before considering the client's internal control --- misstatements likely to occur in the client's financial statements.

D **Detection** Risk: The risk that the auditor will fail to detect a material misstatement.

or

A C I D

AR = CR x IR x DR

AR = **Audit** Risk equals

CR **Control** Risk x

IR **Inherent** Risk x

DR **Detection** Risk

Audit evidence is another critical content area. The two mnemonics we have developed relating to audit evidence are:

AGE = ARMM'd

A Auditors		**A Assess** the
G Gather	**To**	**R Risk** of
E Evidence		**M Material Misstatement**

There is a cliché that says "with age, comes wisdom." This mnemonic derives from that. Auditors are armed with evidence gathered from the audit process and procedures. One objective of the audit is to assess the risk of material misstatement; the evidence gathered during the audit enables the auditor to make that assessment and determine accordingly if additional audit procedures/tests are needed.

The discussion segues right into a discussion of the types of audit evidence, for which we developed the following mnemonic:

Types of Audit Evidence

D **D**ocumentary Evidence

A The **Accounting** Information System

T **Third**-Party Representations

A **Arithmetic** Computations

D **Data** Interrelationships

O **Observation** --- Physical

C **Client** Representations

Class discussion includes examples of each type of evidence, the quality of the evidence based on the assertion being tested, and when it should be used.

Another area of critical interest is audit reports. There are 4 basic audit reports; therefore, we use the mnemonic **Q U A D** (meaning four) to facilitate recall of the four basic types of audit reports.

Q U A D

Qualified opinion
Unqualified opinion
Adverse opinion
Disclaimer of opinion

Auditors issue an audit report to express an opinion on the financial statements of the company taken as whole. Auditors may issue an unqualified opinion, a qualified opinion, or an adverse opinion to attest to whether the financial statements were presented fairly in accordance with GAAP and to note any material exceptions, qualifications, or limitations, if applicable. The auditor may issue a disclaimer of opinion if he/she feels an opinion cannot be made due to limitations to the audit.

The study of audit reporting has many layers. If the auditor is compelled to issue an opinion other than a standard, unqualified opinion, special circumstances apply for each type of exception. The following mnemonic was developed to facilitate remembering the specific circumstances justifying a departure from the standard report, a serious issue for management:

S E R I O U S

Substantial doubt --- GC
Emphasis of a matter
Required SEC quarterly data
Inconsistency of GAAP; comparability issues
Opinion --- **O**ther auditors
Unusual circumstances requiring GAAP departure
Supplementary information

Classroom case studies provide students an opportunity to assess various company scenarios to determine if a report other than standard is called for, what circumstances justify the required report, and a requirement to write the necessary report.

To summarize exceptions to the standard unqualified report, we utilize the following:

D S L

Departure from GAAP
Scope limitations
Lacking independence

To achieve maximum learning from these mnemonic devices, repetition of the mnemonic as well as incorporating the device in practice/application activities such as class work and homework will aid student memory and understanding. Students must apply the mnemonic to their learning.

CONCLUDING OBSERVATIONS

Research indicates that students respond favorably to the use of mnemonic learning strategies (Mastropieri, Sweda, & Scruggs, 2000; Muha, 2000). Students often find that mnemonics can be fun to use. They provide students with a mechanism for taking a mental snapshot of the information to be learned. Mnemonics have been shown to be highly effective at promoting memory of critical content. Prior research has suggested that processes such as critical thinking are themselves meaningless when students cannot recall primary information about which to think.

Mnemonics require the learner to note relevant features of the material and to process the material more deeply than by simply memorizing it. Mnemonics impose meaning and structure to material that otherwise would be unstructured or meaningless. It enables learning by cuing memory through association between items to be learned and items already stored in long-term memory. In this way, mnemonic learning strategies provide a bridge---a connection to other things already known to the learner. Mnemonic techniques do not detract from other learning objectives and can be very effective in engaging the student in the learning process.

LIMITATIONS

A limitation to using mnemonic learning strategies involves the time and resources needed to develop and implement the mnemonic devices. Educators must apply creativity to constructing effective mnemonics, which are time consuming to develop. Instructors must review texts and select concepts that are assessed as critical content and their associated meanings. Then, a mnemonic must be created for remembering the concept and its associated meaning. The simplest, most creative mnemonics typically result in the most effective learning.

Also, some instructors may eschew mnemonic learning strategies because of concern that they appear odd, nonsensical, or seem to bear little resemblance to the content to be learned. Mnemonic devices may appear to trivialize underlying content and to promote learning by memory "tricks" rather than substantive studying of the meaning of the content. However, such concerns incorrectly assume that memory and comprehension objectives are mutually exclusive. They also ignore the fact that students frequently understand the meaning of academic content, but forget the verbal labels of this content, thus rendering their comprehension inaccessible and useless in test situations.

Other limitations address how much information can be acquired and remembered in a given amount of time, regardless of the methods utilized. As with all instruction, mnemonic learning aids must be inserted at appropriate positions in the instructional sequence to achieve maximum effectiveness (Dick & Reiser, 1989; Glaser, 1976; Haertel et al., 1983).

Future research plans for gauging the effectiveness of mnemonic devices for teaching auditing will include testing these devices in the classroom through use of a pretest/posttest instrument as well as a class survey document. Future research on using mnemonics as effective encoding techniques might also examine experimental situations in which learners are required to generate their own personal mnemonics when attempting to learn relatively difficult, abstract, or unfamiliar material. Prior empirical research provides some evidence of higher recall rates after generation of person, idiosyncratic mnemonic systems for learning verbal information (Levin, 1993; McDaniel & Einstein, 1986; Wang & Thomas, 1995).

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READABILITY OF INTERMEDIATE ACCOUNTING TEXTBOOKS

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ABSTRACT

Selecting a textbook for use in intermediate accounting courses can be a challenging task for faculty. Many criteria may be considered in such decisions, including a textbook's readability level. Using a widely-used readability index, this study analyzes the predicted readability of seven intermediate accounting texts. T-tests are performed to determine whether significant differences exist between the textbooks. The study finds no compelling evidence, in terms of readability, to choose any one of the texts over any other. These findings can be useful to adopters and editors of intermediate accounting textbooks.

INTRODUCTION

The selection of a textbook for use in intermediate accounting courses is an important decision for faculty. Since the intermediate accounting course sequence is at the core of the typical accounting curriculum, all accounting majors are affected by their decision. But the text selection process is complicated by the large number of text attributes for faculty to consider. Such attributes may include: a text's pedagogical approach; coverage of material; exhibits, charts, and vignettes; end-of-chapter material; student and instructor supplements; and authors' reputations, as well as instructors' past experiences with the text. Faculty may also wish to consider a text's readability.

Readability may be defined as the degree to which a class of people finds certain reading matter compelling and comprehensible (McLaughlin, 1969). "Readability" should not be confused with "legibility," which refers to the ease of being read. Readability, in this context, refers to the qualities of writing which are related to reader comprehension. A variety of techniques have been used to predict readability, including several readability indexes (or formulas) which have been used widely since the 1950s. Examples of readability indexes include SMOG (developed by McLaughlin), Flesch Reading Ease, Flesch-Kincaid Grade Level, Gunning-Fog, and Fry.

Information on readability can be helpful to faculty when making textbook adoption decisions. Indeed, one of the criteria to which faculty attach the most significance in those decisions is textbook comprehensibility (Smith & DeRidder, 1997), which can be predicted, at least in part, using a readability index.

LITERATURE REVIEW

Little study of the readability of accounting texts has been undertaken over the last 25 years; only seven such published studies are identified. Three of the studies, Traugh et al. (1987), Sullivan and Benke (1997), and Plucinski et al. (2009), concerned introductory accounting texts only. The other four studies, Razek et al. (1982), Adelberg and Razek (1984), Flory et al. (1992), and Davidson (2005), concerned (at least in part) intermediate accounting texts.

Razek et al. examined the readability of six intermediate and six advanced accounting textbooks; they found no significant differences among the intermediate books. Adelberg and Razek, using a very different methodology from the Razek et al. study, found that the level of understandability varied significantly among some of the four intermediate accounting texts that they analyzed. The Flory study analyzed seven intermediate accounting texts and found little difference in the readability of the textbooks considered. Davidson considered the long-term trends of the readability of accounting textbooks, including that of 25 intermediate books published over five decades.

Since the Davidson study investigated trends over many years, it did not compare the readability of individual texts. And since the most recent readability study of individual intermediate accounting textbooks (Flory et al.) is over 15 years old, and the textbook offerings have changed significantly since the Flory study, an update of the readability of intermediate accounting texts appears to be in order.

METHODS

One of the seven accounting textbook readability studies completed in the last twenty-five years (Adelberg & Razek, 1984) used the Cloze Procedure. That procedure gauges readability by deleting every fifth word from passages, then measuring the reader's ability to restore the passages to their original form. The remaining six studies used readability indexes, specifically the Fog Index, Flesch-Kincaid Grade Level, or Flesch Reading Ease. These indexes use a formula based upon characteristics of text passages, such as average word length, average sentence length, and word complexity, to generate a readability score.

Choice of Readability Index

This study uses the Flesch-Kincaid Grade Level for several reasons. Five of the seven past studies used one of the Flesch measures. In addition, the most recent comparison of intermediate accounting texts, conducted by Flory et al., used a Flesch measure. Finally, since the Flesch-Kincaid index can be easily generated using word processing software, a large amount of text can be readily analyzed with results that are objective and easily replicated.

Flesch-Kincaid Grade Level

The Flesch-Kincaid Grade Level has its roots in the Flesch Reading Ease formula developed in 1948 by Rudolf Flesch. In 1975, J. Peter Kincaid tested over 500 enlisted United States (U.S.) Navy personnel on a reading-comprehension test and also on passages from Navy training manuals. This enabled him to derive a version of the Flesch Reading Ease formula which yielded reading grade-level scores. The resulting Flesch-Kincaid Grade Level has since been adopted by the U.S. military services as the basis for deciding whether technical manuals from suppliers meet their readability requirements (Pearson, 2002). The Flesch-Kincaid index is now one of the leading readability indexes. It is used extensively by the U.S. government and others, and it is included as a grammar-checking feature in the word processing software, Microsoft Word (MS-Word).

The Flesch-Kincaid Grade Level formula is based upon sentence length and word length. It rates text on a U.S. school grade level. For example, a score of 11.0 means that an eleventh grader can understand the document. The formula is:

$$(0.39 \times ASL) + (11.8 \times ASW) - 15.59$$

where:

ASL = average sentence length (the number of words divided by the number of sentences)
ASW = average number of syllables per word (the number of syllables divided by the number of words)

(Pearson, 2002)

This study uses MS-Word to calculate the Flesch-Kincaid Grade Level of select passages. The formula used by MS-Word is confirmed by agreeing the formula above to that specified in the MS-Word help file. The MS-Word calculation is then validated by manually applying the formula above to a 200-word passage and agreeing the result to that provided by the grammar-checking function in MS-Word.

Selection and Adaptation of Text Passages

An exhaustive search of intermediate accounting textbooks currently being published in English by major publishers yields seven such books. Four of the texts are full-length, "traditional" intermediate accounting texts, averaging 1,351 pages per text. The remaining three texts are shorter, "abridged" texts, averaging 1,071 pages per text. The traditional and abridged texts are listed in Tables 1 and 2, respectively, along with each textbook's particulars. Six chapters are selected for analysis from throughout those texts.

TABLE 1. Traditional Intermediate Accounting Textbooks Analyzed				
Authors	Kieso, Weygandt, Warfield	Nikolai, Bazley, Jones	Spiceland, Sepe, Tomassini	Stice, Stice, Skousen
Title	Intermediate Accounting	Intermediate Accounting	Intermediate Accounting	Intermediate Accounting
Edition	12	10	4	16
Year	2007	2007	2007	2007
Publisher	Wiley	Thomson	McGraw-Hill	Thomson
ISBN	978-0-471-74955-4	978-0-324-65192-8	978-0-073-21542-6	978-0-324-31214-0
No. of Pages	1416	1300	1248	1440
Chapter Nos.:				
Balance Sheet	5	4	3	3
Inventory	8	8	8	9
Plant & Equipment	10	10	10	10
Stockholders' Equity	15	16	18	13
Income Taxes	19	19	16	16
Leases	21	21	15	15

The chapters (topics) targeted from the first half of the texts are those covering: balance sheet; inventory; and, plant and equipment. The chapters (topics) targeted from the second half of the texts are those covering: stockholders' equity; income taxes; and, leases. This approach provides passages for analysis from throughout the texts, covering about 27 percent of each traditional text (33 percent of each abridged text), based upon an average of 22 chapters per traditional text (18 chapters per abridged text). The amount of text material thereby analyzed far exceeds that of any previous study of accounting textbook readability.

Digital (computer) files of each of the six target chapters of each textbook are obtained from their publishers or authors. All files are then converted or imported into MS-Word for analysis. The selection of material for analysis is driven by the topics rather than by the chapter. Each of the six topics generally appears in a chapter of its own; when it does not, only the target material is analyzed. For example, if a chapter includes the balance sheet and the statement of stockholders' equity, only the balance sheet material is analyzed. When a text devoted two chapters to a main topic (e.g., inventory, plant and equipment, or stockholders' equity in the traditional texts), only the first of the two chapters is analyzed.

Only the sentences in the body of the chapters are subjected to analysis. Appendices are excluded. Since the Flesch-Kincaid formula analyzes only sentences, all material in figures, exhibits,

and headings is omitted from analysis. Since material in graphics and vignettes cannot be readily converted to plain text by word-processing software, it is also omitted. End-of-chapter material (e.g., vocabulary, review, problems) is omitted as well, since it is largely quantitative/tabular in appearance and does not match the textual nature of the Flesch-Kincaid index.

TABLE 2. Abridged Intermediate Accounting Textbooks Analyzed

Authors	Norton, Diamond, Pagach	Revsine, Collins, Johnson	Warfield, Weygandt, Kieso
Title	Intermediate Accounting	Financial Reporting and Analysis	Intermediate Accounting: Principles and Analysis
Edition	2	3	2
Year	2007	2005	2008
Publisher	Houghton-Mifflin	Prentice-Hall	Wiley
ISBN	978-0-618-56814-7	978-0-131-43021-1	978-0-471-73793-3
No. of Pages	989	1088	1136
Chapter Nos.:			
Balance Sheet	4	4	4
Inventory	8	9	9
Plant & Equipment	9	10	10
Stockholders' Equity	17	15	13
Income Taxes	16	13	15
Leases	14	12	17

When a colon appears at the end of a sentence, it is replaced with a period when the sentence is originally followed by a calculation, list, figure, or journal entry. This is necessary because, in the Flesch-Kincaid calculation, MS-Word does not recognize a colon as the end of a sentence. Since calculations, lists, figures, and journal entries are removed from the text, a sentence with a colon preceding an entry, for example, would have been combined with the one following the entry, thereby inflating the length of the sentence. In that case, replacing the colon with a period "ends" the sentence before the entry. Colons appearing in sentences that eventually ended in a period are unchanged.

After converting, importing and pruning all files, the spelling and grammar function in MS-Word is applied to all files to correct occasional errors that arise and then to obtain the Flesch-Kincaid Grade Level. The text matter in the target chapters is not just sampled; the entire text matter of each of the six target chapters of each textbook is subjected to the Flesch-Kincaid calculation.

RESULTS

Comparison of Textbooks by Chapter

Table 3 shows the Flesch-Kincaid Grade Levels for the six target chapters in each of the textbooks. Mean grade levels for the six target chapters analyzed in each text are also shown. The results for the traditional texts are grouped separately from the abridged texts. Since the grade level indicates the U.S. school grade level required to understand a text passage, the lower the grade level the more readable the chapter.

TABLE 3. Computed Flesch-Kincaid Grade Levels of Textbook Chapters

	Textbook (Author, et al)						
	Traditional Texts				Abridged Texts		
Chapter Content	Kieso	Nikolai	Spiceland	Stice	Norton	Revsine	Warfield
Balance Sheet	13.9	14.2	13.7	13.8	13.9	14.5	14.2
Inventory	13.2	14.0	13.5	13.5	13.7	13.3	13.4
Plant & Equipment	12.7	14.1	13.8	14.5	13.7	13.7	12.4
Stockholders' Equity	12.3	13.2	13.0	13.5	12.3	13.9	12.3
Income Taxes	14.2	15.6	14.3	15.4	13.6	15.7	14.5
Leases	13.3	13.3	12.6	13.7	12.0	13.5	12.8
Mean	13.3	14.1	13.5	14.1	13.2	14.1	13.3

An examination of Table 3 shows no clear trending in the overall readability levels of the traditional texts. The Kieso text is the most readable (has the lowest grade level) for four of the six chapters. However, the Spiceland text has the lowest grade level for the remaining two chapters and also has a mean grade level (13.5) that is very close to that of the Kieso text (13.3). The Nikolai and Stice texts have the highest grade levels; each has the highest individual chapter grade level for three of the six chapters; however, they have equal mean grade levels (14.1).

The abridged texts show similarly dispersed results. While the Norton text has the lowest grade level for four of the six chapters, the Warfield text has the lowest grade level for the two remaining chapters. However, the Warfield text has a mean grade level (13.3) that is very close to that of the Norton text (13.2). The Revsine text was the least readable (highest grade level) of the abridged texts for five of the six chapters examined.

Overall Comparison of Textbooks

While some texts are more readable than others for select chapters, no one text is more readable (nor less readable) than the other texts for all six chapters. In addition many of the grade levels for each chapter, while different between texts, are very close to each other. Clearly, statistical tests are required to determine if significant differences exist between the texts overall (i.e., mean grade levels).

While the entire text of each target chapter is analyzed, those results constitute sample passages relative to the text overall. Therefore, t-tests are performed to determine whether significant differences exist between the textbooks overall. Independent-samples t-tests are performed on the sample means, without assuming equality of variances. Table 4 shows the p-values of differences between the grade level means of each textbook.

TABLE 4. T-Test Results: P-Values of Differences Between Textbook Grade Level Means

Textbook Author, et al (Mean)							
[T] Kieso (13.3)							
[T] Nikolai (14.1)	.119						
[T] Spiceland (13.5)	.583	.208					
[T] Stice (14.1)	.087*	1.000	.170				
[A] Norton (13.2)	.884	.106	.514	.086*			
[A] Revsine (14.1)	.104	.949	.193	.945	.099*		
[A] Warfield (13.3)	1.000	.153	.644	.133	.898	.143	
	Textbook Author, et al (Mean)						
	Kieso (13.3) [T]	Nikolai (14.1) [T]	Spiceland (13.5) [T]	Stice (14.1) [T]	Norton (13.2) [A]	Revsine (14.1) [A]	Warfield (13.3) [A]

Notes: [T] - Traditional Text; [A] - Abridged Text.
* Statistically significant difference at the .10 level.

No significant differences exist between the mean grade levels of the traditional texts, at the .01 and .05 levels. The same is true of the abridged texts. At the .10 level (p-value of .087), the Kieso text is significantly more readable (lower mean grade level) than the Stice text; both are traditional texts. Also at the .10 level (p-value of .099), the Norton text is significantly more readable than the Revsine text; both are abridged texts. Finally, a significant difference exists at the .10 level (p-value of .086) between the Stice (traditional) text and the Norton (abridged) text.

Faculty are likely to consider only the traditional texts, or only the abridged texts, in their adoption decisions, in accordance with their course requirements. There were only two instances of

a significant difference between two texts within the same category (traditional or abridged), and those differences were only significant at the .10 level. Therefore, in terms of readability, there appears to be no compelling evidence to prefer one text over another text in the same category.

The results of this study are consistent with past studies of the readability of intermediate accounting texts using readability indexes. Those studies, Razek et al. (1982) and Flory et al. (1992), both found little or no significant differences among the intermediate accounting texts that they analyzed. Both studies used the Flesch Reading Ease Index, the precursor of the Flesch-Kincaid Index used in this study.

An interesting observation concerns the results of a study of the readability of introductory managerial and financial accounting textbooks also conducted by the author (and his co-authors). That study was conducted at about the same time as this study, using the same methods. In the introductory accounting textbook study, however, one text's overall predicted readability was found to be significantly higher than all of the other texts. Another text was found to be significantly less readable than all but one of the other texts (Plucinski et al., 2009).

CONCLUSIONS

If faculty place substantial emphasis on readability in selecting an intermediate accounting textbook, they should strongly consider the results of this study. In terms of readability, there is no compelling evidence to choose any one of the texts over any other. Faculty can therefore base their text adoption decision entirely on other factors, such as a text's pedagogical approach, coverage of material, exhibits, and supplements.

Editors of intermediate accounting texts can also use these findings. There is more to comprehensibility of a subject than the readability of text matter. The diagrams, charts, demonstrations, calculations, and figures included in textbooks are intended to aid in the student's comprehension of the subject matter. Nonetheless, long, complicated sentences, while sometimes necessary, may hinder a student's comprehension when used extensively. Textbook editors may use these findings to set their expectations of authors of future intermediate accounting textbooks.

LIMITATIONS

One limitation in this study concerns readability formulas in general. They assume that the lower the readability level the better; but an unrealistically low readability level may lead to lower transferability of the content. In addition, readability formulas predict readability; they do not measure it. More costly and time-consuming techniques such as the Cloze Procedure are necessary to actually measure readability. While there have been many critics that questioned the validity and value of readability formulas, there is ample research to suggest that formulas, despite their faults, can predict whether one piece of text will be easier to read than another (Pearson, 2002).

Secondly, the results of this study should not be the sole basis for judging the appropriateness of a particular intermediate accounting textbook. Only the main body of each target chapter was analyzed in this study. The calculations, vignettes, journal entries, charts, exhibits, graphics, figures, and end-of-chapter material are excluded from analysis. Ancillaries such as instructor and student supplements are also not considered. It is likely that faculty will subjectively evaluate the effectiveness of this material separately from the main body of the textbook.

Finally, as Smith and DeRidder (1997) indicated, business faculty, when making a textbook selection, attach the most significance to comprehensibility to students, timeliness of text material, compatibility between text material and homework problems, and exposition quality of text, respectively. The first of those criteria, comprehensibility, is addressed (at least in part) by this study. Future studies might address comparisons of texts based upon the remaining criteria.

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THE RELATIVE FREQUENCY OF FACULTY'S PUBLICATIONS: A CONTENT ANALYSIS OF REFEREED BUSINESS JOURNALS

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ABSTRACT

This study investigated if the relative frequencies of faculty's publications in eight refereed business journals were the same for gender, professorial rank, and number of authors on a published article. Chi-Square analyses were used to test three null hypotheses, with a .05 level of confidence. Certain types of refereed business journals significantly predicted the number of co-authors and professorial rank. Implications for targeting referred business journals, business school deans seeking AACSB accreditation and business school faculty seeking tenure, promotion, or merit pay increases are discussed.

INTRODUCTION

There can be no doubt a sure way to dredge up controversy among a faculty is to drum up talk on evaluating the quality of the refereed journals in which they publish (Shugan, 2003; Uncles, 2004). A faculty member on tenure track, facing an inevitable tenure and promotion committee decision, might shriek in silence a tenure recommendation might be based purely on such subjective judgments (Vokurka, 1996). Sometimes, committees may attempt to rate the quality of journals, in which the tenure applicant has published, by using citation studies, affiliation studies, or perception studies that rank journals by surveying peer opinions (Katerattanakul, Razi, Han, & Kam, 2005; Liner & Amin, 2004). It is no surprise a tenure track faculty member can become paranoid that merely raising reasonable questions might make matters even worse.

Confusion still surrounds the practice of creating lists of refereed journals deemed as "quality" for promotion or tenure or merit decisions. These journal rankings are often based on subjective criterion (citation indexes, impact, acceptance rates, affiliation, etc.). Administrators attempting to rate scholarly refereed business journals, to help standardize an already emotional process of tenure or promotion or merit pay increases, seems reasonable; nevertheless, judging an article's quality based purely on where it was published has been confused further by social scientists finding top journals don't normally guarantee top articles (Chow, Haddad, Singh, & Wu, 2007; Smith, 2004).

While many business schools promote and grant tenure to faculty based on some assignment of weight to teaching (say 50%), research, (say 30%) and service (say 20%), intellectual

contributions (IC) is still a critical part of the tenure decision process. Even more so, business schools seeking accreditation with the Association to Advance Collegiate Schools of Business-International (AACSB) are required to create some standards that are largely mission driven.

The AACSB measures continuous improvement and evaluates programs according to the entire faculty's intellectual contributions, pertaining to the stated college mission. The applicant school has the burden of proof to show progress is made in "closing the loops" in each of the program areas. The AACSB visiting team will look for inconsistency on interpretations of faculty members' academic and professional qualifications, largely based on a faculty's productivity in the IC area (even though deans argue other things matter). More so, graduate program offerings are often rooted in the volume and types of faculty's research to justify them. Non-renewal of appointment can result from deficiencies in this IC area alone, and sometimes disappointed faculty members end up pursuing litigation over being denied tenure.

Faculty Non-Renewal

A professor not receiving tenure might ask, "How are journal ratings fair?" This and other reasonable questions are rarely resolved through adjudication in the courts. Furthermore, deans, provosts, and presidents know that answering these types of questions might lead to court rulings where tenure denials are over-turned. Non-renewal was not upheld in a case where an outside employment policy was not being uniformly applied (Gosney v. Sonora Independent School District, 603 F.2d 522 [5th Cir. 1979]). For the most part, a denied faculty seeking a remedy through the courts might find such a pursuit to be futile.

"Absent some clear showing of proscribed discrimination or violation of constitutional right the courts have generally been reluctant to overturn faculty judgments on tenure" (Edwards & Nordin, 1979, p. 235). A landmark case [Board of Regents of State Colleges v. Roth, Supreme Court of the United States, 1972, (408 U.S. 564)] has given administrators some assurances the courts traditionally stir clear of matters concerning "non-renewal" or dismissal or tenure denials. "A non-tenured teacher need not be given reasons for non-renewal unless the non-renewal deprived the teacher of a 'liberty' interest or if there was 'property' interest in continued employment" (LaMorte, 1999, p. 166). Fortunately for most tenure track faculty, an appeals process is a perfunctory part of tenure review policy. Many universities offer, as a cushion, an extension year to faculty not receiving tenure. The Texas A&M University System Policy 12.01, *"Academic Freedom, Responsibility and Tenure,"* Section 4.1 states:

> ….Prior to the beginning of the last year of the probationary period, the system academic institution shall notify the faculty member in writing of the decision regarding the granting or denial of tenure. The failure by the system academic institution to so notify shall not be construed as a grant of de facto tenure. If the

> decision is not to award tenure, the faculty member is entitled to serve for one additional contract year following the term or semester in which the notice is received. (Retrieved December 30, 2008 from, http://tamusystem.tamu.edu/offices/policy/policies/index.html)

The best way for a tenure track faculty member to receive a favorable tenure decision from faculty development committees, department heads, and deans is to triumph in the IC requirement area, building a prima facie case beyond any reasonable doubt. Therefore, this study's purpose can now be further clarified.

Purpose of the Study

This study's purpose was to answer several research questions concerning the sameness in the relative frequency of faculty's publications in eight refereed business journals and their demographics. Which types of refereed business journals do male or female faculty members more frequently get published? Does the number of authors make publishing more frequent in certain types of journals? Does professorial rank affect the relative frequency of being published in one of the eight peer-reviewed scholarly business journal observed? If faculty on the tenure track could determine what to do to be more efficient and productive in the IC area, answering these and related questions certainly creates a need for this study.

Need for the Study

This is a necessary study because demographic variables are independent of any type of treatment; they exist naturally. Much could be learned by tallying these independent variables that are obviously correlated to IC productivity in some way. By comparing refereed journals against known demographic characteristics, much could be learned. This study could help deans and department heads rethink their tenure, promotion and merit policies. These and many other findings could help administrators rethink how they perceive journal quality too. Testing three null hypotheses would help to achieve the stated research purpose.

Research Hypotheses

Hypothesis 1: *The relative frequency or percentage of male faculty members who publish in eight refereed business journals is the same as female faculty members who publish in refereed business journals.*

Hypothesis 2: *The relative frequency of publications in any of the eight refereed business journals observed is the same for full-professors, associate professors, assistant professors, and other types of faculty members.*

Hypothesis 3: *The relative frequency of publications in any of the eight refereed business journals observed is the same for single author, dual authors, and manuscripts with three or more authors.*

Related Literature

Researchers have trod all over the topic and no definitive proof has yet been offered to resolve faculty complaints on the imposition of a purely prescriptive list of departmentally rated business journals, especially since culture, mentoring, teaching load, course enrollment, and research funding (federal and state) often play crucial roles in who gets published and, in many cases, where (Reinstein & Calderon, 2006). When business school deans and department chairs demand faculty "come up with a list of quality journals," it is likely any such list beyond four or five generated would not be consistent with scientific facts: such lists typically reek of a derogatory whiff.

Publication patterns of 25 elite economics departments have been studied (Rupp & McKinney, 2002), possibly much to the chagrin of every other economics department not declared as being elite. Business schools have a "love-hate" relationship with magazines, such as US News and World Report, rating them as "top 50" (Bradshaw, 2007). Any one of these top 50 could generate a list of top journals based on some subjective quality criterion (say impact factors) and impose that list on their own faculty; nevertheless, justifying a universal adoption of the same list to any other business school would appear brash, and even naïve (Polonsky, 2004). Different disciplines require different methods. Science is a method.

Scientist in business fields (accounting, finance, marketing, MIS, organizational behavior, human resources, and operations management, and related fields such as economics or business communication) resolves disciplinary issues from somewhat esoteric approaches. Science, as a method, requires a multiplicity of approaches to solving problems in various fields. There is an apparent inconsistency of judging the quality of hundreds of scholarly business journals outside a handful of journals that consistently appear as top journals named in various empirical studies; moreover, those journals don't guarantee top articles.

At least in the fields of accounting and finance, a top journal does not guarantee a top article is published in them (Chow, et al., 2007; Smith, 2004). Just short of peer review, creating lists of "quality" scholarly journals for promotion and tenure decisions appears far from paternal because the empirical facts on determining the quality of the hundreds of academic business journals is

woefully unsystematic; notwithstanding, journal quality research is devilishly intriguing. The question of determining a journal's acceptable quality is obviously poignant.

Are There Top Journals in Each Business Field?

Stretcher, Hynes and Stowe (2006) are among social scientists interested in finding answers. Their work on E-journals appears to highlight the dangers of ranking journals in general, including dismissive attitudes about articles available online only. Hynes and Stretcher (2005) highlighted there is no empirical evidence in the literature for the way that electronic journals are evaluated compared to printed paper versions. Stretcher, et al. (2006) further elaborated E-journals are clearly now part of the intellectual, peer-reviewed journals landscape. In their survey of 419 deans, 84% reported having evaluation policies that included criteria for rating the quality of journals in which their faculty are publishing.

Alexander, Scherer, and Lecoutre (2007) compared business journal ranking systems from six countries and found a low degree of agreement among the systems, and a low to moderate relationship between pairs of systems. There is some consistency among ratings for a handful of business journals, respective to economics, accounting, marketing, operations management, and finance; on the other hand, only four or five in each disciplinary area appears to emerge, sporadically at the top, given the year in which the study was published.

Based on department chairs' perceptions there is some consistency in opinion of quality of economics journals. Mason, Steagall, and Jeffrey (1997) examined economic journal ratings and rankings based on a survey of economics department chairs' perceptions. They found, when data was stratified according to the degree of research versus teaching orientation of institution, remarkable symmetry across school types, although significant variations occur in a few journals. Department chairs' rankings were significantly correlated to rankings reported in previous studies, including quality-adjusted rankings. They concluded department chairs tend to rank journals both consistently and in accordance with generally accepted measures of quality.

Ramrattan and Szenberg (2003) took a look at the production or input characteristics of economics journals. Using standard multivariate techniques, they were able to discern two rankings of 41 and 72 journals, respectively, depending on whether or not compensation data was included. Their results offer insights on the ongoing question of the placement of journals in the discipline of economics. Prior to that, Davis (1998) provided evidence of the inconsistency in rating journals in economics. Davis warned economists about results derived from depending on Social Sciences Citation Index (SSCI) used to rank existing journals to evaluate scholarly productivity and evaluate economics departments. Among the economics disciplines little consistency has been found empirically on rating the quality of the hundreds of economics journals.

Just over a decade ago, Beed and Beed (1996) determined the citation method measures influence rather than excellence and the correlation between influence and quality was uncertain.

However, they found some consistency in the literature when rating the top four or five economics journals. Recently, Azar (2007) determined that although journal quality is a major consideration for authors, readers, and promotion and tenure committees, no objective quality measure exists for most behavioral economics and socio-economics journals. In that study, three journals stood out: 1) *Journal of Economic Behavior & Organization* ranked first, 2) *Journal of Economic Psychology* ranked second, and 3) *Journal of Socio-Economics* ranked third. Liner and Amin (2004) critiqued methods of ranking economics journals, compared results of some methods, and suggested new uses of judging the quality of journals via citation research methods. In the field of marketing, a handful of journals are ranked at the top in two recent studies.

Mort, McColl-Kennedy, Kiel, and Souter (2004) derived a list of top-tier marketing journals: 1) *Journal of Consumer Research*, 2) *Journal of Marketing,* 3) *Journal of Marketing Research,* 4) *the Journal of the Academy of Marketing Science*, and 5) *International Journal of Research in Marketing*. They report the list was not surprising; however, they caution their readers about adhering to any list, citing the diversity of journal types and the different target audiences that most researchers are trying to reach.

Similarly, Bauerly and Johnson (2005) determined there were five journals cited mostly in marketing syllabi for doctoral programs: 1) *Journal of Marketing*, 2) *Journal of Consumer Research*, 3) *Journal of Marketing Research,* 4) *Marketing Science,* and 5) *Journal of the Academy of Marketing Science,* which accounted for 66.5 percent of citations in syllabi analyzed from 109 doctoral programs accredited by AACSB. Accounting has its top journals too, at least according to one recent study; consistency for top journals also appears to be the case for the field of accounting. Bonner, Hesford, Van der Stede, and Young (2006) summarized the findings of a content analysis of published articles that ranked academic accounting journals, as well as articles that provide other bases for considering journal quality. Their results indicate four journals consistently were at the top rank in their field: 1) *Accounting, Organizations and Society,* 2) *Contemporary Accounting Research,* 3) *Journal of Accounting and Economics,* and 4) *Journal of Accounting Research.* Despite four or five journals that consistently appear as perceived to be top journals in the respective discipline, empirical research remains inconsistent for the remaining business journals, which number in the hundreds. Being labeled a top journal does not guarantee a top article.

In an intriguing study, Smith (2004) compared the ranks 15 leading finance journals by the average number of Social Sciences Citation Index cites per article for articles published in 1996. A "top article," was compared to an "article in a top journal" an examination of Type I error (a "top" article is rejected by a particular decision rule, e.g., in top three journals) and the Type II error (a "non-top" article is accepted as a top article) for each journal and combinations of the journals. Due to the high error rates, Smith found the results suggested that identifying top articles requires looking beyond the Top 3 finance journals, as well as examining each article more carefully for their intrinsic qualities.

A similar study in the accounting field, Chow, et al (2007) used very similar methodology to Smith (2004) and they cautioned against using the top three accounting journals as a proxy for asserting the quality of an article. They stress empirical research is rife with evidence that discounting an article as not being a top quality article because it didn't appear in one of the top accounting journals is faulty thinking. Too many articles that should have been rated a top article were too often discounted as not being so merely because they had not been published in one of the three top accounting journals. And, there are other business fields producing empirical results on the journal quality questions.

Polonsky and Whitelaw (2004) developed a weighted multi-dimensional perceptual ranking based on respondents' evaluation of a journal's prestige, contribution to theory, contribution to practice, and contribution to teaching, adding fuel to the fire. Business communication has joined in on journal quality rating research fray, citing the *Journal of Business Communication, Business Communication Quarterly,* and *Journal of Business and Technical Communication* as top journals (Lewis, Schmisseur, Stephens, & Weir, 2006). Many journal quality studies appear to be based on surveying the opinions and perceptions of academicians.

Unfortunately, ranking journals using survey methodology tends to be too subjective (Katerattanakul, Razi, Han, & Kam, 2005). In a related study, the authors used the 50 most frequently cited finance journals and found among them the most cited top finance journals: 1) *Journal of Finance,* 2) *Journal of Financial Economics,* 3) *Journal of Financial and Quantatitive Analysis,* and 4) *Review of Financial Studies*, and they controlled for both average number of articles and average number of words used in the experimental design (Alexander & Mabry, 1994).

Peffers and Ya (2003) asked information systems (IS) researchers to rate the value of IS publication outlets and to categorize them into IS journals, and 1129 IS researchers resulted in 326 journals being rated. Vastag and Montabon (2002) found social acculturation to be an influence on the characteristics and ranking of operations management journals (OM). Vokurka (1996) found journal rankings are important for a variety of reasons, most importantly as the basis of academic tenure and promotion decisions, thus, reviewed the frequency of citations of journals in OM journals; furthermore, between 1992-1994, based on total citations, citations per article, and citations per words published, the journals with the most importance to OM research were: 1) *Management Science,* 2) *Decisions Sciences,* 3) *Operations Research,* 4) *the Harvard Business Review,* 5) *Journal of Operations Management, and* 6) *IIE Transactions*. Recently, Olson (2005) measured what top-25-business-school-professors rated as quality in OM journals with similar findings for top journals.

Geary, Marriott, and Rowlinson (2004) found a concentration of citation to be represented by a fraction of journal outlets: 126 journals had 50% of all citations among 9,942 publications in 1582 journal titles. Journal rankings are repeatedly used to measure both journal and author research quality. Oltheten, Theoharakis, and Travlos (2005) sampled an international group of 862 finance educators and found remarkable consistency in how they ranked top finance journals. Among the remaining journals, perception of journal quality differed depending on the researcher's geographic

origin, research interests, seniority, and journal affiliation. Their findings appear to be consistent with Reinstein and Calderon (2006), who found rankings used by both doctoral-granting and non-doctoral-granting accounting programs to confirm the existence of an elite set of journals whose rankings are invariant to school type, faculty size, resource base or mission. The popular press does not help resolve the problem when they sensationalize issues.

In Information World Review (Caldwell, 2006, July) controversy on impact factors remain. Tracey Caldwell, in an online article titled "Impact Factors Rocked by Manipulation Charge," gives a summary of interviews with editors of major journals from major publishing houses on their perspectives of what to do. Caldwell quotes the editorial director for the *Oxford Journals*:

> Janet Boullin, editorial director, *Oxford Journals* , said she "strongly discourages the manipulation of impact factors" and feels that any such action is to be deplored…She added: "Skewing impact factors does the scientific community no favours, and as a result the use of impact factors as an industry standard may become damaged."

From the published reports, there is very little consistency in criterion for rating the quality of a scholarly business journal, beyond the popularity of four or five journals in each of the academic business fields; each field is dominated by a handful of journals at the top. With modern technology, it is possible to generate of list of top 100 journals in business, management, accounting, MIS and finance based on the number of citations over a period in time.

The literature is just too fragmented when it comes to journals that fall outside the handful of "top" journals in any of the business fields. Furthermore, a top journal does not guarantee a top article (Chow, Haddad, Singh, & Wu, 2007; Smith, 2004). When reviewing the related literature, no studies were found that directly compared the likelihood of faculty's demographic characteristics (gender, rank, and number of co-authors) and their likelihood of being published in peer reviewed refereed business journals.

Knowing if these variables are significantly related to the likelihood of being published in such journals is needed because there is still a mixture of findings in the literature (Azar, 2007). The literature confirms there is agreement on the top journals in most of the business fields (Polonsky, 2004), including business communication (Lewis, et al, 2006). The problem with deans or department heads expecting most faculty members to publish in one of the top journals is the math stops working for most seeking tenure or promotion or merit pay increases when there are 400 authors vying for 20 slots per issue, as with the *Academy of Management Review*.

METHODOLOGY

Sample and Descriptive Statistics

Eight refereed business journals, broad ranging in aims and scopes, were selected on their affiliation with conferences, acceptance rates and frequency of published articles associated with those journals. Acceptance rates for the eight journals ranged from 5% to 30%. Each journal published articles featuring biographical sketches of authors pertaining to demographic characteristics tallied. Faculty information was tallied by the respective journal in which they got published.

One hundred fifty males and 83 females were published in the eight refereed business journals observed. Among the professorial ranks, 67 authors were full-professors, 52 were associate professors, 56 were assistant professors, and 58 designated as other types of faculty. Forty universities, represented by 120 authors, accounted for 51.5 percent of the 233 authors published in the eight journals. Nearly every business discipline was represented, with the modal teaching discipline being 68 general management faculty members. Finance represented only 9 faculty members. Data were analyzed using SPSS 15.0.

Gender, teaching discipline, affiliated institutions, and number of co-authors variables were very easy to tally; pronouns make gender easily recognizable because authors' refer to themselves as he or she in bios they wrote. Of the observed variables, 233 authors were counted. For the sake of authenticity, each author, regardless of whether the article had more than one author, was entered into the Excel file as a unique row count. This was done because a large number of co-authored articles were from different universities, with a mix of male/female authors, in many cases. Descriptive statistics are shown in Tables 1a, 1b, 1c, 1d, and 1e.

Table 1a: Descriptive Statistics with Frequency and Percents for Journal Outlet

Eight Refereed Journal Outlets	Author Frequency	Percent	Cumulative Percent
(a) Journal of Business and Leadership: Teaching, Research, Practice, JBL (2007), 3(1)	47	20.2	20.2
(d) Southwest Business Administration Journal, SBAJ (2004), 4(1)	35	15.0	35.2
(b) Business Communication Quarterly, BCQ (2007), 70(2)	30	12.9	48.1
(g) Journal of Applied Management and Entrepreneurship, JAME (2005), 10(2 & 3)	28	12.0	60.1
(c) International Journal of Business and Public Administration, IJBPA (2008), 5(2)	27	11.6	71.7
(f) International Journal of Education Research, IJER (2008), 3(1)	26	11.2	82.8
(e) Academy of Management Review, AMR (2008), 33 (2)	25	10.7	93.6
(h) Journal of Business Communication, JBC (2005), 42(1 & 2)	15	6.4	100.0
Total	233	100.0	

Table 1b: Descriptive Statistics with Frequency and Percents for Gender				
		Author Frequency	Percent	Cumulative Percent
Valid	Female	83	35.6	35.6
	Male	150	64.4	100.0
	Total	233	100.0	

Table 1c: Descriptive Statistics with Frequency and Percents for Number of Co-Authors				
		Author Frequency	Percent	Cumulative Percent
Valid	One Author	65	27.9	27.9
	Two Authors	80	34.3	62.2
	Three or More Authors	88	37.8	100.0
	Total	233	100.0	

Table 1d: Descriptive Statistics with Frequency and Percents for Professorial Rank				
		Author Frequency	Percent	Cumulative Percent
Valid	Other Faculty Types*	58	24.9	24.9
	Assistant Professor	56	24.0	48.9
	Associate Professor	52	22.3	71.2
	Full-Professor	67	28.8	100.0
	Total	233	100.0	
*Category includes instructors, adjuncts, lecturers, doctoral students, and foreign designates.				

Table 1e: Descriptive Statistics with Frequency and Percents for Teaching Discipline				
Teaching Disciplines		Author Frequency	Percent	Cumulative Percent
Valid	Management	68	29.2	29.2
	Other Bus. Disciplines	54	23.2	52.4
	Accounting	35	15.0	67.4
	Business Communication	19	8.2	75.5
	Economics	18	7.7	83.3
	Marketing	16	6.9	90.1
	MIS	14	6.0	96.1
	Finance	9	3.9	100.0
	Total	233	100.0	

Hypotheses Testing

Hypothesis 1

The relative frequency or percentage of male faculty members who publish in refereed business journals is the same as female faculty members who publish in refereed business journals. Chi Square shows no significant difference existed between males and females and eight journals in which they published, with a critical value of 12.437 being smaller than the 14.07 critical value found in the Chi-Square Table, with df of 7 and p = .05. Results of the Chi Square test are shown in Table 2 below. Lambda was λ =.036 when gender represented the dependent variable, assuming a null hypothesis.

Table 2: Chi Square Test of Authors' Gender across Journals Outlets

			Gender		
			Female	Male	Total
Journals	(a) JBL	Count	13	34	47
		Expected Count	16.7	30.3	47.0
		% of Total	5.6%	14.6%	20.2%
	(b) BCQ	Count	16	14	30
		Expected Count	10.7	19.3	30.0
		% of Total	6.9%	6.0%	12.9%
	(c) IJBPA	Count	9	18	27
		Expected Count	9.6	17.4	27.0
		% of Total	3.9%	7.7%	11.6%
	(d) SBAJ	Count	15	20	35
		Expected Count	12.5	22.5	35.0
		% of Total	6.4%	8.6%	15.0%
	(e) AMR	Count	9	16	25
		Expected Count	8.9	16.1	25.0
		% of Total	3.9%	6.9%	10.7%
	(f) IJER	Count	8	18	26
		Expected Count	9.3	16.7	26.0
		% of Total	3.4%	7.7%	11.2%
	(g) JAME	Count	5	23	28
		Expected Count	10.0	18.0	28.0
		% of Total	2.1%	9.9%	12.0%
	(h) JBC	Count	8	7	15
		Expected Count	5.3	9.7	15.0
		% of Total	3.4%	3.0%	6.4%

Table 2: Chi Square Test of Authors' Gender across Journals Outlets				
		Gender		
		Female	Male	Total
Total	Count	83	150	233
	Expected Count	83.0	150.0	233.0
	% of Total	35.6%	64.4%	100.0%

(a) Journal of Business and Leadership: Teaching, Research, Practice, JBL; (b) Business Communication Quarterly, BCQ; (c) International Journal of Business and Public Administration, IJBPA; (d) Southwest Business Administration Journal, SBAJ; (e) Academy of Management Review, AMR; (f) International Journal of Education Research, IJER; (g) Journal of Applied Management and Entrepreneurship, JAME; (h) Journal of Business Communication, JBC.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.437(a)	7	.087
Likelihood Ratio	12.631	7	.082
Linear-by-Linear Association	.111	1	.740
N of Valid Cases	233		

a) 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.34.

Directional Measures						
			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.022	.038	.583	.560
		Journal Dependent	.016	.029	.557	.577
		Gender Dependent	.036	.079	.447	.655
	Goodman and Kruskal tau	Journal Dependent	.008	.004		.087(c)
		Gender Dependent	.053	.029		.089(c)

a) Not assuming the null hypothesis.
b) Using the asymptotic standard error assuming the null hypothesis.
c) Based on chi-square approximation

Hypothesis 2

The relative frequency of publications in any of the eight refereed business journals observed is not the same for full-professors, associate professors, assistant professors, and other types of faculty members. The Chi-Square test shows rank differed significantly in relative frequency, with a critical value of 52.652 exceeding the 36.34 critical value found in the Chi-Square Table, with df

= 21 and p= .05. Lambda was λ =.157 when professorial rank represented the dependent variable, assuming a null hypothesis. Chi-Square findings are presented in Table 3.

Table 3: Chi-Square Test of Professorial Rank across Journal Outlets***

			Professorial Rank				
			Other Faculty Types	Assistant Professors	Associate Professors	Full Professors	Total
Journals	(a) JBL	Count	6	**15*** **	13	13	47
		Expected Count	11.7	11.3	10.5	13.5	47.0
		% of Total	2.6%	6.4%	5.6%	5.6%	20.2%
	(b) BCQ	Count	11	2	5	12	30
		Expected Count	7.5	7.2	6.7	8.6	30.0
		% of Total	4.7%	.9%	2.1%	5.2%	12.9%
	(c) IJBPA	Count	**12*** **	1	2	**12*** **	27
		Expected Count	6.7	6.5	6.0	7.8	27.0
		% of Total	5.2%	.4%	.9%	5.2%	11.6%
	(d) SBAJ	Count	5	**14*** **	9	7	35
		Expected Count	8.7	8.4	7.8	10.1	35.0
		% of Total	2.1%	6.0%	3.9%	3.0%	15.0%
	(e) AMR	Count	4	6	9	6	25
		Expected Count	6.2	6.0	5.6	7.2	25.0
		% of Total	1.7%	2.6%	3.9%	2.6%	10.7%
	(f) IJER	Count	7	3	6	10	26
		Expected Count	6.5	6.2	5.8	7.5	26.0
		% of Total	3.0%	1.3%	2.6%	4.3%	11.2%
	(g) JAME	Count	5	**13*** **	6	4	28
		Expected Count	7.0	6.7	6.2	8.1	28.0
		% of Total	2.1%	5.6%	2.6%	1.7%	12.0%
	(h) JBC	Count	**8*** **	2	2	3	15
		Expected Count	3.7	3.6	3.3	4.3	15.0
		% of Total	3.4%	.9%	.9%	1.3%	6.4%
Total		Count	58	56	52	67	233
		Expected Count	58.0	56.0	52.0	67.0	233.0
		% of Total	24.9%	24.0%	22.3%	28.8%	100.0%

(a) Journal of Business and Leadership: Teaching, Research, Practice, JBL; (b) Business Communication Quarterly, BCQ; (c) International Journal of Business and Public Administration, IJBPA; (d) Southwest Business Administration Journal, SBAJ; (e) Academy of Management Review, AMR; (f) International Journal of Education Research, IJER; (g) Journal of Applied Management and Entrepreneurship, JAME; (h) Journal of Business Communication, JBC. ***Denotes p < .001.

The Other Faculty Types, including instructors, lecturers, doctoral students, foreign designates, and adjunct faculty, were combined into one category because separate the numbers they represented were too few in single cell counts. In many cases, the cell count was zero for some journals, specifically instructors, lecturers and doctoral students. For example, a few doctoral student authors had published in the JAME and IJBPA. As a group, they were too few to stand alone as a faculty rank category in a Chi-Square test. As can be seen in Table 3, journals are better at predicting publication frequency than professorial rank. In fact, journal outlets explain nearly 16 percent of the difference in authors' publications across ranks. Therefore, journal outlets reduce the prediction error by 15.7 percent. The triple asterisk is placed by numbers with four or more above the expected count in each cell.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	52.652(a)	21	.000
Likelihood Ratio	54.950	21	.000
Linear-by-Linear Association	2.227	1	.136
N of Valid Cases	233		

a) 4 cells (12.5%) have expected count less than 5. The minimum expected count is 3.35.

Directional Measures

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.091	.034	2.582	.010
		Journal Dependent	.032	.022	1.420	.156
		ProfRank Dependent	.157	.060	2.445	.014
	Goodman and Kruskal tau	Journal Dependent	.032	.008		.000(c)
		ProfRank Dependent	.075	.019		.000(c)

a) Not assuming the null hypothesis.
b) Using the asymptotic standard error assuming the null hypothesis.
c) Based on chi-square approximation

Hypothesis 3

The relative frequency of publications in any of the eight refereed business journals observed is not the same for single author, dual authors, and manuscripts with three or more authors. Chi-Square test shows the observed frequency is not the same for single author, dual authors, and manuscripts with three or more authors, with a critical value of 49.168 exceeding the 23.68 critical value found in the Chi-Square Table, with df = 14 and p= .05. Lambda was λ =.207 when number of authors represented the dependent variable, assuming a null hypothesis. Chi-Square findings are presented in Table 4.

Table 4: Chi-Square Test of Number of Authors across Journal Publication Outlets***

			Authors			Total
			One Author	Two Authors	Three or More authors	1
Journals	(a) JBL	Count	13	14	20	47
		Expected Count	13.1	16.1	17.8	47.0
		% of Total	5.6%	6.0%	8.6%	20.2%
	(b) BCQ	Count	**21*** **	4	5	30
		Expected Count	8.4	10.3	11.3	30.0
		% of Total	9.0%	1.7%	2.1%	12.9%
	(c) IJBPA	Count	2	10	**15*** **	27
		Expected Count	7.5	9.3	10.2	27.0
		% of Total	.9%	4.3%	6.4%	11.6%
	(d) SBAJ	Count	5	**18*** **	12	35
		Expected Count	9.8	12.0	13.2	35.0
		% of Total	2.1%	7.7%	5.2%	15.0%
	(e) AMR	Count	**11*** **	8	6	25
		Expected Count	7.0	8.6	9.4	25.0
		% of Total	4.7%	3.4%	2.6%	10.7%
	(f) IJER	Count	3	8	**15*** **	26
		Expected Count	7.3	8.9	9.8	26.0
		% of Total	1.3%	3.4%	6.4%	11.2%
	(g) JAME	Count	7	12	9	28
		Expected Count	7.8	9.6	10.6	28.0
		% of Total	3.0%	5.2%	3.9%	12.0%
	(h) JBC	Count	3	6	6	15
		Expected Count	4.2	5.2	5.7	15.0
		% of Total	1.3%	2.6%	2.6%	6.4%

Table 4: Chi-Square Test of Number of Authors across Journal Publication Outlets***					
		Authors			Total
		One Author	Two Authors	Three or More authors	1
Total	Count	65	80	88	233
	Expected Count	65.0	80.0	88.0	233.0
	% of Total	27.9%	34.3%	37.8%	100.0%

(a) Journal of Business and Leadership: Teaching, Research, Practice, JBL; (b) Business Communication Quarterly, BCQ; (c) International Journal of Business and Public Administration, IJBPA; (d) Southwest Business Administration Journal, SBAJ; (e) Academy of Management Review, AMR; (f) International Journal of Education Research, IJER; (g) Journal of Applied Management and Entrepreneurship, JAME; (h) Journal of Business Communication, JBC. ***denotes p< .001.

The count for published articles with three, four, five or six co-authors were combined into one category because separate they represented too few in single cell counts. In many cases, the cell count was zero for some journals, specifically co-authored articles with five or six authors. For example, the AMR had published one article with six co-authors. As a group, articles with three, four, five or six authors were too few to stand alone as categories in a Chi-Square test. As can be seen in Table 4, journals are better at predicting publication frequency than numbers of authors on a single article. In fact, journal outlets explain nearly 21 percent of the difference in authors' publications across numbers of co-authors. Therefore, journal outlets reduce the prediction error by 20.7 percent. The triple asterisk is placed by numbers with four or more above the expected count in each cell.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	49.168(a)	14	.000
Likelihood Ratio	47.305	14	.000
Linear-by-Linear Association	1.647	1	.199
N of Valid Cases	233		

a) 1 cells (4.2%) have expected count less than 5. The minimum expected count is 4.18.

Directional Measures						
			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.127	.045	2.697	.007
		Journal Dependent	.065	.042	1.484	.138
		Authors Dependent	.207	.063	2.968	.003
	Goodman and Kruskal tau	Journal Dependent	.031	.010		.000(c)
		Authors Dependent	.099	.027		.000(c)

a) Not assuming the null hypothesis.
b) Using the asymptotic standard error assuming the null hypothesis.
c) Based on chi-square approximation

DISCUSSION

Scholarly business journals are significant predictors of the relative frequencies of professorial rank and number of authors publishing on the same article. The eight refereed business journals observed in this study were not predictive of gender, or vice versa. Given the blind review process, dozens of reviewers, and 233 published authors affiliated with several dozen universities, it is hard to argue that the editors are solely responsible for these differences, or that chance alone can explain them away. Among the eight journals examined, there were authors representing institutions from all the Carnegie Classifications (2009), including foreign faculty from foreign institutions. (See the APPENDIX for a listing of the universities represented in the eight journals) The results of this study can aid tenure track faculty members, deans, and department heads. Deans can now make more informed decisions concerning tenure, promotion, and merit pay increases in relation to the IC requirement for their collegiate schools of business. Faculty members seeking knowledge on what to do to optimize their IC for professional development and increasing their chances of being granted tenure should find this study's results useful.

Faculty development committees, too, can now use this study's findings to be more uniform in their approaches to making merit, promotion and tenure recommendations, now that we know journals predict certain demographic characteristics, corollary to authors' publications; especially in light of the fact the practice of rating the quality of refereed business journals, as a test for sufficiency in IC, has been blemished with controversy. Different schools of business that use tenure and promotion committees are subject to a wide variety of evaluation techniques, and the empirical evidence is mixed, which does not serve well as a guidepost for such practices.

Deans and department heads can now argue there are no differences in male and female publishing frequency in at least eight refereed business journals observed in this study, ranging from 5% to 30% acceptance rates. This is somewhat surprising because women are still not equally

represented in many collegiate schools of business. The ratio, in this study, of men still nearly doubles women: 150/83. Our findings regarding gender might also be explained by the fact that two of the eight journals were published by the *Association for Business Communication*; however, those journals were selected because they publish articles across many fields of business.

Authors from finance and accounting departments were found to have published in the BCQ and the JBC. Business communication is a field where women are more represented than men. Notwithstanding, the AMR and the JBC also published articles by men and women equally. And, so did the other journals examined; in fact, none of the expected cell counts were significantly different. The evidence shows women and men are the same when it comes to the frequency of their publications in the eight refereed business journals observed. This is not the case when it comes to professorial rank.

The international journals, as one might expect, had much more visibility for foreign faculty, including other faculty types: adjunct professors, instructors, lecturers, doctoral students, and others. There is no surprise that the IJBPA and JBC would have significant cell counts that exceed their expected frequency because these journals are affiliated with international organization conferences. Other faculty types and full professors stand a much better chance at being published in these two journals than the other ranks. However, JBL, SBAJ and JAME appear assistant professor friendly. The actual cell counts significantly exceeded their expected cell counts for assistant professors' publications.

Another interesting finding is full professors and other faculty types were significantly more frequent in the IJBPA than assistant and associate level faculty. There were a significant number of full professors teaming up with doctoral graduate students or lecturers or adjuncts or business consultants to publish in the IJBPA: this journal appears to be targeted as a training opportunity journal for doctoral granting business school professors and their protégés. The number of authors publishing on the same article is significant as well.

The AMR (approximately 5% acceptance rate), the BCQ (approximately 10-15% acceptance rate), and the JBL (approximately 25% acceptance rate) are friendlier to single authors than multiple authors. The BCQ had a lot of single authors publishing in its "Focus on Teaching Column" and "Focus on Business Column." The SBAJ was friendliest to articles written by two persons. And, the IJER and IJBPA are friendlier to articles written by three or more authors. Remember, as stated earlier, these journals had significant lambdas that predicted authors' publication frequencies based on professorial rank and number of authors on a single article. This study's implications for helping shape tenure, promotion, and merit policy are tangential.

Implications and Future Research

Faculty will benefit by targeting journals by demographic and other characteristics that influence publication frequency in peer reviewed refereed business journals. It appears full-

professors writing articles with their graduate level doctoral students or consultants or lecturers or foreign faculty will stand a better chance of being published by submitting their articles to the IJBPA. This is a refereed business journal with an acceptance rate of approximately 25%.

Deans could establish policy that rewards full-professors for mentoring other types of faculty on co-authored projects. Assistant professors, especially those on the tenure track, should focus on teaming up with a network of two or more other faculty members and shoot for the SBAJ, IJBPA, and the IJER to stand a better chance of being published. The articles with two authors will stand a better chance with the SBAJ. The single author papers they write should be targeted towards the AMR and, BCQ if they write on business communication teaching related issues or business practice issues in its Focus on Business Column. The eight journals are statistically the same when it comes to publications and gender.

The best advice to any tenure track faculty is they should submit a variety of co-authored articles across these venues targeting the known demographic variables correlated with the highest chance of being published. The best way to accomplish scholastic achievement in the IC area, especially for those seeking promotion or tenure or merit pay increases or schools seeking AACSB accreditation, is for faculty members to team up with others. In Table 4 above, recall 72.1 percent of the published authors were two or more authors. Additionally, for seven of the eight journals the multiple of authors' ratios exceeded the singles authors: JBL has 34 multiples to 13 singles; BCQ has 9 multiples to 21 singles; IJBPA has 25 multiples to 2 singles; SBAJ has 30 multiples to 5 singles; AMR has 14 multiples to 11 singles; IJER has 23 multiples to 3 singles; JAME has 21 multiples to 7 singles; and JBC has 12 multiples to 3 singles. An assistant professor or lecturer or doctoral student teaming up with a full professor will stand a very good chance of being published in the IJER or the IJBPA.

The best advice for deans is they should encourage senior level professors to mentor tenure track and other faculty types and reward them for teaming up to publish articles in their respective schools of business or departments. This could include increases in travel budgets for team research and added incentives for published co-authored papers in the refereed journals. Research grants should specifically encourage team writing. Also, there is much more "bang-for-the-buck" when multiple faculty from the same department or same school are publishing together when AACSB accreditation is the goal. Gender of faculty members teaming up should not make any difference in the publication outcome. This study's research purpose could be expanded.

A future addition to this study would be for these eight journals to be assessed with other nominal variables of importance (AACSB accredited, Carnegie 2000 Classifications, etc.) in order to assess the predictive ability of journals on faculty publications on these variables. The dispersion of assistant, associate, and full professors across these eight journals appears to negate the notion higher ranking faculty target the more selective journals. It does not appear to be the case when frequency of publications was tested on this variable. Therefore, knowing if the Carnegie research extensive, intensive or masters I, II, or III are predicted by refereed journal type or vice versa would

be interesting. Do authors affiliated with the top schools dominate the more select journals is a research question a chi-square study could address. Also, does AACSB accreditation make a difference in the relative frequency of authors' publications?

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APPENDIX

	Frequency	Percent	Cumulative Percent
Fort Hays State University	9	3.9	3.9
Prairie View A&M University	8	3.4	7.3
Nova Southeastern University	6	2.6	9.9
Troy University	5	2.1	12.0
New Mexico State University	4	1.7	13.7
Texas A&M University-Commerce	4	1.7	15.5
Emporia State University	3	1.3	16.7
Frostburg State University	3	1.3	18.0
Georgetown University	3	1.3	19.3
Jacksonville State University	3	1.3	20.6
Nicholls State University	3	1.3	21.9
North Carolina Central University	3	1.3	23.2
Rockhurst University	3	1.3	24.5
Texas A&M University	3	1.3	25.8
The University of Alabama	3	1.3	27.0
University of Arkansas-Fort Smith	3	1.3	28.3
University of Louisiana-Lafayette	3	1.3	29.6
University of South Dakota	3	1.3	30.9
Warner Southern College	3	1.3	32.2
Western Illinois University	3	1.3	33.5
Winona State University	3	1.3	34.8
Winthrop University	3	1.3	36.1

	Frequency	Percent	Cumulative Percent
California State University-Fullerton	2	.9	36.9
Central Washington University	2	.9	37.8
Columbus State University	2	.9	38.6
George Mason University	2	.9	39.5
Grand Valley State University	2	.9	40.3
Illinois Institute of Technology	2	.9	41.2
Illinois State University	2	.9	42.1
Ithaca College	2	.9	42.9
Johnson & Wales University	2	.9	43.8
Midwestern State University	2	.9	44.6
Southeast Missouri State University	2	.9	45.5
Southeastern Louisiana University	2	.9	46.4
Texas A&M University-Kingsville	2	.9	47.2
Texas Southern University	2	.9	48.1
The Naval Post Graduate School	2	.9	48.9
Troy University at Benning/Columbus	2	.9	49.8
Universite Laurentienne, Sudbury, Ontario	2	.9	50.6
University of Calgary	2	.9	51.5
University of Central Florida	2	.9	52.4
University of Dallas	2	.9	53.2
University of Houston-Clear Lake	2	.9	54.1
University of Louisiana-Monroe	2	.9	54.9
University of Waikota	2	.9	55.8
Western Connecticut State University	2	.9	56.7
William Paterson University	2	.9	57.5
Allen University	1	.4	57.9
Auburn University	1	.4	58.4
Auburn University Montgomery	1	.4	58.8
Belmont University	1	.4	59.2
Bentley College	1	.4	59.7
Bradley University	1	.4	60.1
Central Connecticut State University	1	.4	60.5
City University of New York, Baruch College	1	.4	60.9

	Frequency	Percent	Cumulative Percent
Cornell University	1	.4	61.4
Critical Path Consultants	1	.4	61.8
Delaware State University	1	.4	62.2
Demon Internet, Amersterdam	1	.4	62.7
Fairfield University	1	.4	63.1
Fayetteville State University	1	.4	63.5
Harvard Business School	1	.4	63.9
Helsinki School of Economics	1	.4	64.4
Indiana-Purdue University at Fort Wayne	1	.4	64.8
Indiana University South Bend	1	.4	65.2
INSEAD	1	.4	65.7
JKL Consulting	1	.4	66.1
Lamar University	1	.4	66.5
LogicaCMG, Amsterdam	1	.4	67.0
Lynn University	1	.4	67.4
Maine Maritime Academy	1	.4	67.8
Malone College	1	.4	68.2
Massey University-Albany Campus	1	.4	68.7
MCI Revenue Operations Division, Atlanta	1	.4	69.1
Meiji University, Japan	1	.4	69.5
Mesa Community College	1	.4	70.0
Milikin University	1	.4	70.4
Mississippi State University	1	.4	70.8
Missouri State University	1	.4	71.2
Missouri Western State College	1	.4	71.7
Montana State University-Billings	1	.4	72.1
Moravian College	1	.4	72.5
Morgan State University	1	.4	73.0
National Association of Business Associates	1	.4	73.4
National Cheng Kung University	1	.4	73.8
New York Institute of Technology-Abu Dhabi	1	.4	74.2
Niagara University	1	.4	74.7
No Affiliation Mentioned	1	.4	75.1

	Frequency	Percent	Cumulative Percent
North Carolina A&T State University	1	.4	75.5
Northwest Missouri State University	1	.4	76.0
Norwegian School of Management BI	1	.4	76.4
Nottingham University Business School	1	.4	76.8
Oklahoma State University	1	.4	77.3
Oregon Institute of Technology	1	.4	77.7
Regent University	1	.4	78.1
Rensselaer Polytechnic University	1	.4	78.5
Retired Professor	1	.4	79.0
San Diego State University	1	.4	79.4
San Francisco State University	1	.4	79.8
Seton Hall University	1	.4	80.3
Shenandoah University	1	.4	80.7
Singapore Management University	1	.4	81.1
Southern University at New Orleans	1	.4	81.5
Southwest Missouri State University	1	.4	82.0
St. Edwards University	1	.4	82.4
St. Joseph's College of Maine	1	.4	82.8
St. Michael's College	1	.4	83.3
State University of New York	1	.4	83.7
Syracuse University	1	.4	84.1
The Florida State University	1	.4	84.5
The George Washington University	1	.4	85.0
The Ohio State University	1	.4	85.4
The Pennsylvania State University	1	.4	85.8
The University of Utah	1	.4	86.3
The Vanto Group	1	.4	86.7
Towson University	1	.4	87.1
Troy University-Montgomery	1	.4	87.6
Truman State University	1	.4	88.0
University of Amsterdam	1	.4	88.4
University of California, Los Angeles	1	.4	88.8
University of Cincinnati	1	.4	89.3

	Frequency	Percent	Cumulative Percent
University of Dayton	1	.4	89.7
University of Delaware	1	.4	90.1
University of Illinois at Chicago	1	.4	90.6
University of Iowa	1	.4	91.0
University of Kentucky	1	.4	91.4
University of Louisiana, Lafayette	1	.4	91.8
University of Manitoba	1	.4	92.3
University of Minnesota-Duluth	1	.4	92.7
University of Mississippi	1	.4	93.1
University of Montana	1	.4	93.6
University of Nebraska-Lincoln	1	.4	94.0
University of Nebraska at Kearney	1	.4	94.4
University of New Hampshire	1	.4	94.8
University of Notre Dame	1	.4	95.3
University of Texas-Permian Basin	1	.4	95.7
University of Texas at Dallas	1	.4	96.1
University of Texas at El Paso	1	.4	96.6
University of Vermont	1	.4	97.0
University of Western Ontario	1	.4	97.4
University of Wyoming	1	.4	97.9
Washington State University	1	.4	98.3
William Patterson University	1	.4	98.7
Winston-Salem State University	1	.4	99.1
Wright State University	1	.4	99.6
York University	1	.4	100.0
Total	233	100.0	

USING STUDENT FEEDBACK TO ASSESS TEAM PROJECTS IN A REQUIRED, CROSS-DISCIPLINARY, UNDERGRADUATE MANAGEMENT COURSE

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ABSTRACT

At the authors' University, the College of Business undergraduate curriculum requires that all students take a Principles of Management course and, for the purpose of AACSB International accreditation, the faculty has determined that teamwork be assessed in this course. For those reasons a team project is mandatory, and the authors were motivated to assess their students' perceptions regarding the team project assigned in the course.

For the assessment, the authors created a survey to be given to the students before and after their team project. The survey asked the students to state their level of agreement with twenty-two statements about the value of team projects, which courses should require them, the types of team projects that should be assigned, the skills to be gained by requiring them, and the resources necessary to complete the projects successfully. The sample included 151 students: 25 accounting majors (13 males and 12 females), 23 finance majors (14 males and 9 females), 11 international business majors (5 males and 6 females), 37 management majors (23 males and 14 females), 25 marketing majors (8 males and 17 females), and 30 non-business majors (25 males and 5 females). To analyze the survey responses, two analyses were conducted. First, pre- and post-project responses were compared to determine if there were any changes in the level of agreement with the statements. This first analysis found there was a statistically significant ($\alpha = 0.05$) change in the students' level of agreement for seven of the 22 statements. Second, the difference between pre- and post-survey responses was analyzed based on each student's gender, major, and prior experience with team projects. The second analysis revealed differences based on those categories for four of the 22 statements.

INTRODUCTION

Team projects have been used as a teaching method in business schools for so long that the convention has been described as ubiquitous (Bacon, 2005); however, this practice has not been accepted without reservations or criticism. Critics claim that team projects are difficult for

instructors to manage and assess (Jones & Tom, 2004) and the quality of student outcomes has been described as uneven or negative (O'Connor & Yballe, 2007). Proponents of the pedagogy argue that if instructors design team projects properly (Hansen, 2006; Tabor, 2005) the benefits (Young & Henquinet, 2000) to organizations, students, and instructors far outweigh any problems created.

The authors' College of Business is accredited by AACSB International and its faculty has determined that teamwork be assessed in the Principles of Management course. This course is a logical choice because all business majors must take it and teamwork is a critical topic taught in the course. Given that a team projects is not optional, the purpose of this study is to ascertain the students' perceptions of the required team project. The authors solicited students' opinions about the faculty's choice of course in which to require the team project, the type of project chosen, the benefits to be gained from working on the project, and the resources needed to complete the project successfully.

Because the team project is assigned in a core course, one that all business majors must take, students experience both the practice and the benefit of working with a variety of other students. Mannix and Neale (2005) reported that diverse teams were especially suitable for tasks involving innovation and exploration of new opportunities. Yet the team process must be structured, facilitated, and monitored so that the differences among team members do not become divisive and minority opinions do not go unheard. In addition to the opportunity to work with diverse team members, the type of project chosen by the authors was somewhat unusual because it was a service-learning project. A service-learning project involves students in an activity that serves the community, helps them apply course content, and allows them to reflect on the relationship between service and learning (Bringle & Hatcher, 1995).

A team project, especially a team service-learning project, addresses the concern that "business education overemphasizes theory and should be more applied, experiential, integrated, and focused on helping students practice interpersonal, team, and problem-solving skills" (Jessup, 1995, p. 82). In addition to those skills, Jessup reported that in his experience a team project also enhanced his students' self-confidence. Other researchers noted that team projects were related to their students' improvement in time management skills (Garvin & Butcher, 1995); business planning; as well as oral, written, and group communication skills (Lynn & Taylor, 1993).

Successful completion of a team project not only requires communication, but a time commitment as well. Computer-mediated communication (CMC) technologies, particularly Web-based technologies, have been reported to facilitate and enhance small-group collaboration (Pychyl, Clarke, & Abarbanel, 1999). Using technology to communicate may help save time, but large-scale team projects still require a great amount of time to complete; time outside of class to work on the project may be difficult to schedule. To resolve the scheduling problem, Gatfield's (1999) research found that students expected instructors to allow team members to work on the project during class time.

The information cited from the above-mentioned literature provided the foundation for the survey used in this study. However, the authors were also curious to learn whether discrete groups of students differed in their perceptions of the team project. Some researchers have found that results can differ based on a student's gender. For example, Kaenzig, Anderson, Hyatt, and Griffin (2006) reported that males believed they contributed equally to the team project, whereas females in the same study felt that they had actually worked harder and been given more menial tasks to complete. Therefore, the authors of this study decided to see if any differences in students' perceptions could be traced to gender. Furthermore, students were grouped into two other categories: major and number of team projects assigned in earlier courses. These last two categories allowed the authors to check for differences in students' perceptions of the project based on their discipline and their previous experience with team projects. Details about the content of the survey and how the study was conducted are given in the following section.

METHODOLOGY

The subjects for this study were students from one author's Principles of Management classes taught over three consecutive semesters (two sections in the fall 2007, spring 2008, and fall 2008). At the authors' University Principles of Management is a junior-level course that all College of Business majors—accounting, finance, international business, management, and marketing—are required to take. This course is also a requirement for some non-business majors, the majority of whom are construction management, aviation management, and economics majors. The sample included 151 students: 25 accounting majors (13 males and 12 females), 23 finance majors (14 males and 9 females), 11 international business majors (5 males and 6 females), 37 management majors (23 males and 14 females), 25 marketing majors (8 males and 17 females), and 30 non-business majors (25 males and 5 females).

The team project required in the author's Principles of Management course is one that supported Campus Kitchens (www.campuskitchens.org), a national college and university program that recovers surplus food from campus dining services and redistributes it to clients in the local community. Campus Kitchen was chosen for the team project because it was housed on-campus and needed so much support that meaningful work could be found for all the Principles of Management students.

The Principles of Management students involved in this study were not solely responsible for the recovery and distribution of food (although some of them did volunteer to do so); instead the students were involved in raising funds or soliciting in-kind goods or services to supplement the needs of the local Campus Kitchen affiliate. Besides the food recovered from campus dining services, additional food needed to be donated or purchased to insure that nutritionally balanced meals were prepared for the clients. Donations of in-kind goods included food packaging materials

(clam-shell containers, foil, etc.) and gasoline gift cards for students who used their personal vehicles to deliver the food.

The professor teaching the course assigned students to teams based on a blind draw. The number of students per team varied from four to eight based on the number of students enrolled in each course section. If any one team had a single male or female, the professor reassigned, if possible, team members so that each team had at least two members of that gender. All male or all female teams were possible and were allowed.

The teams were given the task of proposing and implementing a project that supported the university's Campus Kitchen affiliate. The assignment was an application of management's four basic functions: planning, organizing, leading, and controlling. Each team prepared a project proposal, had it approved by the professor, implemented the project, and reported the results of that implementation to the professor (in a written final report) and to the class (in a formal oral presentation). Team members assessed each other's performance at midterm and at the end of the semester. The team project contributed to 40% of a student's semester grade. The other 60% of the semester grade was attributed to exams, exercises, and other assignments.

The 22 survey statements were based on constructs designed to measure the students' perceptions of the value of team projects, the appropriate course in which to require the project, the type of team project to require, the benefits gained from the project, and the resources used to complete the project. For each of the statements included in the survey, students were asked to state their level of agreement with the statement using a 7-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6 = Agree, and 7 = Strongly Agree). Students were also asked to provide information about their gender, their primary major (in case of multiple majors), and the cumulative number of team projects they had been assigned from previous courses.

Construct 1: The value of a team project.

- *S1: After I graduate and begin my career, I will have to work in teams.*
- *S2: It is to my advantage to learn and practice teamwork skills before I graduate.*
- *S3: Team projects, as course requirements, are a good way to learn and practice teamwork skills.*
- *S4: Team projects are difficult to schedule and coordinate, but they are worth the effort.*

Construct 2: The appropriate course to require a team project.

- *S5: Core courses which include students from different majors are the best courses to require team projects.*
- *S6: Team projects should only be required in courses for specific majors, not core courses.*
- *S7: Team projects should not be a requirement for any course.*

Construct 3: The type of team project to require.

- *S8: It is fairer to all the teams if the team projects are for the same organization.*
- *S9: I would prefer that teams be able to choose the organization that their projects support, even if all the projects did not serve the same organization.*
- *S10: Rather than a team service project, I would prefer to do a more "traditional" team project such as a research paper or a case analysis.*

Construct 4: The benefits gained from assigning a team project.

- *S11: The project will allow me to participate in a real-world business application.*
- *S12: The project will allow me to apply problem-solving techniques.*
- *S13: The project will allow me to apply management theory to business.*
- *S14: The project will allow me to practice my teamwork skills.*
- *S15: The project will allow me to learn practical workplace skills.*
- *S16: The project will help me build professional self-confidence.*

Construct 5: The type and amount of resources needed to complete a team project successfully.

- *S17: My team and I will integrate ideas or information from various sources while working on the project.*
- *S18: I expect to work with my team members on the project during class time.*
- *S19: I expect to work with my team members on the project outside of class time.*
- *S20: I expect to put together ideas from different courses to complete my team's project.*
- *S21: I expect to use e-mail to communicate with my team members to complete the project.*
- *S22: Once our team project is underway, I expect to spend an average of 6 hours per week outside of class on my team's project (approximately 2 hours for every hour spent in class).*

Each student was asked to complete the survey two times. The first time was at the beginning of the semester (hereafter referred to as the pre-project survey) before the team began its project, and the second time was near the end of the semester after the team had completed its project (henceforth known as the post-project survey). Prior to taking the pre-project survey, the professor teaching the course described the team project and showed a short video about Campus Kitchen. There were approximately 11 weeks between the times the students took the survey. The only difference in the statements used for the two surveys was a change in the tense used to write the statements: the statements for the post-project survey were changed to past tense.

One of the authors, who was not teaching the course, administered the survey electronically through Zoomerang®. Students were asked to identify themselves only by their university identification number in order to match their pre-project survey responses with their post-project

survey responses. Only students who completed both the pre-and post-project surveys are included in the data used for this study. The following section will describe the analysis of the data collected from the 151 Principles of Management students.

RESULTS

This study focused on two objectives when analyzing the collected data. The first objective was to determine whether or not completing the team project changed any of the students' overall perceptions about the project, and the second objective was to see if any changes might be attributed to differences in a student's gender, major, or previous experience with team projects. Each of these objectives required a different type of analysis.

In the first analysis, for each of the 22 statements the mean of the pre-project score was compared to the mean of the post-project score using paired t-tests. This was done to determine whether or not there was a significant change ($\alpha = 0.05$) in the average student's level of agreement with each statement after completing the project. The second analysis required 22 separate three-factor ANOVAs with the *difference* between the post-survey mean and the pre-survey mean serving as the dependent variable and the student's gender, major, and number of previous required team projects as the independent (categorical) variables. The series of ANOVAs allowed comparisons of main and interaction effects for each of the statements at the 0.05 level of significance. Significant main or interaction effects were then pursued with post-hoc tests. Due to the complexity of these two types of analysis, the results for each analysis will be described separately.

First Analysis: Paired T-Tests

This first analysis sought to determine whether or not the average student's level of agreement with a statement changed in the time between the beginning and end of the team project. The assumption was that any change in the level of agreement would be attributed to the student's experience with the team project. For each statement Table 1 provides the pre-project mean (and standard deviation), post-project mean (and standard deviation), difference between those two means, and the results of the paired t-tests.

Table 1: Tests for pre-project and post-project differences in means					
	Statement	Pre-project Mean (SD)	Post-project Mean (SD)	Paired Differences Mean (SD)	t
S1	After I graduate and begin my career, I will have to work in teams.	6.14 (.924)	6.26 (.852)	0.119 (.938)	1.562
S2	It is to my advantage to learn and practice teamwork skills before I graduate.	6.45 (.710)	6.43 (.798)	-0.020 (.839)	-0.292
S3	Team projects, as course requirements, are a good way to learn and practice teamwork skills.	5.95 (1.162)	6.11 (1.043)	0.159 (1.286)	1.518
S4	Team projects are difficult to schedule and coordinate, but they are worth the effort.	5.23 (1.212)	5.51 (1.210)	0.285 (1.313)	2.664**
S5	Core courses, which include students from different majors, are the best courses to require team projects.	4.74 (1.369)	5.13 (1.333)	0.384 (1.657)	2.849**
S6	Team projects should only be required in courses for specific majors, not core courses.	3.58 (1.538)	3.42 (1.490)	-.152 (1.839)	-1.018
S7	Team projects should not be a requirement for any course.	2.63 (1.548)	2.52 (1.399)	-0.106 (.143)	-0.738
S8	It is fairer to all the teams if the team projects are for the same organization.	5.26 (1.193)	5.24 (1.305)	-0.026 (1.665)	-0.195
S9	I would prefer that teams be able to choose the organization that their projects support, even if all the projects did not serve the same organization.	4.15 (1.308)	4.03 (1.437)	-0.119 (1.724)	-0.850
S10	Rather than a team service project, I would prefer to do a more "traditional" team project such as a research paper or case analysis.	2.54 (1.469)	2.27 (1.361)	-0.265 (1.504)	-2.164*
S11	The project will allow me to participate in a real-world business application.	5.68 (1.139)	5.68 (1.196)	0.000 (1.337)	0.000
S12	The project will allow me to apply problem-solving techniques.	5.75 (1.028)	5.93 (.978)	0.185 (1.235)	1.845
S13	The project will allow me to apply management theory to business.	5.53 (1.094)	5.74 (1.209)	0.205 (1.411)	1.788
S14	The project will allow me to practice my teamwork skills.	6.13 (.884)	6.26 (.875)	0.126 (1.002)	1.543
S15	The project will allow me to learn practical workplace skills.	5.62 (1.069)	5.87 (1.115)	0.252 (1.127)	2.745**
S16	The project will help me build professional self-confidence.	5.57 (1.163)	5.69 (1.115)	0.119 (1.336)	1.096

Table 1: Tests for pre-project and post-project differences in means

	Statement	Pre-project Mean (SD)	Post-project Mean (SD)	Paired Differences Mean (SD)	t
S17	My team and I will integrate ideas or information from various sources while working on the project.	5.79 (.933)	5.81 (.964)	0.013 (1.216)	0.134
S18	I expect to work with my team members on the project during class time.	6.33 (.728)	6.39 (.879)	0.06 (1.066)	0.687
S19	I expect to work with my team members on the project outside of class time.	5.65 (1.115)	6.05 (1.176)	0.404 (1.493)	3.325**
S20	I expect to put together ideas from different courses to complete my team's project.	5.52 (.979)	5.38 (1.264)	-0.146 (1.407)	-1.273
S21	I expect to use e-mail to communicate with my team members to complete our project.	6.27 (.774)	6.51 (.807)	0.238 (.985)	2.975**
S22	Once our team project is underway, I expect to spend an average of 6 hours per week outside of class on my team's project (approximately 2 hours for every hour spent in class).	4.6 (1.245)	4.25 (1.601)	-0.344 (1.778)	-2.380*

*p < 0.05, two-tailed; **p < 0.01, two-tailed, n = 151
1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6 = Agree, and 7 = Strongly Agree

Between the start and finish of the team project, there is a statistically significant ($\alpha = 0.05$) change in the students' level of agreement for seven of the 22 statements. Five of those statements showed an increase in the average student's level of agreement, and the remaining two statements with significant changes recorded a decrease in the level of agreement. Increased levels of agreement (pre- and post-project means are included) were reported for the following post-project statements.

S4: Team projects are difficult to schedule and coordinate, but they are worth the effort (5.23 to 5.51).

S5: Core courses, which include students from different majors, are the best courses to require team projects (4.74 to 5.13).

S15: The project allowed me to learn practical workplace skills (5.62 to 5.87).

S19: I expected to work with my team members on the project outside of class time (5.65 to 6.05).

S21: I expected to use e-mail to communicate with my team members to complete our project (6.27 to 6.51).

A decreased level of agreement was reported for the statement regarding the type of team project required (S10, from 2.54 to 2.27). It was learned that the students were less likely to agree that the project should be a traditional team project (such as a research paper or case analysis) as opposed to the service-learning project required for this course. The second statement that recorded a decrease in the level of agreement was the one that stated the student expected to spend an average of six hours a week outside of class working on the team project (S22, 4.60 to 4.25).

Upon learning of these significant changes in agreement with the statements, the authors were interested to know whether or not these changes could be traced to differences in the student's gender, major, or prior experience with team projects. In the interest of completeness and accuracy, it was decided to examine the difference between the pre- and post-project means for all 22 statements using those categorical variables. This strategy provided some interesting results. Only some of the differences in the means from the first analysis were traced to differences in gender, major, and number of previous required team projects, while previously insignificant differences for other statements were subsequently found to be significant when analyzed using the ANOVAs. The results of those significant ANOVAs are presented one-by-one in the next section.

Second Analysis: Three-factor ANOVAs

When the second analysis was performed, a three-factor ANOVA model was created for each of the 22 statements. The dependent variable for an individual ANOVA was the difference between the pre- and post-survey mean, and the independent variables (factors) were the categories of gender, major, and number of team projects previously assigned as course requirements. For this study, only the ANOVA models with significant results are deemed relevant and will be reported.

Statement S4 "Projects are difficult to schedule and coordinate, but are worth the effort" demonstrated a difference in the students' level of agreement based on the number of required team projects previously assigned to the student. Table 2 exhibits the details of the ANOVA model and main effects comparisons for this statement.

At the 0.05 level of significance only the simple effects for the number of team projects is significant (see Table 2, $F(6, 86) = 2.298$ and $p = 0.042$). The post-hoc comparisons reveal that students, who had previous experience with 0, 1, 4, 5, and 6 or more team projects before this study, showed an increase in their perception that team projects were worth the effort (increases of 1.5000, 0.3889, 0.3529, 1.3846, and 0.1569, respectively). Students, who had previously worked on 2 or 3 team projects, reported a decrease in that perception (-0.1364 and -0.833, respectively). Specifically those post hoc tests attributed that significant difference to students who previously had been assigned 2 vs. 5 team projects and 3 vs. 5 team projects.

Table 2: ANOVA for Difference in Projects Being Difficult to Schedule and Coordinate, But Worth the Effort (S4)			
Source	df	F	p
Gender	1	1.954	0.166
Major	5	1.299	0.272
Team Projects	6	2.298*	0.042
Gender x Major	5	0.263	0.932
Gender x Team Projects	6	1.194	0.317
Major x Team Projects	27	0.535	0.966
Gender x Major x Team Projects	14	0.489	0.933
*p < 0.05, n = 151			

The next statement to result in significant differences based on a categorical variable was S5 "Core courses, which include students from different majors, are the best courses to require team projects." For this statement, changes in the level of agreement were based solely on gender (Table 3, F (1, 86) = 8.978 and p = 0.004). Post-hoc comparisons indicated that it was the female students who experienced the significant increase (0.5873 for females vs. 0.2386 for males) in their perception that core courses are the best courses in which to require team projects.

Table 3: ANOVA for Difference in Core Courses Are The Best Courses To Require Team Projects (S5)			
Source	df	F	p
Gender	1	8.978*	0.004
Major	5	1.221	0.306
Team Projects	6	1.156	0.337
Gender x Major	5	1.524	0.191
Gender x Team Projects	6	0.701	0.650
Major x Team Projects	27	0.766	0.781
Gender x Major x Team Projects	14	1.355	0.193
*p < 0.05, n = 151			

Interestingly, the next statement to reveal significant differences in its pre- and post-project responses was S6 "Team projects should only be required in courses for specific majors, not core courses," the converse of S5. Table 4 reports a significant interaction between gender and major (F (5, 86) = 3.291 and p = 0.009), indicating that male and female students differed in their responses based on their different majors.

However, the post-hoc comparisons were not able to trace the source of the significant difference to any particular gender/major combinations. However, increases in agreement that courses for specific majors were the best venue for team projects were held by male finance (0.4286), international business (0.6000), and marketing (0.6250) majors as well as female management (0.2857) and non-business (1.2000) majors. Whereas male accounting (-0.2308), international business (-0.1667), and non-business (-0.4800) majors along with female finance (-1.4444), international business (-0.1667), and marketing (-0.1765) majors reported a decrease in their perception that courses for specific majors were the most appropriate courses to require team projects.

Table 4: ANOVA for Difference in Team Projects Should Only Be Required in Courses for Specific Majors (S6)

Source	df	F	p
Gender	1	1.62	0.206
Major	5	0.585	0.711
Team Projects	6	0.726	0.630
Gender x Major	5	3.291*	0.009
Gender x Team Projects	6	1.534	0.177
Major x Team Projects	27	1.158	0.299
Gender x Major x Team Projects	14	1.552	0.110
*$p < 0.05$, n = 151			

The last ANOVA model to reveal significant differences based on a category of student was the one associated with S19 "I expect to work with my team members on the project outside of class time." This time the significant difference was associated with a student's major (Table 5, $F(5, 86) = 2.442$ and $p = 0.040$).

Accounting (0.5600), international business (0.0909), management (0.0270), and marketing (0.0800) majors increased their level of agreement with the statement that they were willing to work on their team project outside of class. However, finance (-0.1739) and non-business (-0.1667) majors lowered their level of agreement with the expectation to work outside of class on the project. Post-hoc comparison tests attributed the source of this significant change in agreement to accounting vs. finance, accounting vs. non-business, and marketing vs. non-business majors.

Table 5: ANOVA for Difference in Expect To Work on Team Project During Class Time (S19)			
Source	df	F	p
Gender	1	1.155	0.285
Major	5	2.442*	0.040
Team Projects	6	0.507	0.802
Gender x Major	5	0.390	0.855
Gender x Team Projects	6	0.737	0.621
Major x Team Projects	27	1.077	0.385
Gender x Major x Team Projects	14	1.143	0.334
*p < 0.05, n = 151			

DISCUSSION

To establish a foundation for discussing the impact of the significant results discovered through the paired t-tests and ANOVAs, some general comments about the overall results of those analyses are necessary. The pre- and post-project means for the statements (reported in Table 1) are encouraging because the means for the positive statements fittingly imply agreement (5.00 or greater) and correspondingly the means for the negative statements suggest disagreement (less than 4.00). Moreover, the difference between the pre- and post-project means demonstrated that the project achieved its intent when that difference was positive for positive statements and negative for negative statements. The only exceptions to this finding were with statements S2 "It is to my advantage to practice teamwork skills before I graduate." and S20 "I expect to put together ideas from different courses to complete my team's project." whose post-project means dropped from 6.45 to 6.43, and 5.52 to 5.38, respectively. However, neither decrease in the means was statistically significant and both pairs of means still point toward agreement with the statements. The remainder of this discussion will be organized according to the constructs described in the methodology section of this study.

To begin, statements S1, S2, S3, and S4 are about the value of team projects. With the exception of the previously mentioned results for S2, analysis of these statements points to increased acceptance of the value of team projects. Post project results purported that students believed they would work in teams after they graduated (S1), could benefit from practicing teamwork in their courses (S3), and that team projects were worth the effort (S4). Recalling the main effects reported in Table 2, the number of team projects that students had been assigned previously was associated with the students' perception of their worth. It is odd that the level of agreement for the worth increases for students with no or only one previous experience with a team project, then decreases for students who have been assigned two or three team projects, but then increases again for four,

five, and six or more required team projects. In general students who had the most experience with team projects (81 out of 151 students had participated in four or more team projects) increased their perception of their worth

The second group of statements, S5, S6, and S7, considered what courses were the best courses in which to require a team project. The analysis revealed that post-project students agreed that team projects should be a course requirement and that core courses, not courses for specific majors, should be the ones in which team projects were required. The overall support for the core courses, reported in Table 1, was highly significant. But there were differences in that support based on gender (Table 3) and gender/major combinations (Table 4). Although both male (n = 88) and female (n = 63) students favored the core courses, the post-project increase in the level of agreement (Table 3) for the female students (0.5873) was significantly greater than that of the male students (0.2386). However, the significant interaction found in the analysis for specific courses (S6) is confounding because post-hoc tests did not trace the source of the significance. Within each major, male and female students oppose each other in their level of agreement with the statement, but not always in the same direction. For example, after the team project male finance majors indicated an increase in their support for team projects being associated with courses for specific majors, whereas female finance majors decreased their support for team projects in those courses. A similar relationship occurred for international business and marketing majors. But the relationships were the opposite for accounting, management, and non-business majors. At this time these relationships appear to be random and unexplained.

Statements S8, S9, and S10 queried students about the type of team project they were required to do. Students overwhelmingly supported the choice of a *service-learning* team project. The level of agreement concerning a preference for a traditional team project (Table 1, S10) dropped from 2.54 (pre-project) to 2.27 (post-project). The responses for S8 and S9 were somewhat contradictory because the level of agreement for both statements decreased, although not significantly. After completing their project, students agreed less with the statement that it was fairer that their team projects serve one organization (S8), but they also agreed less with the statement that they would like to choose the organization even if it meant their projects would not support the same organization (S9). This may mean that the students do not mind working for the same organization, but would prefer to choose the organization. In any event, no significant differences in the responses were attributed to gender, major, or prior number of team projects assigned.

The next six statements, S11, S12, S13, S14, S15, and S16, questioned students' expectations for the benefits gained by working on the team project. These benefits included participating in a real-world business application (S11), gaining skills—problem-solving (S12), applying management theory (S13), teamwork (S14), and workplace (S15)—as well as building professional self-confidence (S16). The expectations for the benefits associated with the team project were high and sustained; every post-project mean was higher than its corresponding pre-project mean (refer to

Table 1 for pre- and post-project means). Not surprisingly, the expectation to practice teamwork skills was especially high before the team project began (6.13); but even so the project did not disappoint as evidenced by an even higher post-project mean (6.26). Of all these statements the only statement from this group that revealed a significant increase in its level of agreement was S15, learning practical workplace skills (pre-project = 5.62 and post-project =5.87). This finding supports the belief that the project provided the students with a real-world business application (S11). Once again no significant differences in the responses were attributed to gender, major, or prior number of team projects assigned.

The final group of statements to review is those that pertain to the resources devoted to the team project (S17, S18, S19, S20, S21, and S22). Students reported increases in their expectation to use ideas and information from various sources (S17) and their expectation to use e-mail to communicate with their team members (S21). The increase in the expectation to use e-mail was highly significant (refer to Table 1) and may be explained by the professor's use of the Desire2Learn (D2L) course management system. This system is supplied by the authors' state public higher education system and includes an e-mail function. Professors can create a distribution list for each team, allowing team members to send a message to one or more members easily and accurately. Despite those increases, there was a (non-significant) decrease in the students' expectation to put together ideas from other courses to complete the project (S 20). In a way this finding contradicts their increased expectation to use ideas and information from various sources (S17). A possible explanation for this result may be that students, having just completed the project, were giving more weight to the knowledge gained through the current Principles of Management course, than to any other courses. The means for S13, applying management theory to business, 5.53 to 5.74 would support this rationalization. The analysis also revealed some interesting results regarding the time students expected to devote to the team project. After completing the project (refer to the difference in the means found in Table 1), the students increased their expectation to spend class time working on the project (S18) and also significantly increased their expectation to work on the project outside of class (S19), but significantly decreased their expectation to work an average of six hours a week on the project (S22). A review of Table 5 indicates that the commitment to work outside of class differed by major. The main effects reported that it was only the accounting, international business, management, and marketing majors who increased in their expectation to work on the project outside of class, whereas finance and non-business majors decreased their expectation to work outside of class. These changes were significant for the accounting vs. finance, accounting vs. nonbusiness, and marketing vs. non-business majors. A surprising finding from this group of statements was the decrease in the expectation to work an average of six hours a week outside of class on the project. Further investigation will need to be made to determine if the students think that amount of time is too little or too much to spend on the project.

CONCLUSIONS

This study's conclusions should be prefaced by its limitations. First, it may be difficult to generalize our results to other instructors' courses and team projects. Because the topic of teamwork is embedded in the content of the Principles of Management course, students may be more willing to accept a team project in this course. Furthermore, the team project discussed in this study was a service-learning project. No other course in the authors' College of Business assigns a service-learning project, so the uniqueness of the project may have created some enthusiasm that was reflected in this study's results. Second, the study's sample was created by aggregating student data from two sections of a Principles of Management course in each of three consecutive semesters. Data were aggregated because the study was designed to test for the main effects of gender, major, and prior experience with team projects, and meaningful numbers of male and female students representing each of the majors were needed. The authors believe they somewhat controlled for this limitation because all six sections were taught by the same professor and had the same syllabus, textbook, and course requirements.

Based on the analyses of the data, the authors believe the overall perception of the team project assigned was positive. There were no main effects for gender, major, or prior experience with team projects for 18 of the 22 statements. This is a gratifying result because the authors do not want only certain groups of students to benefit from the team project. Students acknowledged the value of the team project and agreed that a core course, where diverse majors were enrolled, was an appropriate course for this requirement. The benefits hoped for from the project were gained: the students reported that they believed they had an authentic business experience, had learned valuable skills, and acquired professional self-confidence.

However, there were some significant effects involving the categorical variables that must be addressed through future research. Some of the statements, specifically S8, S9, S20, and S22, may need to be rewritten to improve clarity and reduce confusion. Students agreed that the team project should be a service-learning project, but it was unclear whether they wanted to choose the organization to serve or have the project serve an organization other than Campus Kitchen (S8 and S9). New statements should be written to separate those questions. With regard to using ideas from different courses to complete the project (S20), the authors want students to identify which specific courses they are drawing upon for resources to complete the project. It is possible that the Principles of Management course, because students have it in common and are currently enrolled in it, is the resource the students are using to complete the course. This would make sense because by definition service-learning should apply course content to service.

With regard to the resources construct, Statement S22 queried the students about the amount of time they were spending outside of class to complete the project. The expectation to spend six hours outside of class decreased post-project and needs to be understood. The six-hour benchmark may best be suited for measuring the time spent on the team project plus other course requirements.

The only assurance the authors may have at this point is that the team project does not seem to be too taxing for the students. If true, this is another positive finding from this study because team projects are often criticized for requiring too much time.

Even while modifying the survey, the authors must continue to confirm the results associated with this study. It remains desirable that post-project means increase over pre-project means for positive statements and decrease for negative statements. Differences that can be traced to gender, major or previous experience should not be found to be significant. This service-learning team project in the Principles of Management course must continue to prepare its students for successful post-graduate careers.

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REVITALIZING EDUCATION THROUGH A STUDENT INCENTIVE STRUCTURE

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ABSTRACT

Much has been written about the plight of secondary and higher education in the U.S., and a plethora of reform proposals have been offered. Unlike many of the suggested reforms that focus on top-down administrative solutions to the education spiral, the model presented here offers a bottoms-up approach based on student incentives. Further, salient features of the revitalization model developed here are simplicity, maintenance of institutional sovereignty, and the absence of mandated changes in educational policies and procedures.

A vital component of the model is the development of an index reflecting overall high school academic achievement. The index provides the basis for college and university financial aid reward structures. A financial aid structure offering greater monetary rewards to students achieving greater academic success provides the incentive for students at all levels to elevate their academic performance. Further, a fully publicized financial aid structure allows for efficiency gains and cost savings to accrue to both institutions of higher education and families of prospective students.

INTRODUCTION

There exists a myriad of programs and innovative models offering potential solutions to the plight of secondary and higher education in the U.S. The literature is voluminous, and only basic themes are identified and briefly summarized here. The professed education reforms typically include one or a combination of the following features: institutional and administrative reforms, teacher assessment and performance incentives, and/or student evaluation and achievement rewards.

Many of these suggested reforms are based on a top-down administrative approach. The model presented here offers an alternative path--a bottoms-up approach based on student incentives. Further, the paradigm offered here embodies only minor, innocuous adjustments to educational institution procedures while providing student performance incentives. Salient features of the revitalization model are its simplicity and lack of infringement on institutional sovereignty, as well as the absence of mandated changes in educational methods and school operating policies.

LITERATURE REVIEW

Efforts to improve elementary and secondary education in the U.S. were well underway prior to the landmark No Child Left Behind Act of 2001 (NCLB). The earlier reform initiatives focused on elevating student achievement through instructional advances and refined assessment techniques, and some form of standard testing began as early as 1994. However, the NCLB has served as the major catalyst in evoking recent educational reforms at both the elementary and secondary school levels.

In brief, this milestone act is multifaceted: (1) requiring accountability through some form of publicly disclosed standardized testing, (2) providing incentives, rewards, penalties, or sanctions based on school performance, (3) offering school choice to students in underperforming or failing institutions. The rationale governing this legislation was simply that strict accountability would provide a sufficient incentive to stimulate educational improvements. Further, public disclosure of school performance facilitating informed school choice would afford an added incentive.

There has been considerable variability in state and local responses to the NCLB mandates (Ladd, 1996), but some form of standard testing is in effect nationwide. Although testing standards vary widely, a few districts have adopted more uniform curriculum-based external exit exams (Costrell, 1994; Bishop, 1997; Somanathan, 1998; Adnett, Bougheas, & Davies, 2002). These exams are designed by more encompassing external entities with the objective of making educational standards more homogeneous across schools, potentially reducing wide disparities in school quality.

Many school systems have attempted to meet the NCLB requirements by boosting educational expenditures. Regrettably, simply throwing money at the problem has not worked well in most cases. Overall, merely increasing per pupil expenditure has not significantly raised student performance (Hanushek, 1986, 1997; Burtless, 1996; Millimet & Rangaprasad, 2007).

Other school systems have responded to the competitive dimension of the school choice opportunities permissible under NCLB by improving student performance through heightened teacher effort, innovative instructional techniques, and raising academic standards (Levin, 1991; Hoxby, 1996; Lamdin & Mintrom, 1997; Correnti & Rowan, 2007). School competition fostered by school choice has enhanced student achievement in some instances (Zanzig, 1997; Hoxby, 2000; Marlow, 2000), and competition has resulted in positive spillover effects in neighboring schools (Blair & Stanley, 1995; Dee, 1998). Millimet and Collier (2008) show that competition does improve school efficiency in neighboring districts in the absence of restrictive financial constraints even when school choice requires relocation [efficiency is measured in some form of student outcomes (test scores) scaled by pupil expenditures]. However, school choice in the absence of vouchers in a market where governments retain control over curriculum, funding, licensing and system size has not always raised educational standards system-wide (Adnett, et al., 2002). Consequently, school choice may not consistently generate sufficient incentives for schools to raise student performance in all cases.

However, the growing body of evidence showing that constructive school competition can enhance student achievement in certain environments has energized proponents of charter schools and voucher systems. Advocates contend that the absence of a relocation requirement would foster even greater benefits of competition (Millimet & Collier, 2008). There is some evidence, though, that voucher systems and their reliance on private schools may not boost academic achievement in any significant or sustained manner (Lubienski & Weitzel, 2008), and the impact of voucher systems on student achievement is murky at best (Ladd, 1996).

Of course, much of the response to NCLB has been focused on enhancing teacher instruction. The deterioration of teacher quality has been long recognized (Corcoran, Evans, & Schwab, 2004), with an inadequate, unrewarding, and uncompetitive compensation scheme deemed to be a major culprit driving talented teachers to other occupations (Hoxby & Leigh, 2004). In response, initiatives to link teacher earnings to performance through a merit pay or similar arrangement have been introduced (Hanushek & Rivkin, 2004; Dee & Keys, 2004). Unfortunately, the impact of performance pay on education quality, teacher aptitude, and student achievement has exhibited mixed and inconclusive results (Figlio, 2002; Corcoran et al., 2004; Belfield & Heywood, 2008). Consequently, alternative approaches to raising teacher quality involve extensive teacher testing, and more strict licensing and certification requirements. Sadly, these more stringent qualification standards also have not enhanced teacher aptitude in general (Angrist & Guryan, 2004, 2008), although some positive influence on teacher quality may arise from school competition (Hanushek & Rivkin, 2003).

The apparent inability to significantly raise teacher quality through performance incentives and heightened qualifications was compounded by earlier inconsistent evidence linking teacher quality to student achievement (Hanushek, 1986). However, more recent analyses reveal that advanced degrees, extensive coursework, more stringent certification requirements, and teacher experience can raise student test scores (Wayne & Youngs, 2003; Rockoff, 2004; Rivkin, Hanushek, & Kain, 2005). Further, teacher financial incentives can have a positive impact on student performance (Lavy, 2002), and broader incentive programs encompassing school rankings, rewards, and sanctions may have a positive effect on student achievement while lowering dropout rates (Ladd, 1999). Finally, the typically more demanding curriculum-based external exit exams with standards set at a broader state level generate higher student achievement, and often shape school reputation inducing schools to elevate their performance (Costrell, 1994; Bishop, 1997).

In summary, the results of many of the educational reform initiatives are mixed or inconclusive at best. Some implemented reforms generated moderate improvements, while others were totally unproductive. Note that nearly all of the reform proposals adopted a top-down approach with government, administrators, and teachers attempting to elevate student achievement through heightened testing requirements and competitive forces. The model developed here may offer more promise, as it relies on a more bottoms-up approach based on a student incentive structure which fuels students' desires to exceed.

OBJECTIVE

The purpose of the model is to provide a paradigm for colleges and universities to develop a student financial aid structure based on an index measuring high school academic performance. A reward structure tied to an academic achievement index provides strong incentives for both high school and college students to strive for academic excellence. Once a performance-based financial aid structure is established by an institution, explicitly detailing the financial rewards linked to student achievement, the aid structure is publicly disseminated. The acknowledged reward structure allows college and university admission and financial aid functions to be reduced and simplified, offering efficiency savings. Further, the often burdensome college search, application, acceptance, and financial aid processes undertaken by families of college bound students are streamlined. Prospective students can readily assess their acceptance prospects and financial obligations. In short, the publicized financial reward structure allows for efficiency gains and cost savings to accrue to both the educational institution and prospective students.

Constraining the entire academic performance indexing and the reward restructuring process is the strict requirement of *not* dictating any change in existing performance standards, student assessment, educational operations, admission and financial aid policies and procedures, and tuition and fees to any institution. In short, the model does not dictate any mandates for change to any educational entity. The financial reward model presented here merely provides a paradigm governing the financial aid restructuring of institutions of higher education, and can be readily modified to accommodate unique institutional characteristics, preferences, and objectives.

THE MODEL

There are many variables that typically measure high school academic performance. The performance variables included in this model are neither all encompassing nor exclusionary. The variables employed in the construction of an index reflecting a student's high school academic achievement are generally considered to be relevant. However, educational leaders may require or suggest an alternate set of pertinent variables. The function of the index in this model is not dependent on the set of academic performance variables that comprise the index.

The objective is to construct a composite index measuring high school academic achievement employing a relevant set of variables. The resultant index is entitled the college reward index (CRI). This index will serve as the basis for a college or university's financial aid structure, and to some extent, will signal admission standards. Again, the index is amenable to adjustments without compromising its function and purpose. The CRI consists of the following variables:

SAT/ACT = standardized test score
GPA = high school grade point average
PER = class rank percentile
AP = number of advanced placement courses
QLT = curriculum quality measure
NC = a non-curricular variable reflecting participation in athletics, student leadership, community service, and similar activities.

These variables are then weighted to generate the college reward index:

$$CRI = w_1(SAT) + w_2(GPA) + w_3(PER) + w_4(AP) + w_5(QLT) + w_6(NC)$$

with the weights (w_i) determined by some educational governing organization or authority.

The development and acceptance of a universally recognized composite index measuring high school academic performance will require extensive and varied input. Iterations incorporating modifications to an initially accepted index will most assuredly evolve. However, once constructed, recognized, and accepted by all participating secondary schools and institutions of higher education, the CRI is established.

In short, the academic performance variables and the weights assigned to these academic measures are to be determined by some educational governing entity. Neither the chosen variables nor the assigned weights are critical to the development of the structure of a financial reward model, which is the objective here. All that is required is some CRI construct acceptable to participating schools, colleges and universities. With an established CRI, institutions of higher education must determine how to incorporate this academic achievement index into their admission and financial aid decisions.

To simplify the model development, consider a traditional four-year institution that houses all of its students in dormitory buildings. The model can be easily adjusted for the majority of institutions that have both a resident and commuter student body[1]. The institution sets its tuition, fees, and room and board prices:

T = institution full-price
= tuition + fees + room/board

Further, there is a targeted (budgeted) level of total student enrollment:

N = total number of expected students
= enrollment target

Targeted or budgeted full-price enrollment generated revenues are therefore:

$$R = N(T).$$

It is recognized that enrollment generated revenue is often enhanced by exogenous sources such as endowment earnings, contributions, gifts, grants, and restricted funds. However, including these revenue enhancements in the model does not alter the model structure in any manner[2]. Consequently, without loss of generality, the model will be based on student generated revenues (R) excluding these exogenous non-student dependent sources.

Institutions are fully aware that many (if not most) students do not pay full "sticker" price, as financial aid serves to effectively reduce the out-of-pocket cost of attending college. An institution establishes (approximately) a financial aid budget. The financial aid budget may consist of both institutional and outside sources (federal/local government grants, lending companies). However, at most institutions, outside financial sources contribute only a minor share of the total financial aid budget and are reasonably fixed. Consequently, financial aid tends to reflect an institutional policy decision and is therefore known with reasonable accuracy.

Financial aid can be viewed as an institutional remittance or rebate on the full tuition price. Administrators therefore recognize that the full-price tuition revenues (R) will be met by a combination of financial aid (F) and actual student payments (S). Assuming that an institution operates with a balanced budget, this implies that:

$$R - F = S \qquad (1)$$

where S is student generated revenue from tuition, fees, and room/board actually collected from attending students. That is, the full-price budget target (R) less financial aid awarded to students (F) sets the required revenue (S) that must be generated by actual student payments.(Equivalently, R = S + F where actual student payments plus their financial aid rewards must meet the full-price budget revenue target). Relation (1) is more properly expressed as:

$$R(T,N) - F(T,N) = S(T,N)$$

with explanatory variables displayed as functional components. However, for notational simplicity and a less cumbersome exposition, the functional components of the elements of (1) will be suppressed throughout the model presentation (except when required as in endnote 5).

To summarize, institutions operate knowing that the financial aid packages offered to students effectively reduce their out-of-pocket payments to the institution. Consequently, actual student receipts must compensate for the budgeted revenue shortfall (discounted "sticker" price) attributed to student financial aid. Equivalently, student receipts are the revenues that must be

generated from actual student payments to meet the targeted full-price budget revenue once financial aid is removed from the revenue stream. The institution must then determine how to distribute the financial aid budget to attract and retain the budgeted enrollment to generate the required student payments.

FINANCIAL REWARD STRUCTURE

The model developed below serves only as an example of how a financial aid reward structure may be crafted. The purpose of the model is to offer a conceptual framework--a paradigm that can be easily modified to satisfy institutional preferences, objectives, and financial constraints. The objective is to develop a college/university financial reward structure that provides incentives for high school and college students to strive for academic excellence. Further, the model allows for efficiency gains and cost savings to both the academic institutions and families of college bound students.

To begin, a college or university can analyze the current student body and determine the CRI distribution of its present cohort--a "snapshot" of the existing student CRI distribution. The administration may view the current student body as typical, exceptional, or substandard in assessing the CRI array. The administration then determines a policy on a minimum acceptance CRI, and a set of financial aid reward tiers based on threshold levels of the CRI index.

Suppose the CRI ranges from zero (a high school dropout) to 100. The college admissions policy is not to accept any student with a CRI below 60 (suppose no current student has a CRI less than this). The college chooses to offer a four-tier financial reward structure of equal increments. Further, this reward structure offers an additional 10 percent "price" reduction at each higher level CRI tier. That is, each successively higher CRI tier provides a greater financial reward through a 10 percent greater "price" reduction to students in that tier.

Based on the CRI distribution of the current student body, let n_1 equal the number of students with a CRI index in the highest tier level; n_2 equal the number of students in tier level two, n_3 equal the number of students in tier level three, etc. With a CRI distribution of students (n_1, n_2, n_3, n_4) such that

N = $n_1 + n_2 + n_3 + n_4$, and

p = percentage of full-price tuition, fees, room/board charged to tier-1 students, the financial aid structure would appear as:

Table 1: Financial Reward Structure			
Tier Level	Number of Students	CRI Index	Financial Reward
Tier 1	n_1	90+	[1-p](T)
Tier 2	n_2	80+	[1-(p+.10)](T)
Tier 3	n_3	70+	[1-(p+.20)](T)
Tier 4	n_4	60+	[1-(p+.30)](T)

The institution must determine the percentage (p) of full-price tuition, fees, and room/board charged to the tier-1 students. Initially assume that no student is awarded a full-price grant (p=0, a full scholarship), and all students receive some form of financial aid[3]. Tier-1 students would be assessed (p)T, tier-2 students (p+.10)T, tier-3 students (p+.20)T, and tier-4 students (p+.30)T, given the 10 percent additional "price" reduction of successively higher tiers. Alternatively, the student financial aid based on a lower assessed price can be viewed in terms of a more conventional financial aid reward--tier-1: [1-p](T); tier-2: [1-(p+.10)](T); tier-3: [1-(p+.20)](T); and tier-4 [1-(p+.30)](T), as revealed in Table 1.

In determining the percentage (p) charged to the top-tier students, or equivalently, the greatest reward amount [1-p](T), the institution must be cognizant of the revenue constraint (1): R - F = S, where S revenues must be generated from actual student payments. That is,

$$S = pT(n_1) + (p+.10)T(n_2) + (p+.20)T(n_3) + (p+.30)T(n_4)$$
$$= pT[n_1 + n_2 + n_3 + n_4] + T[.10(n_2) + .20(n_3) + .30(n_4)]$$

whereby

$$S = pR + T[.10(n_2) + .20(n_3) + .30(n_4)]$$

such that

$$p = \{S - T[.10(n_2) + .20(n_3) + .30(n_4)]\}/R \qquad (2)$$

(see endnote 4 for an alternate and identical solution for 'p' based on the financial budget constraint rather than the student payment requirement).

To briefly summarize the model, an institution of higher education functions with a full-price tuition, fees, and room/board package. The targeted enrollment level determines the budgeted full-price revenue target. Operating with a financial reward pool, the institution must generate a requisite level of payments from attending students to meet the revenue target. Developing an academic tier structure and progressive reward policy, the institution serves a student body with a CRI distribution.

The percentage of full-price tuition assessed on the highest CRI index students as determined by relation (2) (and the stepwise greater assessments on the other students) generates the necessary student receipts, and achieves the revenue target. Further, the financial reward budget is distributed in a manner that provides greater rewards to students who have exhibited better academic performance as measured by the CRI index.

RESULTS

Relationship (2) provides for the required percentage (p) that must be assessed on the top-tier CRI students, and the subsequent stepwise greater assessments on the other students, to generate the revenues required to meet the budget target. As expected, this percentage (p) varies directly with the required student payments, or equivalently, inversely with respect to the financial aid budget. (Given a revenue target, a greater financial aid budget necessitates smaller requisite student payments and vice-versa). Recall that enrollment generated revenues may be enhanced by exogenous sources (note 2). Consequently, 'p' varies inversely with respect to (1) outside revenue sources that augment enrollment generated revenues, and (2) the number of students in the lower CRI tiers. The impact of an increase in the full-price tuition, fees, and room/board charges on 'p' is, in general, ambiguous[5]. However, it can be shown (see endnote 5) that it is likely that tuition hikes raise the required percentage (p) assessed on top-tier students. In short, an injection of outside revenues and an increase in non-tier-1 students both reduce the assessment on top level students, providing greater financial rewards to this cohort. However, it is likely that even top-tier students will have to pay more when tuition is raised. With a stepwise reward structure, a reduction in the percentage 'p' assessed to top-level students provides 'tickle-down' benefits to all other students through greater full-price discounts.

Having established an initial CRI tier structure and financial aid policy based on this structure, colleges and universities have considerable latitude in modifying and refining the original framework. It is common for an institution to strive to upgrade its student body (raise the overall student CRI distribution). Alternatively, a college may desire a more diverse student body and be willing to accept students with a wide range of CRI indices. Over time, a college may choose to adjust the minimum CRI admission threshold, boost the overall financial aid budget, adjust the tier reward differentials, or implement policies to attract a student body having a different set of traits and characteristics. Also, the college may provide a mechanism for current students to advance in the tier reward structure, offering students an incentive to elevate their college academic performance. Note that the out-of-pocket cost of college attendance is greater for lower tier students, resulting in a larger monetary loss for a lower tier student who fails to advance or matriculate in a timely manner. The greater cost of failure should provide an added incentive for lower tier students to succeed. The institution may also choose to have varying financial rewards within a tier based on discretionary factors other than the CRI. Care should be taken here, since discretionary rewards may

foster unwanted resentment, envy, and discord among same-tier students. In short, the CRI based financial reward structure may be somewhat flexible. The basic structure can easily accommodate fine-tuning to meet changing institutional objectives or competitive conditions.

Once the admission threshold, CRI tier structure, and financial aid reward policy of a college or university are determined, this information can be disseminated publicly. Public disclosure will allow for efficiency gains and cost savings to accrue to both educational institutions and to the families of college bound students. Certainly the admissions and financial aid processes of colleges will be streamlined as performance standards and financial aid policies are publicly displayed. Generally, only qualified students meeting the institution's standards are expected to apply, making the application review and acceptance process much more focused. Further, the established and disclosed financial aid policy will lighten the burden of financial aid administrators, and minimize the need for families to negotiate financial aid packages. Prospective college students can easily canvass an array of potential colleges and assess their acceptance prospects and out-of-pocket cost of attendance.

Consider a simple example of a college or university with an enrollment of 200 students (N=200), equally divided among all four tiers (n_1, n_2, n_3, n_4, all equal 50). Suppose full-price tuition is $1000 (T) such that targeted revenues are $200,000 (R). The institution has a financial aid budget of $50,000 (F) such that requisite student payments are $150,000 (S). Inserting these values into relation (2), the percentage 'p' assessed on top-tier students is 60 percent. Given the financial aid reward structure displayed in Table 1, the student reward structure of this example is revealed in Table 2:

Table 2: An Example of a Financial Reward Structure

Tier Level	Number of Students	CRI Index	Financial Reward
Tier 1	50	90+	$400
Tier 2	50	80+	$300
Tier 3	50	70+	$200
Tier 4	50	60+	$100

Based on the stipulated 10 percent additional full-price reduction at successfully higher tiers, no full scholarships, and all students receiving some aid, with a percentage 'p' of 60 percent, student rewards descend from $400 for top-tier students down to $100 for the lowest tier students.

CONCLUSION

The objective of the reward restructuring model is to revitalize and reenergize education at both the secondary and higher education levels. A vital component of this process is the development of an index reflecting overall high school academic achievement. Based on an index of this nature, colleges and universities can construct a financial aid structure where financial rewards are linked to academic performance. A tiered higher education reward structure will provide the incentive for students at all levels to elevate their academic performance. Further, a fully publicized and widely recognized financial aid structure allows for efficiency gains and cost savings to accrue to both educational institutions and families of prospective students.

The purpose of the model developed here is to merely provide a conceptual framework of a financial aid structure that may serve as a paradigm for college and university policies. The model can be readily modified to accommodate the objectives, preferences, and characteristics of varied institutions while maintaining the underlying student incentive feature.

ENDNOTES

[1] For the majority of college and universities that serve both resident (N_r) and commuter students (N_c):

$$N = N_r + N_c$$

with C = tuition + fees for commuters

such that $R = N_r(T) + N_c(C)$

[2] Let the exogenous revenue sources of endowment earnings, contributions, gifts, grants, and restricted funds be captured by the variable X. Budgeted/targeted revenues would simply be:

$$R = N(T) + X$$

At many institutions, X contributes only a small portion of budgeted revenues. However, even with this enhanced revenue base, the requirement

$$R - F = S \text{ remains.}$$

That is, the budgeted revenue including outside sources less financial aid rewards determines the revenue that must be generated from actual student payments.

[3] For institutions that award full scholarships (grants) to the most outstanding students, p=0. The portion of the financial aid budget that is awarded to these meritous students effectively reduces that which remains for students making some payment--F in this model. Consequently, consider F of this model to be that portion of the financial aid budget accruing to non-full scholarship students. Of course, a reduced F requires greater student payments (S), and a subsequent larger percentage (p) assessed to all the remaining students not on full scholarship.

In the model presented here, it is assumed that all students receive some financial aid; that is, no student pays full-price tuition. This restriction and the 10 percent incremental increase reward stipulation constrains p<.70. Institutions may have an analogous restriction on 'p' based on the number of CRI tiers and a minimum reward (maximum payment) policy.

[4] Alternatively, the revenue constraint (1) R – F = S can be viewed in terms of the financial aid reward structure exhausting the financial aid budget F:

$$F = [1- p]T(n_1) + [1 - (p+.10)]T(n_2) + [1 - (p+.20)]T(n_3) + [1 - (p+.30)]T(n_4)$$

$$= (-p)T[n_1 + n_2 + n_3 + n_4] + T[n_1 + n_2 + n_3 + n_4] - T[.10(n_2) + .20(n_3) + .30(n_4)]$$

$$= (-p)R + R - T[.10(n_2) + .20(n_3) + .30(n_4)]$$

such that

$$p = \{R - F - T[.10(n_2) + .20(n_3) + .30(n_4)]\}/R$$

$$= \{S - T\{.10(n_2) + .20(n_3) + .30(n_4)]\}/R$$

as in relation (2).

[5] Given relation (2), or the above identical solution for p, with R replaced by T(N):

$$dp/dT = \{T(N)[dS/dT - [.10(n_2) + .30(n_3) + .30(n_4)]] - N[S - T[.10(n_2) + .20(n_3) + .30(n_4)]]\}/T^2N^2$$

$$= \{T(N)[dS/dT - [.10(n_2) + .20(n_3) + .30(n_4)]] - N[S - T[.10(n_2) + 20(n_3) + .30(n_4)]]\}/T^2N^2$$

$$= \{T(N)[dS/dT] - NS\}/T^2N^2$$

$$= \{T[dS/dT] - S\}/NT^2$$

Since dS/dT > 0, dp/dT could be either positive or negative. However, it is highly likely that this relation is positive as displayed in the following simple example:

For simplicity, assume all students are on a 50% scholarship, N = 200, T = $1000, and there is a 10% tuition hike (+$100).

S = T(N) = $200,000, dS/dT = (+$50)(200) = $10,000, such that

{T[dS/dT] – S} = ($1000)($10,000) - $200,000 is certainly greater than zero.

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HISPANIC STUDENTS' SUCCESS IN BUSINESS EDUCATION

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ABSTRACT

The Hispanic population in the United States is continuing to increase, with Hispanic youth currently being the fastest growing segment of the U.S. population. Though Hispanics are increasing in number in the educational system and in the work force, they are not keeping pace with their academic achievements, which couples with their stagnation in the workplace and inability to attain advanced roles in the work force. This disparity of Hispanics and their role in the work force could be better addressed if we knew what characteristics those students possess who attain higher education degrees, particularly degrees in business.

The problem to be addressed in the current study is the matter of retention among Hispanic students in higher education business programs. Retention refers to those students who are already in higher education programs, and elect to stay in those programs in the business major.

INTRODUCTION

The Hispanic population is the largest and fastest growing ethnic group in the United States. According to the Census Bureau's 2007 American Community Survey, Hispanics account for 45.4 million or 15.1% of the population (Business Wire, 2009). "Between 2010 and 2050 the U.S. Hispanic population is projected to nearly triple, resulting in one in three people in the U.S. being of Hispanic origin" (Business Wire, 2009).

This influx of young Hispanic population brings with it many new educational and work force challenges. Education is often seen as a catalyst for success in the work place; however, Hispanics' educational success has not kept pace with their increasing population, and they are especially struggling to complete higher education. "Young Hispanic undergraduates are half as likely as their white peers on campus to finish a bachelor's degree, a disparity at least as large as the disparity in finishing high school" (Fry, 2005, p. i). So prevalent is this problem that the Clinton and Bush Administrations both declared the group's improvement of college graduation rates a national priority (Santiago & Brown, 2004). The increasing number of Hispanics only exacerbates their educational problems/difficulties, not to mention the number increasingly impacts the workforce.

Though the increase of Hispanics in higher education is significant, with approximately 22% of college age Latinos enrolled in college, they still lag behind other racial groups in terms of college

enrollment. College age whites have approximately a 40% enrollment rate, while blacks have a 30% enrollment, and Asian/Pacific Islanders have a 56% enrollment (Santiago & Brown, 2004).

The increasing Hispanic population will constitute an ever-increasing segment of the work force. The increasingly competitive global market is increasing the need for an educated/skilled work force. (Please note: for the purpose of this study, "skilled" will refer to employees who have obtained higher education.) Companies will increasingly have larger percentages of their employees whose primary language is not English. But, looking even beyond the language differences, differences of cultures in the workforce will bring many new issues and opportunities. (Jinsoo, 2007)

Cultural and social differences are hypothesized as one reason for the high attrition rate of Hispanic students in secondary and post-secondary education. Hispanics often have strong family ties and work ethic. Their perception of family roles and obligations often propels them into the work force at ages younger than their white counterparts. Ultimately, this role in the work force often prevents them from pursuing education. Many others struggle with high school and have limited adult role models to encourage their educational efforts; this struggle is only worsened in higher education (Fry, 2004).

Studying Hispanic students is significant for several reasons. If Hispanic workers are going to meet future employers' needs, they are going to have to become more educated. A recent study found that one-third of the 2.6 million jobs created in the U.S. in 2005 were filled by Hispanics (Jara, 2007). At current population rates, by 2020, there will be an estimated 10 million college-age Hispanics in the U.S.; but, even if the graduation rate of Hispanics from higher education doubles from 15 to 30%, this is still well below average. Even at this low graduation rate, Hispanics would still be adding 1.5 million skilled workers to the U.S. labor force (Jara, 2007).

Ultimately, consequences of educational shortcomings affect not just individuals but our economy and society as a whole. American businesses face great challenges in acquiring, training, and retaining employees, while increasing consumer pressure forces businesses to focus on their bottom lines. Employees' educational shortcomings cost businesses money, and the less money businesses make, the less opportunity, services, and money they can redirect back into society. Hispanics represent a rich talent pool, and many companies see Hispanics as an opportunity to proactively address the work force shortage situation (Jara, 2007).

In summation, students with a lack of education often face a lack of opportunity. A lack of education among a particular racial group can have even greater implications, as it can lead to pre-conceived expectations and stereotyping that can inhibit success. Martinez, DeGarmo, & Eddy (2004) state that school success is one of the most important factors to overall physical mental and social well-being. Simply put, students who do not stay in school are generally destined for greater unemployment and lower incomes (Martinez, DeGarmo, & Eddy, pp. 128-129).

The purpose of this study is to examine possible factors that influence the retention of Hispanic students in business programs in higher education and to identify possible modifications/actions universities can take to affect retention. The study tries to identify what factors

influence Hispanics' persistence in business higher education programs. The study isolates Hispanics who have already chosen to be in higher education and those who have already chosen business as their major. It seeks to identify what factors are significant to those students who stay in the programs. The factors considered include the perceived academic abilities and motivations of the students, the educational and professional goals of the students, parental influence, and social factors, specifically those pertaining to the college experience.

The specific research question examined in this study is: What pupil characteristics or identifiable traits influence Hispanic students' persistence in business higher education?

LITERATURE REVIEW

A review of literature confirmed the changing demographics in the United States, as well as the potential impact these changes will have on the education system and work force. In particular, the literature review indicated a strong need for research regarding the persistence of Hispanics in business higher education because of this impact. "Hispanic students are down at the bottom of the academic ladder," according to Murray Simon, president of Conexiones, a community group that promotes Hispanic education (Williams, p.1). Simon's concern for Hispanic students is rooted in the fact that the group has the highest drop-out rate in his county.

The article, "Explaining graduation requirements in Spanish: School officials hope tomorrow's workshop will help to foster comfort, awareness of assessment tests among Hispanic parents," in which Simon is quoted, focuses on the parents' language barriers as being a significant set-back to Hispanic students. Parents are unable to understand the academic requirements of their children because they lack the necessary language skills. He believes that by offering more information to parents in Spanish, there is greater likelihood of understanding graduation and testing requirements, and ultimately more of a chance for success (Williams, 2000).

Family responsibilities and parental influence affect academic success (Hine, 1994). It provides a background and value system which students draw upon. Institutions and programs must then nurture students' strengths to help them be successful. Parents can make conscious decisions to open the door to success at school. Some factors to success include letting your child know you value achievement in school, helping your child develop strong language skills, making children understand that they believe their children will be successful both in school and, later, in the workplace, and providing a strong family support system for their children (Hine, 1994).

Even though Hispanic parents want success for their children, they are sometimes at a disadvantage in guiding their children toward educational and career aspirations. Cooper, Denner, & Lopez (1999) found that many children of Mexican immigrants begin school with high hopes, but they ultimately fall short of these dreams. Even parents with somewhat "blue collar" jobs have hopes that their children will attain professional careers such as being doctors, teachers, and lawyers.

Unfortunately, many of these parents lack the knowledge and skills to guide their children to these positions that necessitate education (Cooper, Denner, & Lopez, 1999).

The value and associated responsibilities Hispanics place on family relationships can sometimes be an obstacle to obtaining higher education. Approximately one third (33%) of Latino adults, which is twice the percentage than their white counterparts, indicated in the Pew Hispanic Center/Kaiser Family Foundation National Survey of Latinos that proximity to home and family is a major reason why they did not go to college or failed to finish college if they started (Fry, 2004). Other major reasons include the cost of tuition (77%), a need to work and earn money (77%), receiving a poor high school education (58%), they feel that they do not need a college degree to be successful (48%), and discrimination (40%) (Fry, 2004). The connection of financial need and family is perhaps the most obvious, as Hispanics do tend to enter the work force at early ages and tend to help support their families. Also, family responsibilities can have adverse effects on college completion, and Hispanic undergraduates are nearly twice as likely as white undergraduates to have children or elderly dependents, and are more likely than whites to be single parents (Fry, 2004).

Whether students' selection of domain is due to family relationships or financial constraints, their proximity to home can ultimately affect their success. Fry (2003) found that residing on campus enhances the students' probability of completion. It is believed that students who live on campus become more socially engaged and integrated into the college life. Almost one-half of Hispanics at four year programs reside with their parents, in contrast to less than one-fifth of their white counterparts (Fry, 2003).

Another significant obstacle many Hispanic youth face is that prior generations of their family did not attend college. In "First in My Family: A Profile of First-Generation College Students at Four-Year Institutions Since 1971," the term first generation college students is defined as "those students whose parents have had no college or post-secondary experiences" (Saenz, Hurtado, Bareera, Wolf, and Yeung, 2007). These students sometimes face greater educational obstacles than others. Their lack of role models and sometimes lack of parental involvement, subsequently, plays a role in their educational preparation efforts and expectations. Saenz, et al., (2007) state that students with college educated parents have greater social and/cultural capital. Moreover, students without these role models tend to have common characteristics as well—they come from lower income families than their counterparts, are foreign-born, and English is not their first language (Saenz, et al., 2007).

Students' background, namely family income, educational legacy, and aspirations, are significant to their success. "Students historically underrepresented at the postsecondary level—students of color, those from low-income backgrounds, and first-generation students—are still less likely to prepare for, apply for, enroll in, and persist through postsecondary education" (Swail, Cabrera, Lee, 2007, p. 4). Over half of Latino students come from families with less than $25,000 of income, and only 7.5% have a combined income of $75,000 or higher. In contrast, only

23% of white students have family incomes below $25,000, and 18.3% have above $75,000 (Swail, et al., 2004).

Half of Latino youth have a parent who has gone to college, with only 14.1% receiving a bachelor's degree or higher. This is half the rate of the national average (Swail, et al., 2004). "Seventy-three percent of Latinos aspired to postsecondary education, but only 55%--a full 20% lower than the national average—aspired to a BA. The aspirations of Latino students in the US were the lowest of any other group in our analysis" (Swail, et al., 2004, p. 4).

Selectivity of institutions seems to have a connection to completion of degrees among Hispanic students. The more selective the institution, the higher the rate of completion. Even students with similar academic preparation fare better at more selective institutions (Fry, 2004). Evidence suggests that Hispanic students tend to enter less selective college and universities than their white peers (Fry, 2004). This seems to indicate a need to identify what characteristics institutions and programs possess that attract and promote success among students, and in this case, Hispanic business students. It also indicates a need to investigate how family matters affect students' selection of institutions.

Astin and Osequera (1993) found that degree attainment rates varied by the type of educational institution. They found that students' preparation before college also varied depending on what type of higher education institution they sought to attend. "For example, nearly 70 percent of the students entering private universities, compared to only about 30 percent of those entering public four-year colleges, have an "A" grade average from high school" (p. 5).

Sometimes, Hispanic students do not know how to leverage the college admissions system to their advantage (Fry, 2004). This is significant since selectivity can be a factor to success. Parents who have not received higher education are often not as knowledgeable about the educational system; however, there is also a difference as to how well the colleges assist and motivate their students to graduate, which should be a consideration (Fry, 2004). Though students' background and social class are dominant forces in determining access and success in higher education, the characteristics of specific programs impacts students' success (Mingle, 1987). This, once again, can leave Hispanic students at a disadvantage. Existence of programs targeted to minorities is not enough. Institutions' commitment to minorities should be measured by identifying the financial and academic programs and general climate that contribute to the success of minorities and other disadvantaged students (Mingle, 1987). This indicates a need to look at the connection between individual characteristics and institutional characteristics that ultimately lead to success.

A review of literature confirmed the changing demographics in the United States, as well as the potential impact these changes will have. In particular, the review indicated a strong need for research regarding the persistence of Hispanics in business higher education because of their impact on the education system and workforce. Previous research regarding Hispanics focused on elementary and secondary education. No studies focused on Hispanics in business higher education. None focused on identifying the relevant social factors impacting their persistence. Because the

review of literature also identified student involvement as critical to students' academic success, social factors as well as personal goals and motivations are critical. The perceived academic abilities and motivations of the students, the educational and professional goals of the students, parental influence, and social factors, specifically those pertaining to the college experience, are influences which need to be studied further.

The hypothesis for the study is: Factors affecting retention of Hispanic students in higher education programs will be different than factors affecting retention of non-Hispanics in higher education programs, with social factors, in particular, showing significance.

METHODOLOGY

This study looked at a national database, the Higher Education Research Institute (HERI) Cooperative Institutional Research Program (CIRP) data, to identify academic and non-academic issues playing a role in Hispanic selection of business programs and retention as business majors. CIRP is now the nation's largest and longest empirical study of higher education, involving data on some 1,900 institutions, over 13 million students, and more than 380,000 faculty (Higher Education Research Institute, CIRP Summer Institute, August 2008).

Two CIRP surveys administered by HERI were used. They are the Freshman Student Survey (SIF) and the College Student Survey (CSS). As such, the data are longitudinal, representing the freshmen survey and senior follow-up survey. Institutions include public and private universities, with more respondents coming from private institutions. The SIF is administered at over 700 colleges and universities to incoming freshmen. The CSS differs from SIF in that it varies among institutions and is a standalone survey. It is administered by institutions without HERI knowing which students will be surveyed. HERI staff then link the two surveys, making it a matched data set, without providing identifying information of particular students. Data from 1999 and 2000 freshmen surveys with corresponding college student surveys from 2003 and 2004 were used for this study. The conceptual model for this study was based on the I-E-O model (see Figure 1.) created by Alexander W. Astin (1993). Astin uses this input-environment-outcome model as a conceptual guide for studying college student development and evaluating the impact of environmental experiences on students (Astin, 1999). Understanding environmental influences gives educators, students, and policy makers a better idea how to achieve desired educational outcomes. The key is to identify relevancy among the characteristics (Astin, 2003). Astin revised his original model to include intermediate outcomes, which recognizes that inputs can lead to intermediate outcomes as well as environmental influences; both of which (environment and intermediate outcomes) lead to the ultimate outcome, which, in this study, is persistence in business. In Astin's What Matters in College, Four Critical Years Revisited (1993), he notes that observed changes in students have two major components: the first results from the impact of the college, while the second results from influences such as maturation and the environment outside of college.

The information from the Freshman Student Survey (SIF) provided the inputs for the study, as they are the characteristics that the students bring with them to college. The environment and intermediate outcomes were information collected on the College Student Survey (CSS). Because the CSS is given to seniors, the desired outcome was identifying common relevant characteristics for those completing the survey as seniors who responded that they were still business majors.

College student surveys were reviewed to determine which variables to request for the study. In 2003, the survey contained a possible 561 variables, and, in 2004, it contained 595 variables. The researchers sought to balance inputs, variables from the Freshmen Student Surveys (SIF), with environmental and intermediate outcomes, variables from the College Senior Surveys (CSS). The selection of potential variables was primarily theory based; potential variables were predominantly family, social, and educational factors. Access was requested for 202 potential variables from the 2003 and 2004 surveys to study further. All students included in the data set indicated that they were probable business majors in the SIF survey. This included 3,224 students in 2003 and 3,140 students in 2004.

After receiving the data files, Hispanics were identified so their data could be isolated. Two categories were formed through re-coding. The first was "Hispanic," which includes all respondents indicating Mexican American/Chicano, Puerto Rican American, and Other Latino. The groups were coded to be consistent with the coding of CIRP, which identifies Hispanics this way. It was important to keep racial/ethnic coding the same as did the research institute that collected the data. All other groups were re-coded as "non-Hispanic," which included White/Caucasian, African American/Black, American Indian/Alaskan Native, Asian American/Asian, Native Hawaiian/Pacific Islander, and Other. Students surveyed were allowed to select more than one answer in regard to race. As such, those who responded positively to any of the three Hispanic categories were included in "Hispanic," even if they also responded to another category.

Frequencies were run to identify the number of Hispanics available in the data base. The results of the 2003 CSS surveys showed that 169 Hispanics had indicated business as their major as freshmen. The results of the 2004 CSS surveys indicate 191 Hispanics responded as freshmen business majors. However, as seniors, 111 Hispanics indicated business as their major in 2003, down from the 169 indicating such as freshmen. In 2004, 191 had indicated business as their major as freshmen, and 115 remained as seniors.

As freshmen, the Hispanic sample was 39.4% male, and 60.6% female. This compares to a 51.4% male and 48.5% female non-Hispanic sample. Of those who persisted in the business major and participated in the CSS their senior year, the Hispanic sample was 38.9% male and 61.1% female. This compares to a non-Hispanic sample which was 52.2% male and 47.8% female. The Hispanic sample contained a greater percentage of female business majors than the non-Hispanic sample.

All students participating in the surveys were predominantly 18 and 19 years old as freshmen. Age categories included 16 or less, 17, 18, 19, 20, 21-24, 25-29, 30-39, 40-54, and 55 or

more. For Hispanics, 67.2% of the sample was 18 years old when taking the freshmen survey, and 23.7% were 19 years old. Of the Hispanic sample, 94.9% were under the age of 19 as freshmen, which means that some of the sample was even less than 18 when taking the survey. For non-Hispanics, 65.5% were 18 years old when taking the freshmen survey, and 30.9% were 19 years old. Of the non-Hispanic sample, 97.7% were under the age of 19 as freshmen.

To begin the analysis, correlations were run for the entire data set to determine any relationships that might indicate multi-collinearity. Initially, the data sets were kept separate to better understand the underlying relationships of the data, and to determine if the years had similar data or not. Correlations were run among groups of variables to determine if any relationships existed. The variables were selected for correlations due to their groupings in the survey questionnaire, possible relationships based on information found in the literature review, and the theory that social variables would impact the students' retention. For example, question #7 in the 2004 College Senior Survey (CSS) asks the students to rate their frequency of working on independent study projects, discussing course content with students outside of class, feeling bored in class, studying with other students, missing class due to employment, not having time to study due to family responsibilities, not having time to study due to job responsibilities, and meeting faculty during office hours and outside of office hours. Because the questions all pertain to how students spend their time, it is important to explore any underlying relationships between the variables to avoid multi-collinearity. Question #23 in the 2004 College Senior Survey (CSS) asks students to rate themselves compared to the average person their age. Traits included in this group include academic ability, artistic ability, computer skills, competitiveness, cooperativeness, creativity, drive to achieve, emotional health, initiative, leadership ability, mathematical ability, physical health, popularity, public speaking ability, self-confidence (intellectual), self-confidence (social), self-understanding, spirituality, understanding of others, and writing ability. All are personal traits which could have significant relationships to each other. As such, correlations were first run for the entire group, and then for Hispanics and non-Hispanics.

The data were then narrowed from 202 to 37 potential variables based on the results of the correlations and the attempt to represent different areas of potential influence on persistence. Frequencies and correlations were run for this smaller group. The variables chosen from both surveys were focused on family and social factors. The variables from the SIF surveys included parents' education, self-rated motivations, and high school GPA. CSS variables included variables that were put into the categories of students' self-awareness, students' responsibilities (including if and where they work and family responsibilities), student-student interactions (such as involvement in organizations and time spent socializing), and faculty-student interactions. Correlations showed that some relationships existed among the variables, and help to narrow those for the final selection. Each category was represented in the final selection.

After considering the relationships among the variables and the theory that social factors impact Hispanic retention, 11 final variables were chosen. The predominant reasons that variables

were selected were the researchers' theory that social and family factors impact Hispanic students greater than non-Hispanic students, the theory that personal motivations were significant, and the frequency and correlations among variables regarding Hispanic student behaviors described above. The variables chosen focus on the students' personal motivation and social development. As stated in the literature review, students who can connect to the college experience—develop relationships, live on campus, don't work full-time, etc.—tend to be more persistent. The selected variables were chosen for these reasons, recognizing that the study is limited by not looking at a multitude of variables in a variety of areas to fully understand Hispanic students.

The 11 variables included five SIF variables (father's education, self-rated drive to achieve, self-rated cooperativeness, self-rated objective to be authority in own field, hours per week spent socializing with friends), and six CSS variables (hours spent in social clubs or groups, discussed course content with other students, had a part-time job off of campus, successfully developed close relationships with students, successfully got to know faculty, and had opportunity to discuss coursework outside of class with faculty). The data from 2003 and 2004 were merged to provide a more accurate logistical regression model considering the number of independent variables chosen to research. The forward conditional and enter methods of logistic regression were used and the results compared. Both methods provided the same results regarding significance or lack thereof, though the P values varied slightly. The following results are from the enter method.

FINDINGS

The dependent variable was persistence in the business major. As such, only students who selected business as a freshman were included in the data set, and the results sought to identify the common characteristics of those that remained as senior business majors. Of the 11 final variables, six entered the model showing significance, while four did not show significance. SIF variables showing significance were hours per week spent socializing with friends, father's education, and objective to be authority in one's own field. CSS variables showing significance were hours per week spent in student groups/clubs, had a part time job off campus, and success at developing relationships with students.

Key regressions results are shown in Table 1. The first column represents the "goodness of fit," or significance of the independent variable (Pallant, 2007). Significant values are represented by a result less than .05. The "B" values represent the probability of a case falling into a specific category. The positive or negative direction of the result indicates its directional impact on the dependent variable (Pallant, p.175). For example, the greater numbers of hours spent per week socializing with friends increased the likelihood of persistence in business, as did hours per week spent in student groups/clubs and success at developing relationships with students. Variables that had a negative significant impact to persistence in business were father's education, objective to be authority in own field, and had a part-time job off campus.

The "Exp (B)" values represent the proportional change of the dependent variable to the independent variable, thus representing the impact one variable has on the other (Pallant, p. 176). Hours per week spent socializing with friends has an Exp (B) of 1.578, which means that this activity impacts the students in a way that makes them about 1.5 times more likely to persist in the business major. The frequency table results will need to be viewed to fully appreciate how many hours the category is indicating. An Exp (B) of 1.881 for success at developing relationships with students indicates that those students are almost twice as likely to persist in business.

Table 1: Regression Results

	Significance (*)	B	Exp(B)
SIF Variables			
Hours per week spent socializing with friends	.000*	.456	1.578
Father's education	.011*	-.159	.853
Objective to be authority in own field	.033*	-.344	.709
Self-rated drive to achieve	.175	.248	1.281
Self-rated cooperativeness	.580	-.110	.895
CSS Variables			
Hours per week spent in student groups/clubs	.015*	.214	1.239
Had a part-time job off campus	.017*	-.646	.524
Success at developing relationships with students	.017*	.632	1.881
Opportunity to discuss coursework outside of class with faculty	.051	.441	1.554
Discussed course content with other students	.059	-.512	.599
Success at getting to know faculty	.148	-.360	.698

Two variables, opportunity to discuss coursework outside of class with faculty and discussed course content with other students, were very close to entering the model, with .051 and .059, respectively. An analysis of variance was calculated to further explore the results. However, neither variable showed significance when isolated in the analysis of variance, so both were excluded from the model.

Analyses of frequencies were run on all significant variables in the regression model. The results revealed that those Hispanic business students who socialized with friends a great deal of the time as freshman were more likely to persist in the study of business. Students were asked to rate how many hours a week they socialized—none, less than 1, 1-2, 3-5, 6-10, 11-15, 16-20 or greater than 20. When considering all categories from 6-10 hours per week to greater than 20 hours per week, about 38% of those who did not persist fell into these categories, compared to about 60% for

those who persisted. Those who persisted spent more time socializing. Even as freshmen, they began developing relationships that would change their college experience and enhance their chance for persistence in business.

Father's education had a significant negative relationship to persisting in the study of business. The categories considered were: grammar or less, some high school, high school graduate, post secondary, some college, college degree, some graduate work, and a graduate degree. Students' whose father's had a graduate degree were more likely not to persist in business. This negative relationship of the father's advanced college degree to the students' persistence in business was surprising. These students had a family background that included higher education, so exposure was not an issue. Specifically, of those who did not persist, their fathers had a graduate degree about 25% of the time, compared to those who did persist, whose fathers had graduate degrees about 16% of the time. Notably, those who did persist had fathers who were more likely to have a college degree, 20% compared to 14.2%.

Students were asked to rank the importance of being an authority in their field. Their choices were not important, somewhat important, very important, and essential. This variable had a negative correlation to the dependent variable. Those who did not persist seemed to place more importance on being an authority than those who did persist. About 42% of those who persisted responded that it was very important to be an authority in their own field, versus about 48% for those who did not persist. It was essential to about 33% of those who did not persist, compared to 28% of those who did persist. It was somewhat important to those who persisted about 22% of the time versus about 14% of the time for those who did not persist. More than twice of those who persisted responded that it was not important than those who did not persist.

Success at developing close relationships with students had the answer options of not successful, some successful, and very successful. Students who persisted felt much more successful at developing relationships with students during their college experience. About 75% indicated that they were very successful and about 23% indicated that they were some successful. Less than two percent indicated not successful at all. Students who did not persist were very successful about 63% of the time, some successful 28% of the time, and not successful about seven percent of the time. The fact that this variable is self-rated would seem to indicate how the students' perceptions of their social skills affected their success. These students seem to feel more confident socially and acknowledge the relationships they developed during their college career.

This category was dichotomous, in that they either responded positively or did not respond. This variable had a negative correlation with the dependent variable. Of those who persisted, about 50% had a job off campus and 50% did not. Of those who did not persist about 60% had a job off campus while 40% did not. This indicates that those who did not persist spent more time away from campus, as their employment was off campus. Earlier frequencies indicated that most students do not work full-time, yet many do work part-time. Where they choose to work could have an influence on how they perceive their college experience, which these findings seem to confirm. Students who

did not persist tended to find employment off campus more than on campus. It could also be an indicator of responsibilities away from the college environment, which tends to cause a decrease in retention as well.

This variable had answer options of none, less than 1, 1-2, 3-5, 6-10, 11-15, 16-20, and greater than 20. A number of students did not participate at all in student clubs or groups, including almost 42% of those who did not persist and almost 37% of those who did persist. Another notable result was that of the three to five hour range. About 15% of those who did not persist fell into this category while about 23% of those who did persist fell into it. The frequencies for the three to five hour to greater than 20 hour participation levels had extremely low frequencies for non-persisters, with only eight responding in total. On the contrary, the persisters had a total of 27 in these categories. Overall, persisters participated more. These results seem to confirm the literature reviewed, as students need to feel part of the college environment to be successful. Their participation gives them a feeling of belonging, and is important in their persistence.

The regression equation for the significant variables would be:

$$Y = a + .456(x1) - .159(x2) - 3.44(x3) + .214(x4) - .646(x5) + .632(x6)$$

where x1 = how many hours spent socializing with friends as freshmen, x2=father's education, x3=objective to be authority in own field, x4=hours spent in student groups/clubs, x5=had a part-time job off campus, and x6= successful at developing relationships with students. Notable to the equation are the negative relationships of father's education, objective to be authority in own field, and having a part-time job off campus. These variables decrease the likelihood of persistence in business, while the other variables—hours spent socializing with friends as freshmen, hours spent in student groups/clubs, and successful at developing relationships with students—increase the chance of Hispanic students' persistence in business higher education.

DISCUSSION

The results of this study indicate that Hispanic business students who persist are significantly affected by their social interactions. Of all variables considered, the student-student interaction variables of hours per week spent as freshmen socializing with friends and hours per week as seniors spent in student groups/clubs had the greatest impacts. The Exp (B) values for these variables were 1.578 and 1.239, which means that these students were sometimes about one and a half times more likely to persist, and other times 1.2 times more likely. This indicates an important need for the students to have social interaction to successfully persist.

The variables in the study include freshmen characteristics as well as influences during their academic career that are found in surveys taken as seniors. Freshmen characteristics include academic background, motivations, and influences which they brought to the educational institution;

it also includes their behavior as freshmen. The influences of the college environment were found on the senior surveys students taken four years after the freshmen surveys. Of the final 11 variables chosen, three variables from the SIF surveys indicated significance, and three variables from the CSS surveys indicated significance, which further demonstrates the importance of inputs and environment to the ultimate outcome of persistence in business.

It is interesting that of all characteristics in the model, the students' freshmen behavior to integrate themselves into the academic setting and embrace the new social situation can be most critical to their success in pursuing a degree in this particular area. The negative correlations found are also interesting, such as father's education and objective to be an authority in own field. The higher the education level of the father, the more negative impact it seemed to have on business students; though father's having a college education was more common among those who persisted than those who did not. To completely identify the dynamics of the father's impact on persistence in business education, it would be necessary to look at what the students whose fathers were highly educated did pursue after leaving business

The same model was run for Hispanics who did not persist in the business major. Variables that entered as significant were the same and included hours per week spent socializing with friends as freshmen, objective to be authority in own field, father's education, success at developing relationships with students, had a part-time job, and hours per week spent in student groups/clubs; however, the results were quite different because their directional relationships were opposite. Hispanics who did not persist had a significant negative relationship to hours spent per week socializing as freshmen. They had a significant positive relationship with father's education and having a part-time job off campus. Their pursuance of employment off campus could be an indication of their engagement in the college environment, especially since it had a negative relationship when looking at those who did persist.

The model was also run for Non-Hispanics who persist in business to see if there were significant differences among the racial groups. Only three variables entered the model as significant, compared to six for Hispanics who persisted. The three variables indicating significance were self-rated drive to achieve, had a part-time job off campus, and success at getting to know faculty. Only one variable was significant in both models—had a part-time job off campus; however, in the non-Hispanic model, it was positively correlated rather than negatively, such as in the Hispanic. So, though it was significant, it indicated a different relationship. It is interesting that self-rated motivation and faculty relationships seemed to be more important to non-Hispanics who persist in business.

Very notable in the results is the lack of significance among social variables. It is surprising that none showed significance, while playing such an important role in the Hispanic model.

The major conclusion to this study is that Hispanics who persist in business place more importance on social relationships than their non-Hispanic counterparts. Social relationships were important to them as early as their freshmen year, and continued to have importance throughout their

academic career. They socialized on a regular basis, successfully developed student relationships, and participated in student groups and clubs. Embracing the college experience was part of these students' development and seemed to be part of their success in the business major; even where they chose to seek employment impacted their persistence, as those who persisted were less likely to work off campus.

Hispanic students who did not persist in the business major did not seem to successfully develop relationships or embrace the college experience in the same manner or magnitude as those who did persist. The Hispanic culture embraces the development of social relationships, and those who persisted in these academic programs seemed to embrace it as well. They took the time and made the effort to develop relationships, and these efforts were rewarded by their success. Those who did not persist did not seem to develop these relationships, and thus, lacked this meaningful connection.

To increase persistence of Hispanics in business, facilitating the development of social relationships as early as possible in these students' academic career is necessary. Institutions need to be aware of the role that social relationships exert for this group of students, and, as such find a way to cultivate these relationships. Institutions could facilitate this process by developing more opportunities for peer involvement. It is essential to help these students feel as though they belong to a group and have ties to that group. Any way that the institution can help these students to feel as though they are part of the academic environment could help; even offering more employment opportunities for them on campus could be a simple way to help them embrace the college experience. More than anything, institutions need to recognize that the needs of this student group are different and not be set on attracting and retaining them in the same manner as they have other groups in the past. The strong ties of the Hispanic culture are heavily based on social relationships, and this applies to the academic environment as well.

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APPENDIX

Figure 1
Astin's Revised Model of College Student Success