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Michael Shurden and Royce Caines
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ACADEMY OF EDUCATIONAL LEADERSHIP JOURNAL

CONTENTS

LETTER FROM THE EDITORS

Welcome to the *Academy of Educational Leadership Journal.* The *AELJ* is published by 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 *AELJ* is a principal vehicle for achieving the objectives of the organization. The editorial mission of this journal is to publish empirical, theoretical and scholarly manuscripts which advance the discipline, and applied, educational and pedagogic papers of practical value to practitioners and educators. We look forward to a long and successful career in publishing articles which will be of value to many scholars around the world.

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.

Information about the organization, its journals, and conferences are published on our web site. In addition, we keep the web site updated with the latest activities of the organization. Please visit our site and know that we welcome hearing from you at any time.

Royce Caines and Michael Shurden
Editors
Lander University

Manuscripts

TRENDS IN STUDENTS' PERCEPTIONS OF THE ETHICALITY OF SELECTED COMPUTER ACTIVITIES

Judith C. Simon, The University of Memphis
Lillian H. Chaney, The University of Memphis

ABSTRACT

To determine students' perceptions of the ethicality of selected computer activities, a survey instrument, originally developed and administered in 1994, was administered to 480 business students at a Mid-South university in 2004. Students were provided seven practices related to computer use and were asked to indicate the extent of their ethicality. To determine changes in students' perceptions a decade later, results of the 2004 survey were compared to results of the 1994 study of 450 business students. The practice most often considered unethical in both the 2004 study and the 1994 study was Making a copy of someone else's work and taking credit for the work. All the stated activities were more often perceived as unethical in the 2004 study than in the 1994 study. Statistically significant (<.05) differences were found between students' responses and all three demographic factors in both the 1994 and 2004 studies; gender appeared to be the strongest factor in differences in ratings in both studies.

INTRODUCTION

Ethics involves more than simple compliance with rules. Ethical behavior sometimes involves difficult decisions because it may involve two choices that are both good for someone and requires the person to decide on the "higher good." Some evidence exists that companies are taking ethics more seriously, with more specific, value-based codes of ethics (Glenn, 2004).

Ethics continues to be a concern among business educators. Evidence of this concern is shown by the formation of a task force on ethics education by the AACSB International accrediting organization. A conclusion reached by the task force was that business schools need to "renew and revitalize their commitment to teaching ethical responsibility . . ." ("A Call for Ethics Education," 2004, p. 8.).

Businesses are also becoming increasingly concerned about ethical issues, including issues arising from the expanding use of computer systems. These issues include privacy of data, security of data and programs, and ownership of data and programs. This concern is reflected in the establishment of codes of ethics by such organizations as the Association for Computing Machinery. Their code of ethics, available from their web site, http://www/acm.org, includes such imperatives

as being honest and trustworthy, showing respect for others' privacy, assessing computer resources only with proper authorization, being ethical by honoring copyrights and patents, and assuring that credit is given when using intellectual property. Additional evidence of ethical concerns is provided by the existence of the Computer Ethics Institute, which has developed The Ten Commandments of Computer Ethics (available from their web site, www.cpsr.org).

Many ethical issues related to computer use are issues that are a concern regardless of the mode of activity. For example, plagiarism is defined as "The wrongful appropriation, purloining, publishing, expressing, or taking as one's own the thoughts, writings, inventions, or ideas (literary, artistic, musical, mechanical, etc.) of another" (Kock & Davison, 2003). Businesses and educational institutions have struggled for years with people who take credit for someone else's work. The availability of wide-ranging sources of information on the Internet has made it much easier to obtain someone else's work than was true previously.

Since businesses and educational institutions have increased their usage of computers, schools must play a major role in developing ethical awareness among students so that they will make ethical choices regarding computer activities while still in school and later when they assume leadership positions in the workplace.

SURVEY PURPOSE AND PROCEDURES

To determine changes in students' perceptions of the ethicality of selected computer activities over a ten-year period, a survey instrument that was originally administered to 450 students at a Mid-South university in 1994 (Simon & Chaney, 1995) was administered to 480 students at the same university in 2004. Since today's university students are tomorrow's employees who will make decisions related to appropriate computer usage, a student population was considered appropriate. Students in both the 1994 and 2004 studies were asked to indicate whether each of the seven computer practices was Definitely Ethical, Possibly Unethical, or Definitely Unethical. Students were also asked to provide their gender, age, and classification. The .05 level was used to determine statistically significant differences between students' responses and demographic factors.

FINDINGS AND DISCUSSION

Findings will be presented by demographics of the 1994 and 2004 studies, by the frequencies and percentages for the two populations, and by differences in students' responses according to demographic factors of age, classification, and gender.

As shown in Table 1, in the 1994 survey slightly more than half (50.6 percent) of the respondents were female, while in the 2004 study almost half (48.1 percent) of the population was female. In both studies the largest percent of respondents (69.6 percent in the 1994 study and 53.1

percent in the 2004 study) were under the age of 25. In both studies more undergraduate students than graduate students participated.

Table 1 - Demographics of Respondents - 1994 and 2004 Studies

Demographic	Number of Respondents	Number of Respondents	Valid Percent	Valid Percent
	1994	**2004**	**1994**	**2004**
Female	227	231	50.6%	48.1%
Male	222	249	49.4%	51.9%
Gender Total	449	480	100.0%	100.0%
Under 25	313	255	69.6%	53.1%
25-39	113	197	25.1%	41.0%
40 or Older	24	28	5.3%	5.8%
Age Total	450	480	100.0%	100.0%
Undergraduate	348	408	77.3%	85.0%
Graduate	102	72	22.7%	15.0%
Class Total	450	480	100.0%	100.0%

As shown in Table 2, the computer practice considered "definitely unethical" by the largest percent of students in the 2004 survey was Making a copy of someone else's work and taking credit for the work, which was also the computer practice considered "definitely unethical" by the largest percent of students in the 1994 survey. All of the seven practices were perceived as "definitely unethical" by over 50 percent of the participants in the 2004 study, compared with five of the seven practices in the 1994 study, and the percentage of students considering a practice as "definitely unethical" increased for all seven practices from 1994 to 2004.

Table 2 - Students' Perceptions of the Ethicality of Selected Computer Practices: Frequencies and Percentages for 1994 and 2004 Studies

Computer Practices	Definitely Ethical				Possibly Ethical				Definitely Unethical			
	1994		2004		1994		2004		1994		2004	
	F	%	f	%	f	%	f	%	f	%	f	%
Taking software you developed with you when taking a job with a competing firm	88	19.6%	117	24.4%	230	51.2%	113	23.5%	132	29.4%	250	52.1%
Obtaining software purchased by your employer for office work and making a copy to take home for personal use	36	8.0%	50	10.4%	219	48.6%	114	23.8%	195	43.4%	316	65.8%
Allowing others to have access to software or data without permission	16	3.5%	15	3.1%	131	29.2%	81	16.9%	303	67.4%	384	80.0%
Obtaining access to software or data without permission	12	2.6%	20	4.2%	95	21.2%	48	10.0%	343	76.2%	412	85.8%
Altering data in files without permission	9	2.0%	11	2.3%	90	20.0%	42	8.8%	351	78.0%	427	89.0%
Risking damage to software in university-owned computer labs by knowingly using a disk that may contain a virus	11	2.4%	11	2.3%	48	10.6%	31	6.5%	391	86.9%	438	91.3%
Making a copy of someone else's work and taking credit for the work	11	2.4%	7	1.5%	19	4.2%	13	2.7%	420	93.3%	460	95.8%

As shown in Table 3, ANOVA results in the 2004 study revealed significant differences (<.05) between students' responses and all three demographic factors: three showed significance by age, three showed significance by classification, and six showed significance by gender.

Table 3 - ANOVA Results: Students' Perceptions of the Ethicality of Selected Computer Practices and Demographic Factors, 2004 Study

Practice	Age		Classification		Gender	
	F	P-Value	F	P-Value	F	P-Value
Taking software you developed with you when taking a job with a competing firm	11.561	.000*	1.249	.264	8.687	.003*
Obtaining software purchased by your employer for office work and making a copy to take home for personal use	1.185	.307	7.049	.008*	17.687	.000*
Allowing others to have access to software or data without permission	4.310	.014*	7.496	.006*	20.618	.000*
Obtaining access to software or data without permission	.303	.739	5.179	.023*	4.798	.029*
Altering data in files without permission	3.371	.035*	.039	.844	.047	.828
Risking damage to software in university-owned computer labs by knowingly using a disk that may contain a virus	1.761	.173	.060	.806	6.978	.009*
Making a copy of someone else's work and taking credit for the work	1.862	.157	1.131	.288	7.544	.006*

* Significant at .05 level

Means were calculated for each practice in the 2004 study based on a five-point scale, with 5 representing Definitely Ethical and 1 representing Definitely Unethical. Three practices showed significance by age in the 2004 study. Taking software you developed with you when taking a job with a competing firm was viewed as more unethical by respondents in the 25 to 39 age group (mean of 2.38 vs means of 2.63 for those under 25 and 2.50 for those aged 40 or above). Allowing others to have access to software or data without permission was viewed as more unethical by respondents aged 40 or above (mean of 1.25 vs means of 1.73 for those under 25 and 1.59 for those aged 25 to 39). Altering data in files without permission was also viewed as more unethical by respondents aged 40 or above (mean of 1.14 vs means of 1.46 for those under age 25 and 1.42 for those aged 25 to 39). Thus, older respondents viewed two of the three practices as being more unethical than did younger respondents.

In the 1994 study only one practice showed significance by age, Obtaining software purchased by your employer for office work and making a copy to take home for personal use. As in the 2004 study, more older students thought that the practice was "definitely unethical."

Other research offers support to this finding. Serwinek's (1992) study of insurance employees found that older workers had more rigid interpretations of ethical standards. Likewise, Raghunathan and Saftner (1995) found that persons in their mid-thirties and above seem to have more stringent standards for ethical standards than younger persons. Another study by Cole and

Smith (1996) found that older respondents had higher ethical standards than younger respondents and reasoned that "people's values and standards frequently become stronger as they mature" (p. 892).

The following four practices showed significance by classification (undergraduate or graduate students): Obtaining software purchased by your employer for office work and making a copy to take home for personal use (mean of 2.02 for undergraduate students vs 2.18 for graduate students), Allowing others to have access to software or data without permission (mean of 1.60 for undergraduate students vs 1.90 for graduate students), and Obtaining access to software or data without permission (mean of 1.56 for undergraduate students vs 1.86 for graduate students). In all cases undergraduate students viewed the activity as more unethical than graduate students.

In the 1994 study the following two practices showed significance by classification: Obtaining software purchased by your employer for office work and making a copy to take home for personal use and Allowing others to have access to software or data without permission. Unlike findings in the 2004 study, respondents in graduate courses felt that both practices were "definitely unethical" more often than did undergraduate respondents.

These six practices showed significance by gender in the 2004 study: Taking software you developed with you when taking a job with a competing firm (mean of 2.34 for females vs 2.69 for males), Obtaining software purchased by your employer for office work and making a copy to take home for personal use (mean of 1.88 for females vs 2.19 for males), Allowing others to have access to software or data without permission (mean of 1.46 for females vs 1.82 for males), Obtaining access to software or data without permission (mean of 1.43 for females vs 1.77 for males), Risking damage to software in university-owned computer labs by knowingly using a disk that may contain a virus (mean of 1.25 for females vs 1.43 for males) and Making a copy of someone else's work and taking credit for the work (mean of 1.17 for females vs 1.18 for males). In all cases females viewed the activity as more unethical than did males.

In the 1994 study the following five practices showed significance by gender: Obtaining software purchased by your employer for office work and making a copy to take home for personal use, Obtaining access to software or data without permission, Allowing others to have access to software or data without permission, Altering data in files without permission, and Taking software you developed with you when taking a job with a competing firm. A greater percentage of female respondents than male respondents felt that the activity was "definitely unethical." This finding that females perceived the computer practices as more unethical than males agrees with numerous other studies indicating that females have greater ethical sensitivity than males in a number of ethical dilemmas (Ameen, Guffrey, & McMillan, 1996; Mason & Mudrack, 1996; Rustogi, Bonifield, & Rhey, 1994; Vorherr, Petrick, Quinn, & Brady, 1995.)

SUMMARY AND CONCLUSIONS

In both the 2004 and the 1994 studies the practice students considered unethical most often was Making a copy of someone else's work and taking credit for the work. In the 2004 and 1994 studies ANOVA results revealed statistical differences between students' responses and all three demographic factors of age, classification, and gender. In the 1994 study one practice showed significance by age while in the 2004 study three practices showed significance by age. Overall, older respondents viewed practices as being more unethical than did younger respondents. In the 1994 study two practices showed significance by classification while in the 2004 study three practices differed significantly by classification. In the 1994 study graduate students viewed the practices as more unethical than undergraduate students while in the 2004 study the reverse was true: undergraduate students viewed the activity as more unethical than graduate students. (Unlike the population in the 1994 study, the graduate student population in the 2004 study was made up largely of international students, which may account for the differences in responses between the two populations since what is considered unethical behavior is culturally relative.) In the 1994 study five practices showed significance by gender while in the 2004 study six practices showed significance at the .05 level.

Based on these findings, the conclusion can be drawn that students are becoming more discerning of unethical behavior related to computer use in light of the fact that the percentages of students in the 2004 study indicating that a practice was Definitely Unethical were higher for all seven computer practices. After examining students' responses by demographic factors, the conclusion can also be drawn that females and older students perceive certain computer activities as more unethical than males and younger students. Another interesting comparison between the two studies was that when responses were compared to demographic factors, a larger number of statistically significant differences was found in the 2004 study (12) than in the 1994 study (8).

The teaching of computer ethics is becoming increasingly important in collegiate schools of business as computer usage increases in the business world. By setting the proper example of ethical behavior, by providing students with the knowledge of what constitutes ethical and unethical conduct related to computer usage, by maintaining vigilance in the classroom and in computer labs, and by placing significant emphasis on ethical behavior as a part of course content and evaluations, business educators can assume appropriate responsibility for contributing to the ethical development of students. As Blaszczynski (2002) points out, "In their roles as citizens, consumers, and employees, students will need to cultivate the savvy to resolve the ethical dilemmas resulting from both existing and emerging technologies" (p. 83). Based on the results of this study, educators may conclude that initial efforts to provide students with increased awareness of ethical behaviors could be a factor in students' greater recognition of activities generally considered as unethical.

RECOMMENDATIONS FOR BUSINESS EDUCATORS

The following recommendations are provided to help business educators help students become more ethically responsible in all areas of their lives and specifically in the area of computer ethics.

Set an example of ethical behavior. The standards for ethical behavior are higher for educators than for people in many professions. For this reason educators should constantly be aware of the ethicality of their behavior, both inside and outside the classroom; further, they should strive to incorporate ethics, including computer ethics, into their teaching (Kienzler, 2004).

Explain to students the difference between public domain software and copyrighted software, and make sure students know which software can be copied freely.

Develop and maintain procedures that limit students' ability to copy data or programs from other students. For example, students can be required to name their data files with their own unique code. Random checking of students' data disks is highly recommended.

Use the scenarios included in this survey to prompt discussion of such topics as copying copyrighted software, accessing data or programs without authorization, transmitting computer viruses, and infringing on intellectual property rights.

Assign students to read and discuss articles related to computer ethics from current newspapers and journals.

Invite speakers, such as business law professors and attorneys, to discuss such topics as copyright infringement and penalties for abusing computer usage, including improper access, creation, use, and destruction of data or programs.

Stay abreast of new computer activity issues that arise regarding ethical behavior and continually update these topics of discussion in classes.

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AN EXAMINATION OF PROFESSOR EXPECTATIONS BASED ON THE KANO MODEL OF CUSTOMER SATISFACTION

Charles R. Emery, Lander University

ABSTRACT

The National Survey of Student Engagement (NSSE) project indicates disappointing results in the frequency of student-faculty interaction and the amount of time that students prepare for class. Both of these discomforting facts illustrate the need for educators to do a better job of communicating expectations. This study uses a paradigm of the "professor as the customer" and the Kano Model of customer satisfaction to clarify and quantify professor expectations. Professor expectations are examined in terms of "basic needs", "satisfiers", and "delighters" as well as a variety of demographic variables (e.g., gender, age, discipline, course level and teaching experience) from 95 faculty members across five disciplines at a state university. Further, gap measures are taken between the professor's expectations and the students' perceptions of those expectations in an attempt to explore a variety of performance hypotheses. The findings indicate consistent and quantifiable differences in the levels of professor expectations and a relationship between a student's performance and his or her understanding of the professor's expectations. Recommendations are offered to improve the communication of expectations between professors and students.

INTRODUCTION

Perennial questions of higher education are: How are we doing?; and How can students and faculty members improve undergraduate education? The National Survey of Student Engagement (NSSE) project was chartered to answer these questions on a continuing basis. The NSSE project is intended to foster a discussion of collegiate quality through an annual survey of college students. The project's first national report (NSSE 2000: National Benchmarks of Effective Educational Practice) was released in November 2000. The report suggested five benchmarks to examine the effectiveness of educational practice: level of academic challenge, active and collaborative learning, student interactions with faculty members, enriching educational experiences, and supportive campus environment.

Although the benchmark report highlights a number of promising aspects of student engagement, the frequency of student-faculty interaction and the amount of time that students prepared for class was particularly disappointing. For example, students on average reported only

occasional contact (once or twice a month) with their teachers. The amount of time students spend preparing for class is only about half of what is typically expected-and, according to most faculty members, not nearly enough to perform at acceptable levels. Both of these discomforting facts illustrate the need to do a better job of communicating expectations.

While all would agree that learning is a shared responsibility, it is the teacher's primary responsibility to influence his or her students to engage in learning activities. The clear communication of expectations is central to this process of influencing or motivating the students. While most faculty members understand their responsibility to communicate expectations, the students may not understand how critical it is that they understand the teacher's expectations. In a sense, the student must view "the professor as the customer." As such, students are the providers and their responsibility is to determine and satisfy their professor's (customer's) expectations. However, it is not enough for the students to merely understand customer needs or expectations; they must be able to quantify them. All needs or expectations are not created equal, and the resolution of all needs does not have the same impact on customer satisfaction or in this case, the student's acceptance by the faculty member and the performance rating/grade.

The purpose of this study is to help faculty members (customers) qualify and quantify their expectations for their students. Additionally, the relationships between various professor expectations will be examined across a variety of variables (e.g., gender, age, discipline, course level and teaching experience) to offer recommendations for improving the communication of expectations between teacher and student. Lastly, gap measures will be taken between the professor's expectations and the students' perceptions of those expectations in an attempt to explore a variety of performance (learning) hypotheses.

LITERATURE REVIEW

The setting and evaluation/control of expectations, as well as the degree of student awareness, are important parts of any performance model. Surprisingly, the teacher's or the supervisor's role in communicating performance expectations to students or subordinates has been relatively neglected in both educational and leadership research. Bass's (1990) revised and expanded edition of Stogdill's Handbook of Leadership exhausts the topic of "Leaders as Molders of Expectations" in one short paragraph including only three references. Early researchers stressed the communication of expectations as a key responsibility of a leader and critical to influencing employee performance. For example, Likert (1961) stressed the communication of clear and high expectations by supervisor to subordinates as an important component of leadership behavior. Similarly, Edwards (1973) showed that the most effective supervisors are those who create high performance expectations for subordinates. House (1977) included the communication of high expectations for follower performance as an important feature of charismatic leadership. In addition to these declarations by noted researchers of leadership, the setting and communication of

expectations is solidly grounded in the Expectancy Theory, Goal Theory, Leader-Member Exchange Theory and the Theory of Self-fulfilling Prophecy. Further, the notion of the "professor as the customer" suggests that customer satisfaction theories and literature are relevant to the teacher-student dyad. A discussion of the Kano Model for determining and classifying customer requirements is used to illustrate that all customer expectations are not created equal. As such, one might infer that under the "professor as the customer" paradigm, the achievement of professor expectations provide varying levels of reward and recognition for the student.

Goal Theory

The Goal Theory proposes that goals and the process of setting goals are the primary determinants of behavior. Goal setting has four motivational mechanisms: (1) directing one's attention, (2) regulating one's effort, (3) increasing one's persistence, and (4) encouraging the development of goal-attainment strategies or action plans (Locke & Latham, 1990). Goal specificity and the communication thereof are essential to the goal setting process. A teacher's expectations are nothing more than his/her behavior and learning goals. As such, it is critical that the teacher clearly communicate his/her expectations to the student.

Expectancy Theory

The Expectancy Theory holds that people are motivated to behave in ways that produce desired combinations of expected outcomes. Critical to the magnitude of motivation is the concept of instrumentality. Instrumentality represents a person's belief that a particular outcome is contingent on accomplishing a specific level of performance or expectation. As such, it is essential that the student understands the professor's expectations and that student believes that his or her goals can be achieved by meeting or exceeding the professor's expectations (Vroom, 1964).

Leader-Member Exchange Theory

The Leader-Member Exchange Theory suggests a leader (teacher) classifies subordinates (students) into in-group members and out-group members based on how well they match the leader's (teacher's) values and expectations (Sparrowe & Liden , 1997). Research indicates that in-group members are likely to receive more challenging assignments and more meaningful rewards. In-group members, in turn, are more positive about the organization (class) culture and have higher performance and satisfaction than employees (students) in the out-group. An out-group member isn't considered to be the type of person the leader (teacher) prefers to work with, and this attitude is likely to become a self-fulfilling prophecy. Out-group members receive less challenging

assignments, receive little positive reinforcement, become bored with their assignments, and may ultimately stop learning or quit (Engle & Lord, 1997).

Self-Fulfilling Prophecy Theory

Important variations of the theory of Self-Fulfilling Prophecy (Merton, 1948) are the Pygmalion (Rosenthal & Jacobson, 1968) and Galatea (Eden, 1984) effects. Basically, these two effects suggest that a leader's (teacher or supervisor) expectancies affect a subordinate's (student's) performance and a subordinate's (student's) expectations affect his or her performance. While not much research on these effects has been done in a work situation, evidence from classroom experimentation indicates that expectations have a profound affect on raising productivity.

Kano Model

The Kano model (Kano et al., 1984) was developed within the Japanese manufacturing industry to determine and prioritize/weight customer requirements or expectations. It illustrates that all needs are not created equal, and the resolution of all needs does not have the same impact on customer satisfaction or a performance report. Referring to Figure 1, the horizontal axis shows the extent to which customers' expectations are achieved. The vertical axis shows the customer satisfaction associated with this achievement. Three types of needs are identified in this model: BASIC NEEDS, SATISFIERS, and DELIGHTERS.

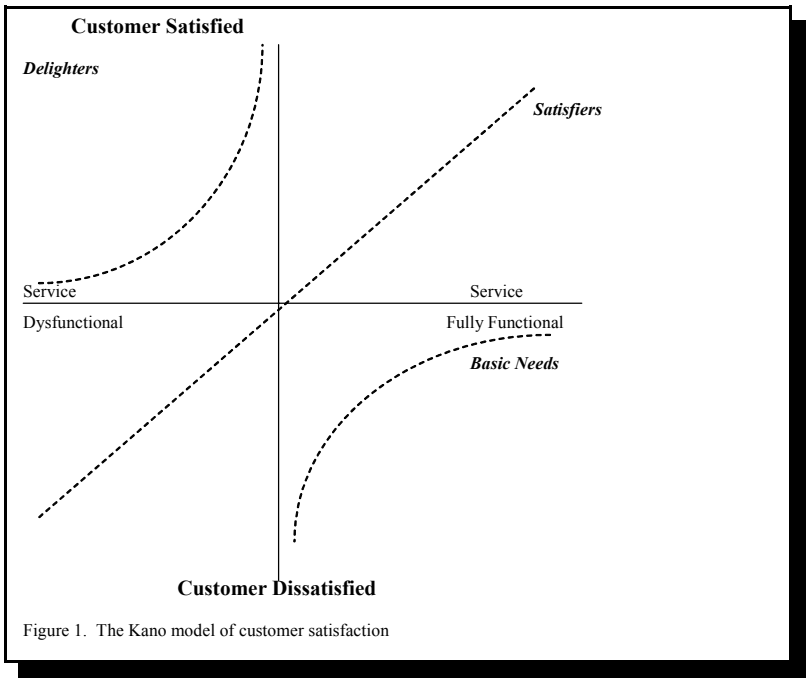

Figure 1. The Kano model of customer satisfaction

The first type expectation is the "basic need" or assumptions that customers have about a service (e.g., the availability of a restroom in a restaurant or clean silverware). In a classroom setting, the professor may have a basic need of student punctuality.

While achievement of these needs do not satisfy the customer (professor), their absence quickly causes dissatisfaction. The second type of expectation is the "satisfier" or the list of items that customers (professors) would normally mention as keys to their satisfaction, i.e. a responsive server in a restaurant or students who meet deadlines in an educational setting. Achievement of the satisfiers increases customer satisfaction, but only at a linear rate. The third type of expectation is the "delighter". These are needs that a customer does not have conscious knowledge of or fall into the category of "wouldn't it be great if someday a student provided…." For example, a fine restaurant that provides baby-sitting facilities or a student that synthesizes material into new way of looking at things. A provider that does not provide delighters will still have satisfied customers (professors), but those that provide delighters will experience a nonlinear increase in customer satisfaction. The dotted lines graphically depicted that all needs are not created equal, and the resolution of all needs does not have the same impact on customer satisfaction. For example, the additive effect of failing to fulfill basic needs or expectations is a geometric increase in dissatisfaction. The additive effect of providing "delighters" is a geometric increase in satisfaction. Lastly, the additive effect of providing "satisfiers" is tantamount to a linear increase in the customer's satisfaction.

This model suggests four important points to the students wishing to successfully market their product. First, all basic needs must be fulfilled. Failure to satisfy a basic need has a dramatic affect on customer satisfaction. In other words, one "ah shucks" outweighs ten "atta boys". Second, the provider (student) must determine and provide as many linear satisfiers as possible. Each satisfier has an additive effect toward total customer satisfaction or customer loyalty. The customer (professor) will enter a zone of moderate satisfaction if the provider fulfills all of the customer's "basic needs" and a few of the satisfiers. Third, the provider (student) needs to create "delighters," since it is through their production that real service differentiation can be created. Each time a provider produces a "delighter" it is a memorable event for the customer (professor) and his or her satisfaction is geometrically increased. As such, one might say that one "delighter" outweighs a number of "satisfiers". Fourth, any advantage gained by delighting customers (professors) only holds temporarily until the competition catches up. Continuous innovation is necessary in order to maintain an edge. Lastly, this model suggests to educators the notion that expectations need to be clearly communicated to all students. Students that don't understand the subtleties of expectations have a low "pattern sense" and as such, will have poor performance.

HYPOTHESES

Measuring the gap between expected service and perceived service is a routine customer feedback process that is practiced by leading service companies. A primary contributor to this gap is the gap between a customer's (professor's) expectations and the provider's (student's) perception of these expectations. In other words, a gap arising from the provider's lack of full understanding about how customers formulate their expectations on the basis of a number of sources: past experience, wants and needs. In industry, the primary strategy for closing this gap is to improve one's market research (i.e., observe consumer behavior and ask the customers about their needs). Research indicates that companies with a smaller gap between their perception of the customer's expectations and the customer's actual expectations are more profitable (Zeithaml, 1988). As such, it seems reasonable to expect that the better a student understands his or her professor's expectations, the better he or she will perform. Further, it seems reasonable that this understanding might be an ability or characteristic (e.g., pattern sense) that carries over from one course to the next. Therefore, the following hypotheses are offered to test these notions.

H1: The size of the gap between faculty expectations (aggregate) and the students' understanding of these expectations will be negatively correlated with student grades for the course.

H2: The size of the gap between faculty expectations (aggregate) and the students' understanding of these expectations will be negatively correlated with student grade point average.

H3: The size of the gap between faculty expectations (basic needs) and the students' understanding of these expectations will be negatively correlated with student grade point average.

H4: The size of the gap between faculty expectations (basic needs) and the students' understanding of these expectations will be negatively correlated with student grade point average.

H5: The size of the gap between faculty expectations (aggregate) and the students' understanding of these expectations will be negatively correlated with student respect for the faculty member.

METHOD

The exploratory research and hypothesis testing on faculty expectations was performed through a five-phase process of instrument development, pilot testing, faculty data collection and mapping, student questionnaire development and data collection, and analysis. The first phase of instrument development involved the random selection of 30 faculty members from five academic groups (general education, business, science, social science, and education) to complete a two-part teacher expectation survey. The first part asked teachers to describe their expectations on homework assignments in terms of basic needs, satisfiers, and delighters. Next, a consolidation of the 647 expectations were collected from the survey was performed by a Delphi panel of five faculty members (one from each academic area). The consolidation resulted in a group of 30 expectations for homework assignments and 25 expectations for classroom behavior. In turn, these expectations were used to develop an education version of a Kano Customer Requirements Classification Questionnaire (Shiba, et al., 1993). In other words, the development of a professor (customer) expectation questionnaire.

In phase two, the questionnaire was pilot tested on 10 faculty members across the academic disciplines. Several modifications were made to the wording of the questionnaire and a letter of introduction was added to improve the respondents' understanding of their role and the classification of expectations. Additionally, several demographic variables (e.g., gender, age, discipline, teaching experience, target course and level) were added to explore possible variances in expectations. Lastly, eight student workers were selected and trained to administer the faculty expectation questionnaire.

In phase three, the questionnaire was administered by eight student workers (one-on-one) to 95, randomly selected, faculty members. Faculty members were asked to consider their expectations for a specific course that they were currently teaching while completing the questionnaire rather than to develop a composite of expectations from all their courses. Additionally, each faculty member was assured that all the results would be considered confidential. Following the administration of the questionnaire, the student workers were responsible for entering the responses into a centralized data base and for developing individualized expectation maps for each of their assigned faculty members.

Phase four started following the development of a personalized, two-part expectation map for each professor. In this phase, a random sample of 50 (10 from each discipline) of the participating faculty member was selected to have a questionnaire administered to their target class. These questionnaires were individually developed from each faculty member's expectations and designed to gauge how accurately the students perceived the professor's expectations along with several test variables (e.g., expected grade, GPA). Subsequently, these questionnaires were administered along with a 10-question student-faculty respect instrument (Emery, 2002) to 1,328 students across 50 courses during their last week of class.

Phase five involved the hypotheses testing, descriptive analysis and an exploration of the relationships between expectations and demographic variables. The expectations and the relationships between the expectations and demographic variables were examined for variances ($p>.05$) using SPSS cross-tabulation and chi-square analysis and PHstat chi-square analysis of proportions. Hypothesis testing of the students' perceptions of their professor's expectations was performed using a correlation analysis of gap measures. Expectation gap measures were developed by comparing the students' perceptions of the professors' expectations to those indicated by their professors. Subsequently, a gap measure was calculated for individual students by giving them a minus 3 for each missed basic need, a plus 1 for each identified satisfier and a plus 2 for each identified delighter. In turn, correlation analyses were conducted to compare the gap measures with the students' course grade and overall grade point average. Implicit in these comparisons were the notional hypotheses that there would be significant and positive correlation between the student's ability to properly perceive the professors' expectations and his or her course grade. Further, it was believed that students who properly perceived the professors' expectations probably had a higher degree of "pattern sense" and as such, it would be reflected by a higher grade point average.

RESULTS

Usable questionnaires were obtained from 91 faculty members at a state teaching-oriented university. Respondent demographic variables were comprised as follows: (1) Gender-male 49, female 42; (2) Age-under forty, 37, forty and over 54; (3) Academic discipline-business 15, social science 22, natural science 12, general education 26, and education 15 (4) Total Experience-10 years or less 42, greater than 10 years 49; and (5) Course Level-100 level 14, 200 level 36, 300 level 28, 400 level 13. As anticipated, the professor expectations varied across a wide range terminology, but exhibited some commonalities; particularly the "basic needs". For example, 100% of the faculty indicated that meeting deadlines and correct spelling/grammar were "basic expectations" of homework assignments. Regularly reported "basic needs" or expectations for classroom behavior were "attendance" (100%) and "pays attention" (100%). There was, however, significantly more variance in the faculty members' definition of "satisfiers" and "delighters". This was as expected since "satisfiers" and "delighters" vary significantly by teaching style/philosophy as well as by course level and discipline. Commonly held homework "satisfiers" were "organized answers" (52%), "justified answers" (47%) and "demonstrated comprehension of material" (43%). Recurrent behavior "satisfiers" were "volunteers answers" (78%) and "demonstrated familiarity with the text" (68%). Frequently reported homework "delighters" were "integrated material previously learned" (75%), "provided a creative approach to problems" (83%) and "explores additional material without being asked" (92%). Repeated behavior "delighters" were "takes risks in classroom discussion" (65%) and "relates concepts to real life situations" (52%). Figures 2 and 3 in the Appendix indicate the expectations reported by at least 30% of the faculty members.

Table 1: Sample of the Most Frequently Reported Expectations by Faculty Members	
Classroom Behavior Expectations	**Frequency (%)**
Basic Needs	
Attends class frequently	100
Pays Attention and takes notes	100
Satisfiers	
Volunteers answers	78
Demonstrates familiarity with the text	68
Delighters	
Takes risks in classroom discussion	65
Relates concepts to real life situations	52
Homework Assignment Expectations	
Basic Needs	
Provides correct spelling and grammar	100
Meets deadlines	100
Satisfiers	
Provides organized Answers	52
Provides justified Answers	47
Delighters	
Explores additional material without being asked	92
Provides a creative approach to problems	83
Integrates material previously learned	75

Gap measures were developed between each of 50 faculty member's expectations and his or her students' perception of the faculty member's expectations. Subsequently, these gap measures were used to test the five hypotheses. The first two hypotheses dealing with the relationship between the faculty member's aggregate (i.e., all three categories combined) expectations and the student's course grade and grade point average were supported; H1: r=-.45 @ p=.027 and H2: r=-.56 @ p=.036. Support of H1 suggests that students, who do a better job of seeking and understanding a professor's expectations, have a higher degree of success in that particular class. Further, support for H2 suggests that students, who have a higher grade points average, do a better job of seeking and understanding professor expectations.

The second two hypotheses dealing with the relationship between the faculty member's "basic needs" expectations and the student's understanding of these expectations were supported; H3: r=-53 @ p=.001 and H4: r=-.61 @ p=.001. Support for these hypotheses confirms the notion

that a lack of understanding of "basic" (or mandatory) expectations has a significant impact on one's grade. Further, it also suggests that student's who fail to understand basic expectations will have less success in college.

Lastly, the hypothesis (H5) suggesting that there would be a significant (negative) degree of correlation between a student's respect for the teacher and his or her understanding of the teacher's expectations (gap measure) was supported at the aggregate level of expectation ($r=-.27$ @ $p=.05$) and at all of the three categories of expectation, i.e. "basic needs" $r=-.52$ @ $p=.001$, "satisfiers" $r=-.36$ @ $p=.027$, and "delighters $r=-.21$ @ $p=.072$. This finding reinforces the linkage between respect and communication (specifically listening). As an aside, the level of respect was significantly correlated ($p<.05$) with grade objective ($r=.44$), grade expectation ($r=.35$) and overall grade point average ($r=.67$). This further suggests that student grades are affected by listening skills and that listening skills are affected by the respect that the listener has for the communicator.

DISCUSSION

Overall, the results indicate a surprising uniformity across the various demographic variables. One might have expected remarkable differences between gender, age, discipline, teaching experience and course level, but few were found. This is good news, from a student's perspective. The findings indicate there is a core of expectations that cut across these demographic variables; particularly at the "basic needs" level. As such, a student can consider these expectations as instrumental to success in most classes. Further, it is important to note that the core expectations were differentiated within the Kano model. In other words, all expectations were not considered equal. The lowest level or "basic needs" expectations were the everyday behaviors that one expects of a student, i.e. meeting deadlines, correct spelling/grammar, attendance, and paying attention. A student must meet all of these expectations or the professor is dissatisfied. It's interesting to note that there was 100% concurrence of the faculty members on these four expectations.

Once the "basic needs" are met, a student can raise his or herself linearly in the eyes of the professor by performing the "satisfiers". Although six expectations (i.e., organized answers, justified answers, demonstrated comprehension of material, volunteered answers, and demonstrated familiarity with the text) were most frequently identified as "satisfiers", this level of expectation had the widest range of comments. As one might suspect, "satisfiers" are very class specific. However, it is interesting to note that "volunteering answers" was the most frequently mentioned "satisfier". This would suggest that a student's verbal response to the material is an important factor in a professor's mental assessment of performance. Lastly, the "delighters" (i.e., integrates material previously learned, provides a creative approach to problems, takes risks in classroom discussion, and relates concepts to real life situations) offer the student an opportunity to geometrically raise his or herself in the professor's eyes. These are unexpected actions and when exhibited, they readily

grab a professor's attention. It is not surprising that these expectations are more cerebral in nature and often associated with the best students.

These findings on professor expectations appear to have a strong correlation with the research conducted by Parasuraman, et al. (1988) on how customers judge service quality. They indicated that the expectation of "reliability" (e.g., dependable and accurate performance as promised) was the key "deal breaker", not "deal maker". In other words, one expects "reliability" and therefore you are not rewarded for meeting the expectation. This thought process is analogous to Kano's level of "basic needs". One is not rewarded for meeting the "basic needs". In order to receive rewards, one needs to concentrate in areas where the expectations are lowest. This is the realm of the "delighters". Meeting or exceeding expectations in this area geometrically increase the customer's (professor's) satisfaction.

CONCLUSIONS

In short, the findings suggest that higher student performance might be achieved, if students understand their professors' expectations. In order to accomplish this task, teachers first need to get the students to understand the philosophy and importance of understanding customer needs and how to create customer satisfaction. Once that is accomplished, the professor should translate that understanding of customer relations to a paradigm in which the student's "supervisor is the customer". Students should be able to relate to the fact that their supervisor is their most important customer on the job. Discuss typical expectations that a supervisor might have on the job using the Kano process for communicating expectations to subordinates (Emery, 2003). Next, ask the students how they might determine their supervisor's specific expectations. Once this thought process has been developed, it's a short leap to the "professor is the customer" paradigm and the communication of professor expectations.

In addition to teaching the students how to determine their professors' expectations, professors need to reinforce their understanding throughout the course. For example, a professor might place a copy of his or her expectations in the course syllabus using a Kano chart to differentiate the "basic needs", "satisfiers", and "delighters". (Note: Figures 2 and 3 in the Appendix indicate the expectations reported by at least 30% of the faculty members in this study and might be suitable for including at the end of a syllabus.)

Further, the teacher needs to reinforce expectations on a daily basis much the same that a supervisor would use "walk about" management. According to Chickering and Gamson (1987), frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Use this contact to reinforce expectations. Often expectations are not understood or internalized the first time; as such, they need continual reinforcement using practical examples of "basic needs", "satisfiers", and "delighters". Additionally, understanding customer's, supervisor's, or professor's expectations is closely related to how well one listens. A prerequisite

of effective listening is respect. As such, professors should work on those attributes that increase student respect (e.g., care about student learning, create a friendly and non-intimidating climate, encourage class discussion, etc.) (Emery, 2002). Lastly, the concept of communicating expectations is such an integral part of the learning process, it deserves to be part of the course/teacher evaluation or feedback form. In other words, a measure of whether the students understood the professor's expectations.

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APPENDIX
FACULTY EXPECTATIONS OF CLASSROOM BEHAVIOR AND HOMEWORK ASSIGNMENTS

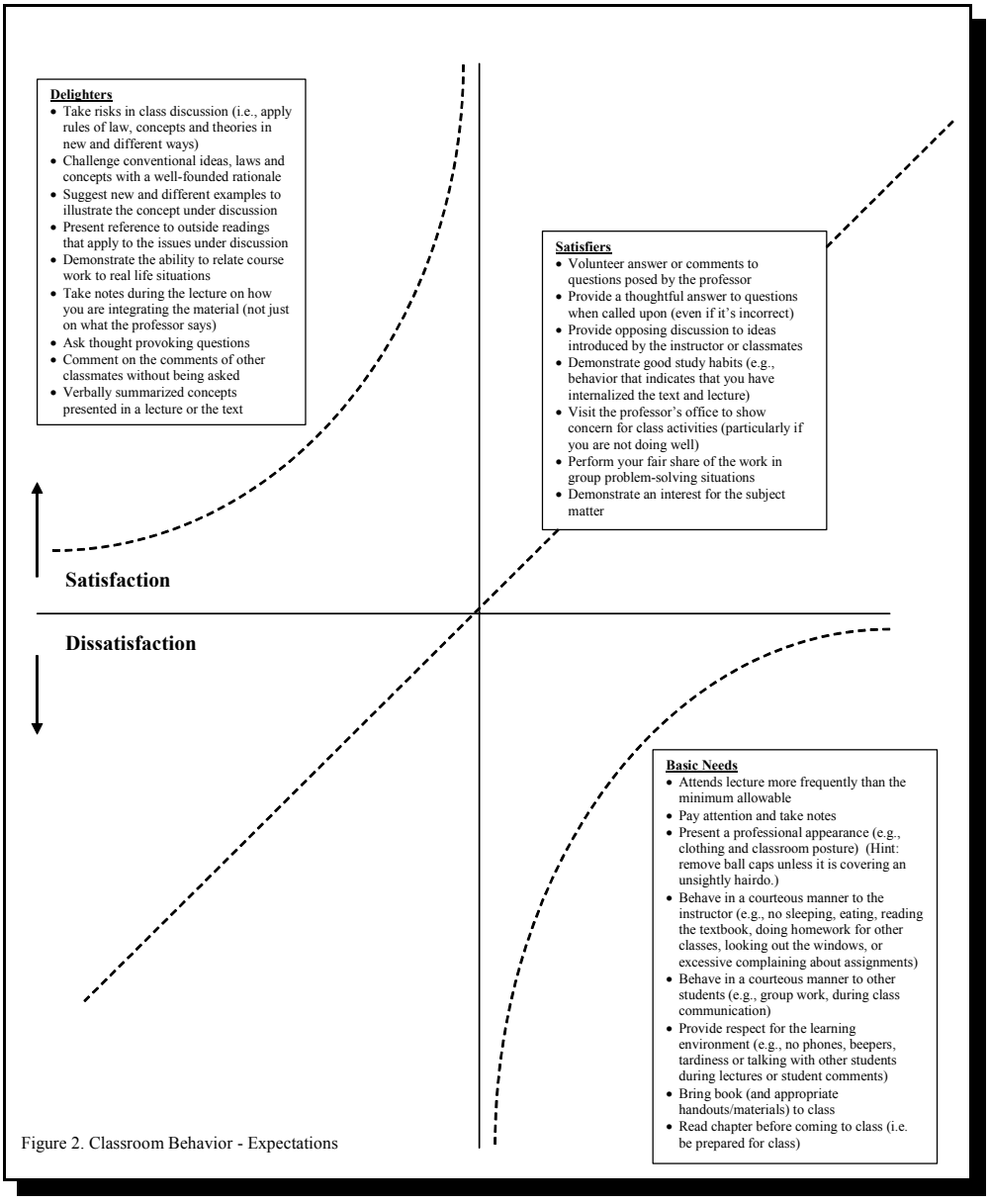

Figure 2. Classroom Behavior - Expectations

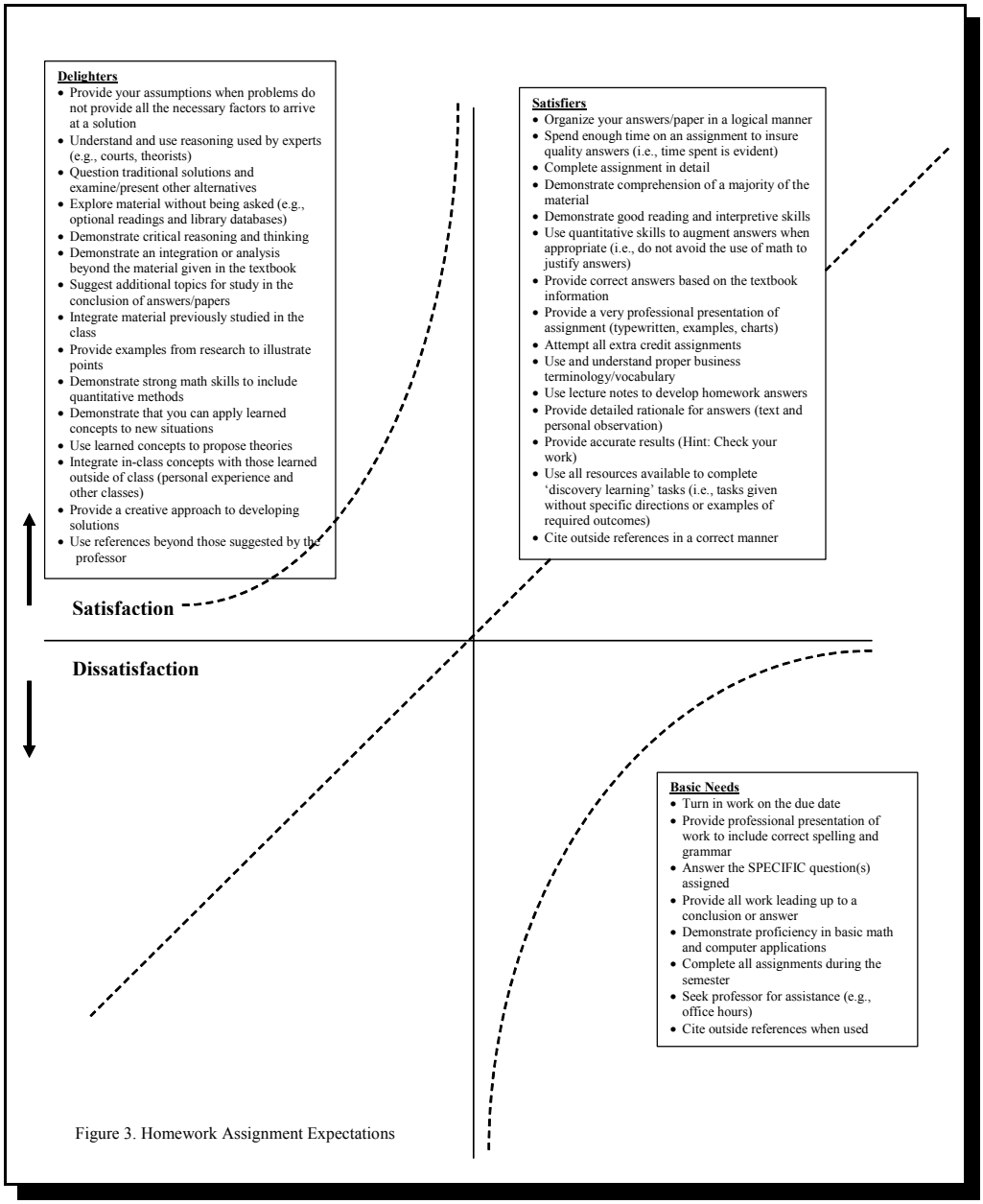

Figure 3. Homework Assignment Expectations

FROM GROUP ASSIGNMENT TO CLASS E-BUSINESS PROJECT: A "MEDICAL ROTATION" APPROACH

Madhu T. Rao, Seattle University
Diane Lockwood, Seattle University

ABSTRACT

Most group project assignments in MIS or E-commerce courses develop students' intra-group team building skills, but fail to address larger inter-group or cross-functional integration skills. A class e-business project based on a "medical rotation" model was designed to emulate cross-functional integration demands found in a business environment, while simultaneously exposing students to each of the major functional areas involved in managing technology companies. The medical rotation approach to e-business development is described herein and is offered as an alternative pedagogical model to emphasize the development of inter-group skills with broad exposure to all areas of e-commerce. Students reported a high level of satisfaction with the E-business project, in spite of some inevitable coordination challenges.

INTRODUCTION

Real world business processes often require integration of multiple activities across several different functional areas. For example, the process "pay vendors," involves accounting, shipping and receiving, and manufacturing tasks. Organizational effectiveness in supporting such cross-functional processes requires extensive communication among functional areas (Smart & Barnum, 2000)

Universities have traditionally attempted to mimic real world business team processes through the use of group projects. Business schools, in particular, have been vocal advocates of this type of experiential learning (Keys, 2004). Unfortunately, the structure of most group assignments does not resemble a true working environment. In the traditional group-centric assignment, students are divided into small teams, either self-selected or ad hoc, and then work as a group to accomplish a relatively complex task (e.g., design and develop a web site). A significant volume of research has addressed the advantages of a group learning approach. These include an understanding of group dynamics, more comprehensive assignments, the development of interpersonal skills, exposure to multiple viewpoints, and a more realistic preparation for the business environment (Mello, 1993). While such a group approach addresses important aspects of team-oriented work, these types of assignments do not, unfortunately, capture the larger and more problematic issue of inter-team

communication. In speaking of the nature in which cross-functional engineering groups must cooperate on a project, the nanotechnology researcher Eric Drexler (1991) wrote:

> *"If the finished parts are going to work together, they must be developed by groups that share a common picture of what each part must accomplish. Engineers in different disciplines [e.g., mechanical, electrical, aerospace] are forced to communicate; the challenge of management and team-building is to make that communication happen".*

To best of the authors' knowledge, this paper is the first to offer a potential solution to the inter-group gaps in simulated business team environments. The paper argues for an integrated, "medical rotation" approach to team projects which addresses the challenges of inter-team communication and coordination, while simultaneously preserving the advantages of traditional group assignments.

THE MEDICAL ROTATION EXEMPLAR: ESTABLISHING AN E-BUSINESS

The medical rotation approach to education and training is a time-honored method for developing potential doctors in their area of future specialization. The model focuses on exposing students to a variety of fields within their chosen medical specialty. For example, the surgical residency program at The University of Arizona requires all first-year residents to go through mandatory one-month rotations in orthopedic surgery, urology, vascular surgery, neurosurgery, anesthesiology, trauma surgery and emergency medicine. The resulting program "provides surgical residents with broad clinical experience, comprehensive education in surgical sciences..[1]."

The philosophy behind the medical rotation model is certainly applicable to the business education as well. Ideally, students should be exposed to all areas of business in an integrated real-world environment. In addition, unlike the silos of learning in residency rotations, business students must also learn to effectively coordinate and link the operations of multiple functions of an organization - a process heavily dependent on cross-team communication. Unfortunately, traditional group projects ignore this aspect of multiple team dependencies and miss out on an important teaching opportunity.

To effectively capture the interdependencies inherent in complex integrated environments, 27 undergraduate business students in an introductory electronic commerce class were asked to work as a single enterprise and establish a fully-licensed e-business. In the interests of time, the students were given a specific marketspace on which to focus - a student-run faculty and course feedback website. This involved, among other things, defining a mission statement, conducting market research, designing and developing a website, applying for a business license, registering a trade name and domain name, and setting up online databases.

TEAM STRUCTURES AND COORDINATION

The medical rotation approach requires that each student group be exposed to every functional area within the business unit. This is achieved by rotating each team between areas every two to three weeks. To ease coordination efforts, team composition was kept constant and all members of a given cohort would rotate as a block to the next function together.

As in true business environments, it is important to construct teams whose composition reflects the skills needed to accomplish a specific task. However, since the teams in this project would be rotating every two weeks, it was critical to ensure that each group had a broad mix of skills that would be useful regardless of the functional area they were assigned in a particular rotational period. For this reason, information was collected from each student through an online form that queried them on their perceived skill set (see Appendix A). This information was then used in combination with the academic objectives of group diversity (both in terms of gender and nationality) to create five interlocked functional teams - Accounting, Web Design and Development, Sales and Advertising, Market Research, and Legal and Ethics (Figure 1).

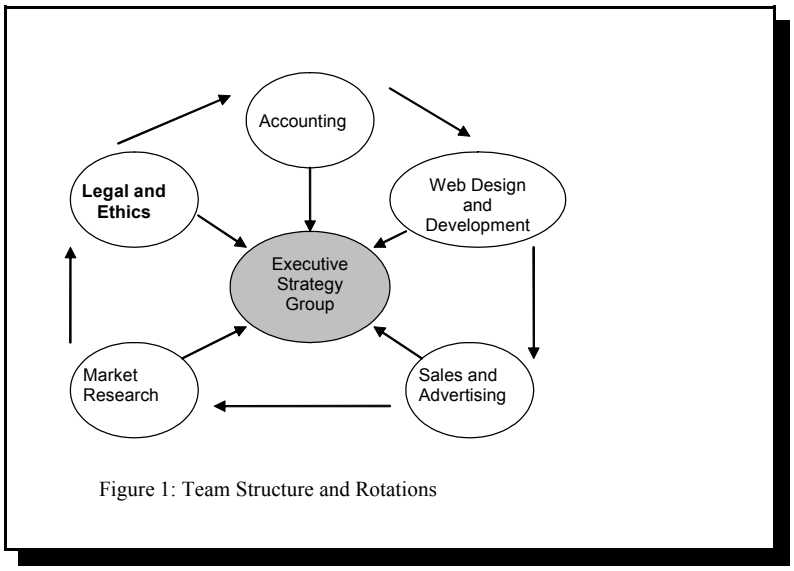

Figure 1: Team Structure and Rotations

Each team was assigned an internal leader, based on the responses received to the question about leadership skills. These five team leaders formed the Executive Strategy Group that would guide team activities and coordinate inter-team communications. The first 15 minutes of each class involved the team leaders presenting a quick oral overview of the status of their group's work to the rest of the class. This allowed every member of the class to have a 360˚ view of the project. At the

end of each rotational period, the five members of the Executive Strategy Group, along with the course professor, would meet and "hand-off" responsibilities to the incoming team while simultaneously accepting new tasks from the group they were taking over. Table 1 identifies the primary responsibilities of each team.

Table 1: Team Responsibilities

Team	Responsibilities
Accounting	Collection and disbursement of project funds, while maintaining detailed records with an appropriate business accounting software package.
Web Design and Development	Design, development, and maintenance of the company website. This includes, but is not limited to, domain registration, web host selection, website design and development, and support for online survey development and testing.
Sales and Advertising	Determining appropriate advertising mix as well as the development of on- and off-campus collaboration with third-party establishments.
Market Research	Design, development, collection, and analysis of student and faculty surveys.
Legal and Ethics	Application for necessary state and city business licensing, trademark and intellectual property issues, student privacy and university regulations.
Executive Strategy Group	Composed of five team leaders. Responsible for long-term strategic direction of enterprise as well as coordination of cross-functional interactions.

FUNCTIONAL AREA TASKS

For such a complex project to succeed, a significant amount of advanced planning was required. Given the time-compression that occurs in a university setting, goals and associated tasks for each of the five functional areas needed to be clearly laid out at the beginning of the term. During a given rotation, a team would continue on the task list from where the previous rotational team had left off. This, of course, would often depend on the successful completion of a prerequisite task of another functional area. It was this dependence on other student teams in the project that simulated the cross-functional integration and inter-group communication so important in real-world organizational environments. Table 2 lists sample activities and collaborations for the first rotation of the project (Weeks 1 and 2).

Table 2: Sample Activities and Cross-functional Collaborations for Rotation 1 (Weeks 1 and 2)		
Team	Activities	Collaborate With
All teams and members	Define mission statement	
	Finalize company name	
Accounting (ACTG)	Research potential banks	L&E
	Collect project checks and issue receipts	L&E
	Research accounting software	WDD
Web Design and Development (WDD)	Register domain name	ACCTG
	Research and select web hosting organization	ACTG
	Set up student accounts for all participants	
Sales and Advertising (S&A)	Research potential advertising outlets	
	Determine resource needs for advertising campaign	ACTG
	Design company logo and tag line	WDD; L&E
Market Research (MR)	Begin design and development of online survey	WDD; S&A
Legal and Ethics (L&E)	Apply for necessary business licenses	ACCTG
	Research business insurance needs	
	Register for trademarks	ACCTG

INTRA- AND INTER-GROUP COORDINATION

The coordination of teams is an enabling process that allows for linkages between interdependent groups (Van de Ven, Delbecq, and Koenig, 1976). Typically coordination activities lead to the controlled flow of information and deliverables between members of an organization - in this case, the class e-business. A mechanism of coordination is any administrative device used to achieve integration among different functional groups within an organization (Martinez and Jarillo, 1989). There is a significant volume of research available that examines the nature and role of such mechanisms in a business context. Typically, these mechanisms increase in complexity and cost as organizations grow (Galbraith and Nathanson, 1978; Galbraith and Kazanjian, 1986) and move from simple hierarchies focused on vertical communication to integrating roles and departments that foster lateral coordination activities (Galbraith, 1994).

This project provided the students a number of different integration tools that allowed them to coordinate both internally within their team as well as cross-functionally with other groups. Table 3 summarizes the primary mechanisms utilized for the project.

Table 3: Intra- and Inter-Group Coordination Mechanisms		
Coordination Mechanism	Coordination Mode	Description
Discussion Boards	Intra-group	A central online site assigned to a functional area, rather than a team. Teams switch discussion boards when rotating to new area, thus ensuring continuity and memory of discussions occurring within a function.
Shared Portal	Inter-group	A document sharing portal that allows for deliverables to be placed at a central server. All teams have access to the same documents and may access and modify documents as needed. Allows for greater version control as well as a 360˚ view of project.
Class Briefs	Inter-group	Team leaders present current status of project to other project members at beginning of class. Allows for lateral communications as well as a 360˚ view of project.
Rotation Meetings of Executive Strategy Group	Inter-group	The five team leaders meet to organize hand-off to next team. Discuss functional objectives for the new rotation.

COMPARISON OF CLASS PROJECTS VS. GROUP ASSIGNMENTS

The primary purpose of this project was to give students the opportunity to experience the dynamics of internal group communications as well as cross-functional integration demands. Major distinctions between Class assignments and Group projects are identified in Table 4.

LIMITATIONS AND CONCLUSIONS

Students reported a very high level of satisfaction with the class project. While the reported satisfaction was high, anonymous student feedback received as part of course evaluations indicated some frustrations with the amount of work involved and the uneven distribution of the load across the period of the term. Since there was no control group used comparing the deliverables of traditional group assignments versus the class e-commerce project, no conclusions can be drawn at this time regarding the relative efficacy of either pedagogical method on performance.

There are, however, a number of benefits to be gained from using the medical rotation approach to projects, including:

- A better simulation of the cross-functional skills needed to excel in true business environments while maintaining the original benefits of traditional group assignments.
- Exposure to all aspects of e-businesses allows students to understand the interdependencies of the various functions within a business
- Developing a real working e-business site creates a sense of ownership among the students and a greater level of peer motivation.

There is an acknowledged need for providing students with greater opportunities to experience the types of team environments that they will be entering upon graduation. Unfortunately, the typical structure of group assignments do not take into the account the integration of activities demanded across various functional teams. This project simulated such an environment while simultaneously providing exposure to all major areas of operating an e-business.

Table 4: Comparison of Class Projects versus Traditional Group Assignments

CLASS PROJECT	GROUP ASSIGNMENT
Communication: offers skill development in both intra- and interpersonal communications	Offers skill development in primarily intra-personal communications
Functional Area Knowledge: forces in-depth knowledge of several functional areas through rotations	Tends to focus on the development of specific skills areas (e.g., marketing student does marketing part, accounting does accounting, etc.)
Scale & Complexity: much larger and mirrors complexity of a real world business cross-functional project	Smaller, less complex, emphasis on intra-group coordination
Task Integration: increases awareness of inter-group task dependencies	Increases awareness of intra-group task dependencies
Project Coordination: much more complex inter-group coordination requirements	Nonexistent inter-group task coordination requirements
Student Workload: uneven distribution of work load over the term because of task dependencies (i.e., one group has to wait for the output of the antecedent group)	More even distribution of student and instructor work load because inter-group task dependencies are minimized

ENDNOTES

[1] http://www.surgery.arizona.edu/education/residency-programs/general-surgery/program-overview.htm

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Appendix A: Team Composition Survey

1. On a scale of 1 (very poor) to 7 (exceptional), how would you rate yourself in the following areas?
   a. Writing skills
   b. Presentation skills
   c. Analysis skills
   d. People skills
   e. Organizational skills
   f. Web Design skills
   g. Leadership skills

2. What do you see as your main strengths and weaknesses (in the context of this project)

3. Which of the following teams would you like to start with for the project?
   a. Accounting
   b. Web Design and Development
   c. Sales and Advertising
   d. Market Research
   e. Legal and Ethics

4. On which of the following teams do you think you will have the most impact?
   a. Accounting
   b. Web Design and Development
   c. Sales and Advertising
   d. Market Research
   e. Legal and Ethics

5. Would you be interested in becoming a team leader?

USING THE BUSINESS FRAUD TRIANGLE TO PREDICT ACADEMIC DISHONESTY AMONG BUSINESS STUDENTS

D'Arcy Becker, University of Wisconsin-Eau Claire
Janice Connolly, University of Wisconsin-Eau Claire
Paula Lentz, University of Wisconsin-Eau Claire
Joline Morrison, University of Wisconsin-Eau Claire

ABSTRACT

Crib notes, paper mills, cell phones, copying and pasting from the Internet, hand signals during exams, copying homework-the ways in which students engage in academically dishonest behaviors are numerous, and research suggests that most students cheat at some point in their college careers. In addition, some studies indicate that business students are more likely to cheat than students in other disciplines.

Much research has been conducted to determine the prevalence of academic dishonesty and to discover characteristics of those who engage in academic dishonesty. Less research attempts to develop a general model for understanding underlying motives or predispositions for engaging in this behavior. Such a model may assist faculty with efforts to reduce or eliminate academic dishonesty.

Our study develops and tests a model of student cheating that is derived from a model of dishonest behavior in business: the fraud triangle. Participants in this study were 476 business students. The study showed that each of the elements of the fraud triangle-incentive, rationalization and opportunity-is a significant determinant of student cheating. We also analyzed the results for impacts related to student GPA, student gender, hours spent working per week, student age, and frequency of partying behavior. Results show that age and frequency of partying were also significant determinants of student cheating. Implications for faculty are discussed.

INTRODUCTION

Crib notes, paper mills, cell phones, copying and pasting from the Internet, hand signals during an exam, copying homework-the ways in which students engage in academic misconduct are numerous. For the purpose of this study, academic misconduct, cheating, or dishonesty refers to any instance in which a student claims credit for the work or efforts of another without authorization or citation. Examples commonly listed on college and university Web sites include using unauthorized

material or fabricated data in academic exercises, forging or falsifying academic documents or records, intentionally impeding or damaging the academic work of others, engaging in conduct aimed at making false representation of a student's academic performance, or assisting other students in any of these acts.

Research suggests that most students cheat at some point in their college careers, some as frequently as once or twice a semester (Hollinger & Lanza-Kaduce, 1999). McCabe and Trevino (1996) found that 66% of students at several prestigious colleges and universities reported cheating, and at state colleges and universities 70% reported cheating on tests and 84% reported cheating on homework assignments. Thus, the prevalence of academic dishonesty is well documented.

Previous research has been conducted to discover characteristics of students who engage in academic dishonesty; they are thought to tend toward some common characteristics. Few studies have attempted to develop general models for understanding underlying motives or predispositions for this behavior. Such models may assist faculty with efforts to detect or prevent academic dishonesty.

This study examines the academic dishonesty of business students. A model of student dishonesty based on the business model of the fraud triangle is developed and tested. We hypothesize a relationship between academic dishonesty (a type of fraud) and the incentive to cheat (e.g., to get a better grade), the opportunity to cheat (e.g., faculty do not deter cheating) and the ability to rationalize cheating (e.g., penalties are not severe so faculty don't care about cheating). The purpose of our study is to determine whether these dimensions (incentive, opportunity, and rationalization) help explain business students' attitudes toward and participation in academic dishonesty.

Faculty who know specific factors that lead to cheating will be better able to prevent and detect academic dishonesty. Therefore, we discuss implications of our results for faculty.

LITERATURE REVIEW

One reason to be concerned about business student academic dishonesty is that business students are consistently near the top of rankings of students most likely to cheat, perhaps because they've already adopted a 'bottom line' mentality (Riley, 2004). The implication is that the ends (better grades) justify the means (cheating). In addition, business majors seem to have more tolerant attitudes toward cheating (Roig & Ballew, 1994). These are disturbing findings, in part because dishonest behaviors in school may have serious ramifications for students' future behavior. Students who report they engage in academic dishonesty in the classroom are more likely to report they engage in many types of dishonesty in the work place (Sims, 1993; Nonis & Swift, 2001).

Interestingly, many students believe they are more ethical than business people (Tyson, 1990). One study found that 84% of students said they were disturbed by recent scandals in corporate America, and 77% thought CEOs should be held accountable for unethical behavior.

However, these same students claimed they had cheated on exams and papers and stated they would not report fellow students for cheating (Merritt, 2002). Students (at least those who cheat) are clearly not as ethical as they may believe.

Much research has attempted to isolate characteristics of students who cheat. Students with low academic ability or low academic achievement, students who are members of a fraternity or sorority, students who are influenced by peer approval and peer cheating, and students from large state institutions may cheat more often (Bolin, 2004).

Results are somewhat mixed in determining whether gender plays a role in student cheating. Some studies have found men are more likely to cheat (Bolin, 2004; Hendershott, Drinan, & Cross, 1999). Others have found students of both genders cheat when the circumstances are right. For example, Tibbets (1999) found that women are more likely to cheat when morals and grades are their motivators, while men are more likely to cheat if they have a history of cheating behavior and if they find cheating fun or enjoyable. Many studies report that gender is not a strong predictor of cheating behavior (c.f. Franklyn-Stokes & Newstead, 1995; Nowell & Laufer, 1997; Vowell & Chen, 2004).

In addition to research on the characteristics of students who cheat, some research has attempted to model underlying motives and predispositions for engaging in academic dishonesty. For example, Vowell and Chen (2004) found that academic dishonesty is contingent upon the attitudes and behaviors of students with whom they associate. Bolin (2004) found that academically dishonest behavior is affected by both students' ability to rationalize academic dishonesty (what he terms 'attitude') and the perceived opportunity to engage in academically dishonest behavior.

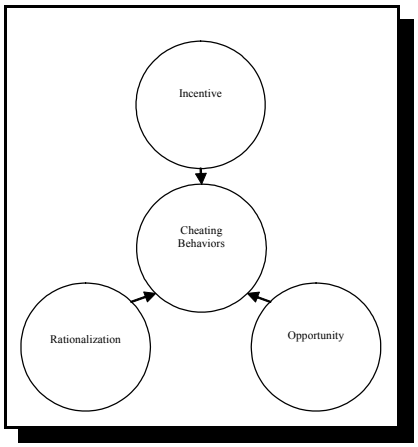
Our current study builds on the work of Bolin (2004). If the dimension of incentive were added to Bolin's model, his model would parallel the business model known as the fraud triangle. The fraud triangle (Ramos, 2003) models fraudulent behavior as a function of incentive, opportunity and rationalization (see Figure 1). Fraud is defined as "the intentional deception or misrepresentation that could result in some unauthorized benefit to oneself or other person, something that is not what it pretends to be (Oxford American Dictionary). Academic dishonesty, therefore, may be characterized as academic fraud.

Given the propensity of business students to cheat and given the relationship between academic dishonesty and the continuation of dishonest behavior in the workplace, a business model such as the fraud triangle seems an apt framework for understanding the motivation for business students' academic dishonesty. When all three elements of the fraud triangle are present, fraud does not necessarily exist, but it is more likely (Ramos, 2003). Similarly, when all three elements of the triangle for cheating are present, students do not necessarily cheat but cheating is more likely. Consequently, whether in school or in business, the willingness to cheat is context-sensitive. Cheating is a practical solution to a problem, given the right circumstances.

Both students and business people report the need to weigh the "practicality" versus the "ethicality" of decisions and report trying to balance these two needs (Lawson, 2004). Sometimes,

practical needs outweigh ethical considerations, and other times ethics are most important. Teachers know that students do not cheat all the time, and do not always cheat on the same tasks. Students sometimes write their own papers and other times purchase papers online. They sometimes take unauthorized notes into an exam and other times answer questions on their own. The same phenomenon exists in business. Some earnings reports may be managed, others may be accurate; some cash receipts stolen, others left in tact; some expense reports padded and others prepared accurately.

Figure 1
Proposed Model of Cheating Behavior



The issue of context is important because it may expose an individual to the three elements of fraud (incentive, opportunity, and rationalization). The first element is incentive/pressure: the motivation to cheat may come from within the student or from another person. Students report many different incentives to cheat. Some students may find incentive in the pressure from their parents, peers, colleges, or employers to maintain a high GPA. Others cheat because they want to be viewed as more successful, respectable, or influential (Kock & Davison, 2003).

The second element is opportunity, which may also come from different sources. Some students see their academic communities as providing opportunity to cheat when professors overlook obvious cheating during exams or make no comments about plagiarism on term papers (McCabe & Trevino, 1996). Some students see opportunities to cheat when offered answers to an exam from a student in an earlier class who took the same test. Some students see opportunities to cheat when they see others cheating.

The third element is rationalization/attitude, which represents the ability of students to see cheating as consistent with their personal codes of ethics. Students may rationalize cheating if they perceive unfair competition (McCabe & Trevino, 1996), or if they believe their actions are within

the bounds of acceptable behavior (Kock & Davison, 2003). For example, students might claim not to know what level of idea borrowing is acceptable when writing a paper. In addition, the lack of enforcement of penalties for academic misconduct may contribute to a student's ability to rationalize cheating. If the university does not care enough to enforce rules, students may infer that following the rules is not terribly important.

While these reasons to cheat have been identified in prior research, prior research does not address these three elements together. Thus, the hypothesis of this study is that students are more likely to cheat when they perceive the presence of incentive, opportunity, and rationalization for cheating. Figure 1 illustrates the research model.

METHOD

Two surveys were conducted as part of this study. The preliminary survey identified behaviors business students consider academically dishonest. The final survey measured student participation in academically dishonest activities using the behaviors identified in the preliminary survey. The final survey also measured the elements of the fraud triangle, incentive, opportunity and rationalization.

Preliminary Survey

The purpose of the preliminary survey was to verify that students believed certain common academic behaviors to be forms of cheating. To test the fraud model, we needed to measure cheating and use that measure as a dependent variable. We wished to identify the items students found least acceptable to ensure a good test of our model. For example, if students found a certain behavior only somewhat unacceptable, they might be more likely to engage in that behavior. Their reasons for engaging in that behavior might not be the same as their reasons for engaging in a behavior they would rate as highly unacceptable. There are many different academic dishonesty scales, and it was not obvious which items business students would believe to be least acceptable.

The preliminary survey included 14 academically dishonest behaviors identified in prior research. Participants in this survey were 598 students in lower-division business courses at a regional Midwestern university from all business majors. Participation in the survey was voluntary and anonymous; the surveys were completed during class time. Students were asked to rate the acceptability of each behavior using a 5-point Likert scale ranging from (1) Always unacceptable to (5) Always acceptable.

Survey items were adapted from the Academic Dishonesty Scale (McCabe & Trevino, 1993; Bolin, 2004), the Attitude Toward Cheating Scale (Gardner & Melvin, 1988), and from dishonest behaviors identified by Brown and Chang (2003). Items related to homework assignments (e.g., "Copy material and turn it in as your own work"; "Collaborate on an assignment when the instructor

asks for individual work"), group projects ("Take credit for full participation in a group project without doing a full share of the work"), and exams (e.g., "Copy from another student during a test"; "Give information about the content of an exam to someone who has not yet taken the exam").

The students' ratings were analyzed, and the five measures that had the lowest average ratings (see Table 2) were used as the cheating behavior measures in the final survey.

Final Survey

The purpose of the final survey was to measure student opportunity, incentive, and rationalization of academic dishonesty, to measure student participation in academically dishonest behaviors, and to obtain information used for model sensitivity analysis (see Appendix 1 for a copy of the survey).

For the questions related to opportunity, incentive, and rationalization, students used a 4-point rating scale ranging from (1) Strongly Agree to (4) Strongly Disagree. The scale purposely did not have a midpoint to prevent respondents from taking a neutral stance. The questions related to incentive, opportunity and rationalization were mixed to reduce the ability of participants to recognize the purpose of the questions. Further, some questions were reverse-worded to reduce effects from students just answering every question with the same rating without reading each item.

For the questions related to academic dishonesty, students reported the number of times they had participated in each behavior, ranging from zero times to more than five times. A similar method of measuring cheating was used in Bolin (2004). Behaviors measured included how often students had "Copied material and turned it in as your own work", "Used unfair methods to learn what was on a test before it was given", "Copied a few sentences of material from a published source without giving the author proper credit", "Helped someone else cheat on a test" and "Cheated on a test in any way."

Incentive measures were adapted from Gardner and Melvin (1983). Examples of items that might provide an incentive to cheat were hypothesized to include: the class is too difficult or too much work, students feel they can't get the grades they want without cheating, the exams are too difficult, and students do not have enough time due to outside commitments.

Opportunity measures were adapted from McCabe and Trevino (1997) and Gardner and Melvin (1983). Examples of items that might provide the opportunity to cheat were hypothesized to include: the instructor does not check for plagiarism, the instructor does not change homework assignments or exams between terms, other students are observed cheating, and the instructor does not adequately deter cheating.

Rationalization measures were adapted from Gardner and Melvin (1983) and Kock and Davison (2003). Examples of items that might provide rationalization for cheating were hypothesized to include: the instructor's grading policies or workload requirements are unfair, the

instructor did not adequately explain what constitutes cheating or the penalties for being caught cheating, and faculty do not usually detect cheating.

RESULTS OF FACTOR ANALYSIS

The results of the final survey were used to test the hypothesized model of student cheating behavior. Participant statistics are shown in Table 1. Students from all business majors participated, including 199 women and 277 men. Two different orderings of the survey were used; no differences between these versions were noted in the results. Participants in the preliminary survey did not complete the final survey.

Table 1: Participant Descriptive Statistics

	All Students	Female Students	Male Students
Number of Participants	476	199	277
Students by Major			
Accounting	112	52	60
Finance	22	5	17
Mgt. Info. Systems	86	19	67
Management	72	29	43
Marketing	130	69	61
Business Admin.	34	15	19
Other Business	14	8	6
Non-Business	5	2	3
Age	22.35 years	22.30 years	22.37 years
Hours worked per week	15.75 hours	15.55 hours	15.89 hours
Hours studied per week	14.27 hours	16.00 hours	13.03
GPA	3.14 / 4.0 scale	3.23 / 4.0 scale	3.07 / 4.0 scale

Cheating behavior was measured by the five questions shown in Table 2. To ensure these cheating behavior questions all measure a similar type of cheating, principle components factor analysis was used to confirm that these questions all loaded into the same factor. Cronbach Alpha for this factor is 0.7675, indicating high factor reliability. For the analysis of student cheating, each student's responses to these five questions were summed to create one cheating score for each student. This is consistent with prior research (e.g., Becker & Haugen, 2004). This score was the dependent variable in the analysis.

Table 2: Cheating Behavior Measurement Questions from Factor Analysis Results		
Cheating Behavior Questions		
(Cronbach Alpha = 0.7675)		
Indicate how often you have engaged in each behavior since		
beginning your college career	Mean n=476	(Std Dev)
Copied material and turned it in as your own work	1.79	(1.92)
Used unfair methods to learn what was on a test before it was given	1.01	(1.52)
Copied a few sentences of material from a published source without giving the author credit	1.40	(1.84)
Helped someone else cheat on a test	0.67	(1.39)
Cheated on a test in any way	0.93	(1.51)
Rating scale of zero times to six (more than five times)		

Principle components factor analysis also determined that three questions related to the incentive for students to cheat loaded into one factor (see Table 3). Cronbach alpha for this factor is 0.6762, indicating adequate factor reliability. The factor captured these questions: "In some classes, I can't get the grade I want without cheating," "I don't have enough time to complete some assignments without cheating," and "I have a difficult time keeping up with my classes." Responses to each question were summed to create a score for incentive for each participant (ratings on each question ranged from 1 to 4, yielding scores for this factor from 3 to 12). Scores for female and male students were statistically similar. Panel A of Table 3 shows the overall average score for this factor was 6.00 and the standard deviation for the factor was 1.75.

In addition, principle components factor analysis determined that three questions related to the opportunity for students to cheat loaded into one factor. Cronbach alpha for this factor is .5685, indicating adequate factor reliability. The factor captured these questions: "Many students in my classes have copied answers to a test," "Plagiarism and cheating on tests occur frequently at our school," and "Faculty do not take substantial actions to deter academic dishonesty." Responses to each question were summed to create a score for incentive for each participant (ratings on each question ranged from 1 to 4, yielding scores for this factor from 3 to 12). Scores for female and male students were statistically similar. Panel B of Table 3 shows the overall average score for this factor was 6.52 and the standard deviation for the factor was 1.46.

Four questions related to the rationalizations students give for cheating were identified through principle components factor analysis. Cronbach alpha for this factor is .7044, indicating high factor reliability. The factor captured these questions: "If a professor does not explain what he/she considers cheating, the professor can't say I cheated," "If someone leaves a test where I can read the answers, then it's his/her fault if I copy," "The faculty usually detect academic dishonesty,"

and "The penalties for academic dishonesty at our school are not severe." Responses to each question were summed to create a score for incentive for each participant (ratings on each question ranged from 1 to 4, yielding scores for this factor from 4 to 16). Scores for female and male students were statistically similar. Panel C of Table 3 shows the overall average score for this factor was 10.58 and the standard deviation for the factor was 2.32.

Table 3: Incentive, Rationalization and Opportunity Factors from Factor Analysis Results		
Panel A: Incentive Questions* (Cronbach Alpha = 0.6762)		
Question	Mean n=476	(Std Dev)
In some classes, I can't get the grade I want without cheating	1.70	(0.77)
I don't have enough time to complete some assignments without cheating	1.98	(0.80)
I have a difficult time keeping up with my classes	2.32	(0.77)
*Rating scale for all questions in this table is one (strongly disagree) to 4 (strongly agree).		
Overall Factor	6.00	(1.75)
Panel B: Opportunity Questions (Cronbach Alpha = 0.5685)		
Question	Mean n=476	(Std Dev)
Many students in my classes have copied answers to a test	1.99	(0.71)
Plagiarism and cheating on tests occur frequently at our school	2.28	(0.68)
The faculty do not take substantial actions to deter academic dishonesty	2.25	(0.65)
Overall Factor	6.52	(1.46)
Panel C: Rationalization Questions (Cronbach Alpha = 0.7044)		
Question	Mean n=476	(Std Dev)
If a professor does not explain what he/she considers cheating, the professor can't say I cheated	2.52	(0.94)
If someone leaves a test where I can read the answers, then it's his/her fault if I copy	2.23	(0.83)
The faculty usually detect academic dishonesty	2.91	(0.76)
The penalties for academic dishonesty at our school are not severe	2.88	(0.91)
Overall Factor	10.58	(2.32)

RESULTS OF MODEL TESTING

The model shown in Figure 1 was tested for all students as one group. The results are shown in Table 4. The model explains 20.42% of the total variation in student cheating behaviors and is significant ($p<.01$). In addition, each of the hypothesized factors had a significant impact on student cheating and all effects are in the hypothesized direction. Cheating behavior rises as a student's incentive to cheat rises (coefficient is 0.84), cheating behavior rises as the level of perceived opportunity to cheat rises (coefficient is 1.23), and cheating behavior rises as student's rationalization of cheating rises (coefficient is 0.27).

Table 4: Effects of Incentive, Opportunity, and Rationalization on Student Cheating Behaviors

Regression Results: All Students Model R^2=.2042

	Sum of Squares	df	Mean Square	F	P-Value (2 tailed)
Regression	3313.3599	3	1104.4532	40.369	0.00
Residual	12913.2764	472	27.3586		
Total	16266.6363	475			

Regression Equation: CHEAT = -10.10 + 0.84 INC +1.23 OPP + 0.27 RAT + Error

Source of Variation	Coefficient	Std Error	T	P-Value (2 tailed)
Incentive (INC)	0.8350	0.1412	5.91	0.00
Opportunity (OPP)	1.2280	0.1685	7.29	0.00
Rationalization (RAT)	0.2729	0.1031	2.65	0.01

Note that cheating is more likely when incentive, rationalization, and opportunity are higher.
Cheat Mean 5.80 (of maximum value 30) (5.84)

SENSITIVITY ANALYSIS

The sensitivity of these results to other variables was examined. We tested for effects of student GPA, gender, hours spent working per week, hours spent studying per week, student age, and frequency of partying during the school year.

Student GPA could potentially impact student cheating. For example, it is possible that students who earn better grades have less incentive to cheat or have less need to rationalize cheating. We tested for GPA effects by adding GPA to the model. There was no significant impact of GPA ($p=0.54$). Student GPA did not affect the extent of cheating or the factors for cheating.

Student gender may also affect cheating (e.g., Buckley, Wiese, & Harvey 1998); some studies have shown that women are less likely to cheat (e.g., Hendershott, Drinan, & Cross, 1999). We tested for gender effects by adding student gender to the model. There was no significant impact of gender ($p=.84$). Female and male students cheated to the same extent and their cheating behaviors were driven by the same factors.

Hours spent working each week may be another important determinant of student cheating. The more time a student spends working the less time is available for school work, which may provide an incentive to cheat or a reason to rationalize cheating. We tested for effects of hours spent working by adding hours worked per week to the model. There was no significant impact of hours spent working ($p=.22$). Students who worked more were not more inclined to cheat and did not have different reasons for cheating.

Hours spent studying may also impact cheating behavior. Students who study more should have less incentive to cheat. We tested for effects from hours spent studying by adding this variable to the model. There was no significant impact from hours spent studying each week ($p=.11$). The extent of student time spent studying did not affect the extent of cheating or the factors for cheating.

Student age also may impact cheating behavior. Older students may experience less panic in juggling work, school, and life and resort to cheating less often than younger students. They may have less incentive to cheat. In addition, they may be less able to rationalize cheating because they have a broader world view than younger students. We tested for an age effect by adding student age to the model. As shown in Table 5, age is a significant driver of student cheating ($p=.04$) and is negatively related to cheating behavior. Older students report less cheating than younger students.

The potential impact of student partying during the school year was also considered. The more frequently a student parties, the less time spent on academics. We asked students to report the frequency of their partying during the school year, and included this variable in the model. As shown in Table 5, this is an important determinant of cheating behavior ($p<.01$), and is positively related to the level of cheating. Students reporting they party more often also report higher levels of cheating behavior.

DISCUSSION AND IMPLICATIONS FOR FACULTY

The prevalence of academic dishonesty on college campuses in the United States has been documented through a large number of research studies. The current study attempts to model student cheating in a manner that is parallel to the fraud triangle model used in business. The hypothesis of this study is that students are more likely to cheat when they perceive the presence of incentive, opportunity, and rationalization for cheating

The results suggest that each of these fraud triangle elements is a predictive factor in student cheating behavior. Further, the results show that age and students' reported level of partying may have a significant impact of level of cheating. Student GPA, gender, hours worked each week, and

hours spent studying each week were not major determinants of cheating. These results suggest that modifying the presence of elements in the fraud triangle will alter cheating behaviors.

Table 5: Model of Student Cheating Behaviors

Model R^2 = .2321

Element	Sum of Squares	df	Mean Square	F	P-Value
Regression	3764.0439	5	752.8088	28.295	0.00
Residual within groups	12451.4854	468	26.5189		
Total	16215.5293	473			

Regression Equation: CHEAT = -7.75 + 0.81 INC + 1.19 OPP + 0.28 RAT + 0.61 PARTY - .16 AGE + Error

Source of Variation	Coefficient	Std Error	T	P-Value (2 tailed)
Incentive (INC)	0.8060	0.1397	5.77	0.00
Opportunity (OPP)	1.1910	0.1682	7.08	0.00
Rationalization (RAT)	0.2800	0.1018	2.75	0.01
Party (PARTY)*	0.6140	0.1995	3.08	0.00
Age (AGE)	-0.1570	0.0756	-2.08	0.04

*Party was reported as how often the student goes out to party during the school year. Choices were never (0), once / twice a year (1), once every 2-3 months (2), once a month (3), once a week (4) and every day (5). Three students failed to answer this question.

The incentive to cheat may be difficult to reduce if it arises from outside pressures on students. Instructors may have little control over pressure students feel from parents, peers, interviewers, and scholarship committees. However, the classroom environment does influence other incentives for academic dishonesty, particularly in the area of course difficulty and workload. If students believe a course is too rigorous (they cannot keep up with the work or earn their desired grade), academic dishonesty is more likely to occur (McCabe & Trevino, 1996).

Obviously, easing course rigor or requirements-with resulting grade inflation-is not the answer. A more effective solution may be to provide incentives for students to master the course material and retain the knowledge. For instance, students in accounting and information systems classes need to know that the knowledge and skills they gain from the course are crucial for upper-level courses, internships, and business careers. Likewise, students in business communication courses should understand that employers are looking for a demonstration of excellent communication skills; they are not simply looking for a high grade on a transcript. Providing students with incentives other than grades could take away one variable in the fraud triangle and lessen the propensity to cheat.

Reducing the opportunities for cheating may be more easily addressed. University administrators and faculty who do not take substantial actions to deter academic dishonesty create an opportunity and an atmosphere that invites dishonest behaviors (McCabe, Trevino, & Butterfield, 1996). Beyond deterrence, class sizes may be limited to better allow instructors to observe all students during exams, exams and homework assignments may be changed from term to term, and test security may be improved.

Technology continues to provide challenges as it permits students to use new methods of academic dishonesty. PDAs, graphing calculators, text messaging on cell phones, and use of other electronic devices have increased students' opportunity for cheating (Riley, 2004). Instructors have a responsibility to be aware of and minimize electronic cheating. However, new technological advances will inevitably create new opportunities, particularly when traditional age students are more technologically savvy than some faculty members.

Faculty may also take steps to address rationalization. Using a course syllabus and classroom discussion to define academic dishonesty (such as plagiarism) and provide information about penalties eliminates the "you didn't tell me" rationalization. Increasing faculty use of cheating detection methods such as plagiarism prevention web sites (e.g., turnitin.com) may also have an impact. When students see that faculty are going to great lengths to detect cheating, students may get the message that faculty believe cheating is important.

In addition, school honor codes have been shown to reduce cheating, and they may reduce a student's ability to rationalize cheating as "something everyone is doing." McCabe, Trevino, and Butterfield (1996) investigated students' attitudes toward academic honesty among students from schools that had ethics codes and from schools that did not. They also examined student behaviors in the context of their employment with companies that had ethics codes and those that did not. They found that fewer dishonest behaviors were reported among participants who both attended a college with an ethics code and worked for a company that had a strongly enforced and vigorously implemented code of ethics.

Finally, the amount of time spent partying may cause students to rationalize academic dishonesty (i.e., time spent partying leads to time constraints and greater rationalization of cheating). Instructors have no obvious influence on the frequency of students' partying; however, instructors may inadvertently encourage the behavior by light-hearted comments in the classroom and assumptions that every student spends a lot of time socializing. Encouraging students to use their weekends wisely and set aside specific times for academic work may reduce partying behavior and the related rationalization for cheating.

STUDY LIMITATIONS AND FUTURE RESEARCH

The current study has several limitations. Survey participation was limited to a Midwestern college of business. This creates the likelihood of a non-representative sample and results that may

not apply to other geographic regions or other sub-groups of students. In addition, variables related to student cheating including student income, social class, and other demographic variables could also influence academic dishonesty. Prior research has suggested that these variables are sometimes associated with cheating.

In addition, although the survey was anonymous and voluntary, students completed the survey in the classroom. Students may have self-reported less academic dishonesty due to the physical proximity of other students and the sensitive nature of the topic. We also may have had effects from a social desirability bias in the cheating results. The social desirability bias says that survey respondents sometimes respond to surveys in a manner that makes themselves look more socially desirable. Additional research may measure the extent of a social desirability bias in the reports of student cheating. If this bias exists in the current study, it works against our ability to find results by understating the extent of student cheating behavior. The bias should have no impact on the testing of our model.

The indication that age is a predictor of cheating behaviors also requires further exploration. A relevant question is whether the lower rate of academic dishonesty in older students shows a relationship with incentive (e.g., higher incomes), opportunity (e.g., technology ineptitude), or rationalization (e.g., cultural norms), or a unique combination of the three elements.

The level of partying also requires further study. Although the factor is significant, we did not define the term party; therefore, we can not be sure what we measured. What a student believes is "partying" and what we intended may not match. This variable may be related to personality type, alcohol use, time spent studying, or other factors.

Gaining a better understanding of how business students find incentive, opportunity, and rationalization for engaging in academic dishonesty has implications for using the business fraud triangle to understand and control academic dishonesty. The study provides instructors with a business framework for engaging students in discussions of ethical behavior not only in the classroom but also of the relationship between ethical conduct in the classroom and ethical conduct in the workplace.

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APPENDIX - FINAL SURVEY
Survey of Student Attitudes (A) Fall 2004

Your class number and time:

We are conducting research on student attitudes toward various types of academic conduct. We would like your opinions on the items listed below. Please complete each item. Your answers will not be used on an individual basis but will be combined with those of other students at UWEC. Complete confidentiality of your answers is assured. Do not place your name on these materials. Your participation is voluntary and is appreciated!

		Strongly Agree	Agree	Disagree	Strongly Disagree
1	A typical student at UWEC would strongly disapprove if he/she found out I cheated in a course	1	2	3	4
2	My closest friend would strongly disapprove if he/she found out I cheated in a course	1	2	3	4
3	If a professor does not explain what he/she considers cheating, the professor can't say I cheated	1	2	3	4
4	Many students in my classes have copied someone else's homework	1	2	3	4
5	Many students in my classes have copied the answers to a test	1	2	3	4
6	My professors grade fairly	1	2	3	4
7	My professors really care about their students	1	2	3	4
8	If someone leaves a test where I can read the answers, then it's his/her fault if I copy	1	2	3	4
9	If a professor leaves the room during a test, the professor is in effect okaying cheating	1	2	3	4
10	In some classes, I can't get the grade I want without cheating	1	2	3	4
11	I don't have enough time to complete some assignments without cheating	1	2	3	4
12	I have a difficult time keeping up with my classes	1	2	3	4
13	I feel pressure to get good grades any way I can	1	2	3	4
14	Maintaining my GPA is important to me	1	2	3	4
15	Plagiarism and cheating on tests occur frequently at UWEC	1	2	3	4
16	I have personally observed (or heard about) another student cheating on a test many times at UWEC	1	2	3	4
17	The faculty take substantial actions to deter academic dishonesty	1	2	3	4
18	The faculty rarely detect academic dishonesty	1	2	3	4
19	A typical student at UWEC would report another student's academic dishonesty	1	2	3	4
20	The penalties for academic dishonesty at UWEC are severe	1	2	3	4

APPENDIX - FINAL SURVEY
Survey of Student Attitudes (A) Fall 2004

For each of the following actions, indicate how often you have engaged in each behavior since beginning your college career.

Number of times		0	1	2	3	4	5	>5
21	Copied material and turned it in as your own work	0	1	2	3	4	5	>5
22	Used unfair methods to learn what was on a test before it was given	0	1	2	3	4	5	>5
23	Copied a few sentences of material from a published source without giving the author credit	0	1	2	3	4	5	>5
24	Helped someone else cheat on a test	0	1	2	3	4	5	>5
25	Cheated on a test in any way	0	1	2	3	4	5	>5

Your age:

Your major(s):

Number of hours you work each week:

Number of hours you study each week:

Your gender:	Male	Female	

Your current GPA:

About how often do you go out to "party" during the school year? (Mark one)

Never Once/Twice a year Once every 2-3 months
Once a month Once a week Every day

QUALITY, TECHNOLOGY, EXPERIENCE AND THE USE OF MEDIA RESOURCES IN DISTANCE LEARNING PROGRAMS BY TWO-YEAR COMMUNITY COLLEGES

Justo Manrique, University of Houston-Downtown
Linda Bressler, University of Houston-Downtown

ABSTRACT

In spite of the increase in the number of Distance Learning Programs (DLP) offered by higher education institutions, not all programs have been successful. Successful programs use different types of media resources for instructional delivery. An understanding of the factors affecting decisions related to the type and number of teaching media resources used in successful DLP could provide valuable information not only to those two-year colleges currently offering DLP but also to those planning to offer them in the future.

Unfortunately, the majority of the research efforts done in the past focused on DLP in four-year colleges and universities and not on two-year community colleges. Information on the key factors affecting these decisions from the two-year college perspective could help them in budgeting and planning new or enhanced distance learning programs, make an efficient allocation of resources and also give hints on how to improve the competitiveness of the college in a rapidly growing industry.

Limited Dependent Variable models were used in this study to analyze quality, technology and experience as factors affecting these decisions made by two-year colleges. It was found that the set of statistically significant factors affecting the decision to use a specific type of media used is not the same for each type of media. It could also be noted that these factors affect differently the decision to use a given number of teaching media resources.

INTRODUCTION

In the past decades, we have experienced rapid demographic, socioeconomic and lifestyle changes. Examples include more participation of women in the labor market, additional two income families, declining birth rates, increased number of one-person households, more women in executive positions, higher life expectancy, and higher standards of living.

All these changes, in one way or another, have increased the importance of the 'non-traditional" student (full-time employed, more mature, not able to attend regular classroom classes,

with family responsibilities, goal-oriented) within the college student population. This increasing number of non-traditional college students has increased the demand for "non-traditional" educational programs, among them Distance Learning Programs (DLP). Distance learning provides access to many more students than just offering higher education courses in the traditional classroom manner (Yee, 1998; Perreault et al., 2000). Distance learning encompasses many different types of teaching media like Internet-based courses, the use of satellites, interactive television (ITV), teleconferences, one-way broadcasting, electronic bulletin boards, fax machines, cable television, toll-free telephone numbers, etc. (Au and Chong, 1993; Ball and Crook, 1997; Brown and Duguid, 1998; Hall, 1990; Kubala, 1998; Luna and McKenzie, 1987; Merisotis and Phipps, 1999; Opitz, 1996; Swift et al., 1997; Teleg, 1996). In 2002, 85% of 2-year colleges and 84% of 4-year colleges offered distance education courses up from 58% and 62% respectively in 1998 (Wirt et al., 2004).

In spite of the increase in the number of DLP offered by higher education institutions, not all programs have been successful. Actually, there are more examples of failures than successes (Arkansas Department of Higher Education, 2004). Among other important characteristics, successful programs use different types of media resources for instructional delivery but concentrate in the use of just a few of them (Waits and Lewis, 2003). An understanding of the factors affecting these decisions could provide valuable information not only to those institutions currently offering DLP but also to those planning to offer them in the future.

Successful DLP are offered not only by four-year colleges but also by two-year colleges (Williams, 2003). Unfortunately, the majority of the research efforts done in the past focused on DLP in four-year, masters, and doctoral programs offered by four-year colleges and universities. Not too much research has been done for two-year community colleges (Husson and Waterman, 2002; Anderson, 2003; Jorgenson, 2003; Lorenzetti, 2003; Nair, 2003; Jorgenson, 2004). With the present literature focused upon four-year colleges and universities, it is important to have studies analyzing the factors affecting decisions related to the type and number of teaching media resources used in successful DLP from the two-year college perspective. Information on these key factors will help two-year colleges to initiate or enhance their programs (Carnevale and Olsen, 2003; Horne, 1994); improve their production strategies; make better use of resources; and become more competitive in a rapidly growing market.

The authors were unable to identify studies on the determinants of the type and number of media used by two-year colleges in successful DLP. This study attempted to correct this shortcoming. This research used Limited Dependent Variable techniques (univariate probit and ordered probit regression) to model the factors affecting the decision to use a specific type of media and the ones affecting the decision to use a specific number of media resources in DLP by two-year community colleges, paying special attention to the role of quality, experience and technology in these decisions. It could be found that the set of statistically significant factors affecting the decision to use a specific type of media used is not the same for each type of media. It could also be noted that these factors affect differently the decision to use a given number of teaching media resources.

CONCEPTUAL AND EMPIRICAL FRAMEWORK

Two-year community colleges make decisions about the adoption of a specific type of teaching media in a world of uncertainty. In deciding to adopt a specific type of media, two-year colleges compare the expected benefits and expected costs related to that decision. The two-year community college decides to use a specific type of media if the expected benefits exceed expected costs.

Formally, the difference between expected benefits and costs from using the ith teaching type of media resource is treated as an unobservable variable y^* such that

$$y^* = \alpha x + \epsilon \qquad (1)$$

We do not observe the latent variable y^*, but we observe the outcome of the adoption decision, which is a dummy variable y such that $y = 1$ (the community college uses the i^{th} type of teaching media resource) if $y^* > 0$ and $y = 0$ (the community college does not use the i^{th} type of teaching media resource) otherwise. Also, x are vectors of independent variables affecting the decision to use the ith type of teaching media; α are vectors of unknown parameters; and ϵ are vectors of additive disturbance terms randomly and normally distributed with mean zero and variance one. Univariate probit regression analysis was used to analyze the factors determining the type of media used.

The statistical approach used to determine the factors affecting the number of teaching media used is ordered probit regression analysis. This type of analysis can be used to estimate the relationship between a dependent ordinal variable and a group of independent variables. In this case, the dependent variable is the number of media used in DLP. Formally, the model is expressed as follows

$$y^* = \beta x + \delta \qquad (2)$$

y^* defines a latent unobservable continuous variable-expected net benefit of using a given number of teaching media resources; x is a vector of independent variables affecting the decision to use a given number of teaching media resources; β is a vector of unknown parameters; and δ is a vector of additive disturbance terms randomly and normally distributed with mean zero and variance one. Recoding the number of media used 1, 2, 3, 4, 5 and 6 for 0, 1, 2, 3, 4 and 5, what we observe is a discrete ordinal variable y such that

$$
\begin{aligned}
y &= 0 \quad \text{if } y^* \le 0 \\
y &= 1 \quad \text{if } 0 < y^* \le \mu_1 \\
y &= 2 \quad \text{if } \mu_1 < y^* \le \mu_2 \\
y &= 3 \quad \text{if } \mu_2 < y^* \le \mu_3 \\
y &= 4 \quad \text{if } \mu_3 < y^* \le \mu_4 \\
y &= 5 \quad \text{if } \mu_4 < y^* \qquad (3)
\end{aligned}
$$

where the μ's are unknown parameters to be estimated with β. The set of independent variables affecting these decisions include the quality of the program, technology, experience and an interaction term between quality and experience.

DATA SET

A survey questionnaire was prepared and sent to program administrators of DLP at two-year colleges. The survey tool asked questions on the individual's opinion as to factors, which they believed to be essential to the success of their distance learning programs (on a scale from 1 to 5). The success factors were identified in the literature. Specifically, administrators were asked the following question: "In your college's Distance Education Program, please rate the importance of each of the following criteria critical to success of the program (with 5 as extremely important, 4 very important, 3 important, 2 somewhat important, and 1 as not important).

1. Quality of course/program
2. Adequate faculty compensation
3. Quality supplemental material
4. Technology working effectively
5. Updated technology
6. Appropriate course offerings
7. Faculty training."

In addition, questions were included as to program years, whether the distance learning programs included liberal arts programs as well as business or computer programs or if only a few distance learning courses could be taken.

The questionnaires were sent to all 250 two-year colleges listed in the *Peterson's Guide to Distance Learning Programs.* Colleges with distance learning programs must meet certain criteria in order to be listed in the *Peterson's Guide to Distance Learning Programs*. They must "... have full accreditation or candidate-for-accreditation (pre-accreditation) status granted by an institutional or specialized accrediting body recognized by the U.S. Department of Education or the Council for Higher Education Accreditation" (Peterson's, 2003). This list excludes those colleges that didn't

meet the criteria for publication as well as those colleges that initiated their DLP after publication of the 2002 edition of the guide.

A pilot study was done with a separate, like population to identify any problems with the instrument such as ambiguous wording or questions. This pilot study attempted to obtain a more accurate measure through the use of the survey tool. The pilot study was also used in an attempt to reduce systematic error (Van Auken and Barry, 1997), which deals with unanticipated problems that might occur with the survey questions (Kier et al., 1998).

Of the 250 questionnaires mailed, 180 were returned. However, some of these surveys were not included in the final sample due to incomplete (or not reported) responses. The final sample included 104 observations resulting in a 42 percent usable questionnaire rate.

VARIABLES

Dependent Variables

The dependent variable in the univariate probit regressions was dichotomous and indicates the use (or not) of the i^{th} type of teaching media resource (i = correspondence, tutorials, ITV, Internet, satellite, others). The dependent variable in the ordered probit regression was ordinal and denotes the number of teaching media resources used in DLP by two-year colleges (1, 2, 3, 4, 5, 6).

Independent Variables

Crosby (1996) indicated that the quality of course programs is essential to the success of DLP. Huston (1997) noted that students' perception of the quality of the course pertained directly to adequate faculty training. If a faculty member did not receive appropriate training on the distance learning technology, the faculty member's class evaluations might be extremely low even if the faculty member knew her or his subject well and had taught that particular class numerous times before (Eddy and Spaulding, 1996; Reinig et al., 1998). More recently, Husson and Waterman (2002) developed some specific quality measures for distance learning, among them: appropriate course content and design, faculty training, and technical and academic support for students in on-line courses. They also noted that technology was essential when developing distance-learning programs. Lately, Jorgenson (2003) pointed out the pillars of quality that could help educators assess and improve online courses and programs. They mentioned, among others, learning effectiveness, access and faculty satisfaction.

Au and Chong, (1993) and Husson and Waterman, (2002) indicated that technology working effectively was very important in the success of DLP. Technology can often be found in the literature interconnected with the faculty training. Eddy and Spaulding (1996) noted that students' satisfaction with DLP was, among other things, due to adequate faculty training in the technology

used and also that the technology was updated and working effectively. Recently, Perreault et al., (2000) identified the reliability, support for, and the use of technology as the main problems to successful delivery of distance learning courses and recommended training as the most obvious solution for them.

Considering these findings from the existing literature, we constructed a "quality" variable based on the administrators' evaluation of the following success factors: quality of course or program, adequate faculty compensation, quality supplemental materials, appropriate course offerings and faculty training. The respondent was asked to rate the importance of each of these factors on a scale from 1 to 5. The quality variable was then calculated as the sum of the respondent's evaluation rates of each of these factors. We also constructed a "technology" variable based on the respondent's evaluation (on a scale from 1 to 5) of the following factors: technology working effectively and updated technology. The technology variable was also calculated as the sum of the respondent's rates of each of these two factors. Similar approaches for constructing composed variables are commonly used in health economics (Kenkel, 1990, 1991; Nayga, 2000, 2001).

The number of years offering DLP was used as a proxy for experience. Also, it is reasonable to expect that different quality DLP respond to experience in different ways and that less and more established programs respond differently to quality changes. Then, an interaction term (quality x experience) was also included in the regression equations. The same set of independent variables was used both in the univariate and ordered probit regressions.

Definitions of the dependent and independent variables included in the models are presented in Table 1. Table 2 contains the sample statistics for the continuous and discrete variables.

RESULTS AND DISCUSSION

Univariate Probit Analysis of the Factors Determining the Type of Media used in Distance Learning Programs.

We used univariate probit regressions to analyze the major determinants of the choice of the type of media used by 2-year community colleges in DLP. Regression coefficients and their *t*-values are reported in table 3. The marginal effects of changes in the regressors on the probabilities of using different types of media resources are reported in Table 4. In general, the models fit the data well. The percentage of correct predictions was 60% or better. In general, the univariate probit regressions showed that quality, experience and technology were statistically significant at the 10% or 5% levels respectively for the different types of media used equations. Moreover, the set of statistically significant factors in the different equations are not the same.

Table 1: Names and Description of Variables	
Variable	Description
Dependent Variables	
corresp	Binary variable; use correspondence (yes = 1, no = 0)
tutor	Binary variable; use tutorials (yes = 1, no = 0)
ITV	Binary variable; use DLP (yes = 1, no = 0)
Internet	Binary variable; use Internet (yes = 1, no = 0)
satellite	Binary variable; use Satellite (yes = 1, no = 0)
others	Binary variable; use other media resources (yes = 1, no = 0)
Num	Discrete ordinal variable; number of media used in DLP (1, 2, 3, 4, 5, 6)
Continuous Independent Variables	
Quality	Quality index
Techno	Technology index
Interact	Interaction term: quality index multiplied by Number of years offering DLPs.
Binary Independent Variable (yes = 1, no = 0)	
Moreten	Two-year college is offering DLPs for more than 10 years.

Table 2: Descriptive Statistics		
Variable	Mean	Std. Deviation
Dependent Variables		
corresp	.23	.42
tutor	.24	.43
DLP	.73	.45
Internet	.89	.31
satellite	.17	.38
others	.55	.50
Num	2.82	1.20
Continuous Independent Variables		
Quality	21.49	2.68
Techno	8.56	1.30
Interact	7.93	10.49
Discrete Independent Variable (yes = 1, no = 0)		
Moreten	.38	.49

Table 3: Univariate Probit Estimates of type of media used in DLP						
Variable	Correspondence	Tutorial	ITV	Internet	Satellite	Other
Constant	3.213	-.854	-.396	3.779	-.259	1.414
	(1.72)**	(-.43)	(-.23)	(1.46)*	(-.12)	(.85)
Moreten	-4.076	-.405	-.052	-6.225	1.539	-2.450
	(-1.80)**	(-.17)	(-.92)	(-2.04)***	(.60)	(-1.16)
Quality	-.185	-.033	-.058	-.187	-.207	.009
	(-1.99)***	(-.34)	(-.67)	(-1.50)	(-1.90)**	(.11)
Interact	.203	.060	.025	.299	-.042	.123
	(1.92)**	(.55)	(.24)	(2.09)***	(-.35)	(1.26)
Techno	-.013	.056	.246	.185	.394	-.179
	(-.10)	(.38)	(1.80)**	(1.22)	(2.16)***	(-1.40)
No. of observations	104	104	104	104	104	104
Log-Likelihood	-53.13	-52.18	-57.23	-31.08	-40.48	-69.48
% of correct predictions[a]	76.0	76.0	75.0	89.4	81.7	60.6
Asymptotic *t*-ratios are given in parentheses.						
, * statistically significant at 10% and 5% levels respectively.						
[a] An observations is judged to be 1 if the predicted probability P(y=1) is 0.5 or larger otherwise the observation is judged to be zero.						

Table 4: Marginal effects of changes in regressors on the probabilities of using different types of media used in DLP						
Variable	Correspondence	Tutorial	ITV	Internet	Satellite	Other
Moreten	-1.198	-.120	-.017	-.959	.334	-.970
Quality	-.054	-.010	-.019	-.029	-.045	.004
Interact	.060	.018	.008	.046	-.009	.049
Techno	-.004	.017	.080	.028	.086	-.071

Quality has a negative and significant influence on the probability of using correspondence and satellite resources. A 1% increase in quality decreases the probability of using correspondence and satellite resources by 5.4% and 4.5% respectively. Also, technology has a positive and significant influence on the use of ITV and satellite resources. A 1% increase in the use of technology increases the probability of using them by 8.0% and 8.6% respectively. It seems that

two-year colleges with quality, technology based DLP tend to concentrate on the use of ITV and satellite resources (and differentiate their products) probably because of their competitive advantages and the presence of economies of scale and potential profit opportunities related to a rapidly growing monopolistic competitive market.

More established two-year colleges are less likely to use correspondence and Internet resources than are less established ones. In addition the interaction term was positive and statistically significant in the correspondence and Internet equations, indicating that the negative marginal impact of experience on the probability of using correspondence and Internet resources is smaller for more quality programs than for less quality ones (and that the negative marginal effect of quality on these probabilities is smaller for more established programs).

Ordered Probit Analysis of the Factors Determining the Number of Media used in Distance Learning Programs.

We used ordered probit regressions to analyze the major determinants of the number of teaching media resources used by two-year community colleges in DLP. Regression coefficients and their *t*-values are reported in Table 5. The marginal effects of changes in the regressors on the probabilities of using different numbers of media resources are reported in Table 6.[1]

Table 5 : Ordered probit regression estimates of the number of media used in DLP

Variables	Estimate	t-ratio
Constant	3.245	1.49
Moreten	-3.025	-1.76**
Quality	-0.157	-2.20***
Interact	0.173	2.19***
Techno	0.163	1.43
μ_1	1.398	6.45***
μ_2	2.347	9.48***
μ_3	2.872	10.36***
μ_4	3.418	9.90***
No. observations	104	
Log-Likelihood	-147.45	
Likelihood ratio[a]	17.08	

, * statistically significant at 10% and 5% respectively.

[a] The Likelihood ratio test statistic is computed as:
-2 log *L* = -2(log *L*restricted - log *L*unrestricted). This is a valid test statistic for the hypothesis that all slopes on the nonconstant regressors are zero (significance level .002).

Table 6: Marginal Effects of changes in the regressors on the number of media used in DLP Number of media used in DLP						
Variables	1	2	3	4	5	6
Moreten	.6474	.2084	-.2448	-.2064	-.1871	-.2175
Quality	.0204	.0420	-.0186	-.0194	-.0145	-.0100
interact	-.0225	-.4630	.0205	.0213	.0160	.0110
techno	-.0211	-.0436	.0193	.0201	.0150	.0103

The estimated coefficients of the unknown parameters μ_1, μ_2, μ_3, and μ_4 are positive, increasing and statistically different from zero. This implies that the ordered probit regression of the number of media equation is justified. The value of the likelihood ratio test statistic was statistically significant at the 1% level therefore the null hypothesis that all slopes in the regression are zero was rejected. In general, the analysis showed that most variables are statistically significant at 10% or 5% levels suggesting that these variables are important in determining the number of media used in by two-year community colleges.

The quality of the program has a negative effect on the probability of using a large number of media. The number of media used is more likely to be small the higher the quality of the program. A 10% increase in the quality of the program decreases the probability of using 3 or 4 media resources by about 2% and decreases the probability of using 5 or 6 media resources by 1.5 and 1% respectively. As mentioned before, these results may indicate that community colleges with good quality DLP tend to specialize or concentrate in the use of just a few media teaching resources (ITV, satellite and Internet) probably to take advantage of the economies of scale associated with a fast-growing market for distance education. Technology was not statistically significant.

Community colleges with more established DLP are less likely to use a large number of media than less established colleges. The empirical results demonstrated that more established colleges are 24%, 20%, 19% and 22% less likely to use 3, 4, 5 and 6 media resources than less established colleges.[2] More established programs may want to take advantage of their greater efficiency and competitive advantages to concentrate in the use of some specific types of media resources, which in turn will allow them to specialize in the production of a few specific differentiated products. The interaction term was positive and statistically significant at 5%, indicating that the negative marginal impact of quality on the number of media used is smaller for more established than for less established DLP (and also that the negative marginal effect of experience on the number of media used is smaller for higher quality DLP).

CONCLUDING REMARKS

We used limited dependent variable techniques (univariate and ordered probit analysis) to analyze the factors affecting the choice and the number of teaching media resources by two-year colleges in DLPs.

The empirical evidence demonstrated that quality, technology and experience could be important determinants of the choice and the number of media used. Moreover, the set of statistically significant factors affecting the decision to use a specific type of media will not be the same for each type of media. The results also indicated that these factors affect differently the decision to use a given number of teaching media resources. Some important findings are that experience and quality negatively affects the probability of using a large number of media resources. Also, technology can be a positive influence on the probability of using ITV and satellite resources, but it does not affect the probability of using a large number of media resources. The results of this study could help two-year colleges in budgeting and planning new or enhanced distance learning programs, make an efficient allocation of resources and also give hints on how to improve the competitiveness of the college in a rapidly growing industry. This study represents a first step at analyzing DLPs offered by two-year community colleges. Further studies may consider including other additional variables in the analysis like demographic information, financial information, factor prices and cost information. Future studies could also use demographic variables and prices of higher education to estimate the demand for DLP and study the substitutability and complementarily between different higher education products.

ENDNOTES

[1] The marginal effects of the regressors **x** on the probabilities are not equal to the coefficients (Greene, 1997). For the six probabilities of using different numbers of media resources, the marginal effects of changes in the regressors are

$$\partial \text{ Prob}(y = 0) / \partial \mathbf{x} = 0 - \phi(-\beta'\mathbf{x})\,\beta$$
$$\partial \text{ Prob}(y = 1) / \partial \mathbf{x} = [\phi(-\beta'\mathbf{x}) - \phi(\mu_1 - \beta'\mathbf{x})]\,\beta$$
$$\partial \text{ Prob}(y = 2) / \partial \mathbf{x} = [\phi(\mu_1 - \beta'\mathbf{x}) - \phi(\mu_2 - \beta'\mathbf{x})]\,\beta$$
$$\partial \text{ Prob}(y = 3) / \partial \mathbf{x} = [\phi(\mu_2 - \beta'\mathbf{x}) - \phi(\mu_3 - \beta'\mathbf{x})]\,\beta$$
$$\partial \text{ Prob}(y = 4) / \partial \mathbf{x} = [\phi(\mu_3 - \beta'\mathbf{x}) - \phi(\mu_4 - \beta'\mathbf{x})]\,\beta$$
$$\partial \text{ Prob}(y = 5) / \partial \mathbf{x} = \phi(\mu_4 - \beta'\mathbf{x})\,\beta - 0 \qquad (4)$$

where $\phi(.)$ is the univariate standard normal probability density function.

[2] The approach described before to calculate the marginal effects on the probabilities is not appropriate for evaluating the effect of a dummy variable. We can analyze the effects of a dummy variable by comparing the

probabilities that result when the variable takes its two different values with those that occur with the other variables held at their sample means (Greene, 1997). The marginal effects of the dummy variable moreten on the probability of using different number of media resources were calculated in the following way:

Variable	P(y=0)	P(y=1)	P(y=2)	P(y=3)	P(y=4)	P(y=5)
(moreten=0)	.0043	.1032	.2784	.2089	.1875	.2177
(moreten=1)	.6517	.3116	.0336	.0025	.0004	.0002
change	.6474	.2084	-.2448	-.2064	-.1871	-.2175

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THE EFFECT OF MONETARY INCENTIVES ON ACCOUNTING STUDENT MOTIVATION

Steven V. Campbell, University of Idaho
Marcia S. Niles, University of Idaho

ABSTRACT

We investigate the effects of monetary incentives on accounting student motivation. Using a within-persons decision modeling approach and Russian accounting student participants to investigate potential motivators, we find students with monetary incentives placed significantly less emphasis on their overall grade-point average and significantly more emphasis on esteem in the eyes of classmates. Our results suggest monetary incentives do not undermine personal satisfaction, an intrinsic motivator. Finally, in the context of improving course performance, we find students with monetary incentives tend to value the attractiveness of academic success over the expectancy of success in making their effort-level decisions, whereas students without monetary incentives tend to value the expectancy of academic success over the attractiveness of success in making their effort-level decisions. These findings support the use of Vroom's (1964) expectancy theory as a conceptual framework for understanding accounting student motivation in cross-cultural settings.

INTRODUCTION

Incentives, the goal objects we desire to attain, figure prominently in several theories of motivation (e.g., Atkinson, 1964; Lewin, 1935; Rotter, Chance, and Phares, 1972; Vroom, 1964). In contrast to intrinsic incentives, extrinsic incentives involve, "the motivation to work primarily in response to something apart from the work itself, such as rewards or recognition or the dictates of other people" (Amabile, Hill, Hennessey, and Tighe 1995, 950). Most accounting educators readily acknowledge the importance of motivating their students, but disagreement exists concerning the use of extrinsic incentives for this purpose. Behavioral researchers often argue extrinsic incentives stimulate motivation and enhance academic achievement by making the learning objective more attractive. Cognitive researchers on the other hand generally contend extrinsic incentives undermine intrinsic motivation (an interest in learning for its own sake), decrease academic performance, and encourage a dependence on the acceptance, reinforcement, and approval of others (Bower, 1994).

In this paper we focus on the relation between monetary incentives and accounting student motivation. Specifically, in the context of improving course performance, we first examine the link between a performance-based monetary incentive and the attractiveness (valence) of academic success. Second, we examine the link between a performance-based monetary incentive and the

amount of effort accounting students are willing to put forth to achieve academic success. Employing Vroom's (1964) expectancy theory and Stahl and Harrell's (1981, 1983) within-persons decision modeling method, our research design replicates earlier accounting student motivation studies by Harrell, Caldwell, and Doty (1985), Geiger and Cooper (1996), and Geiger, Cooper, Hussain, O'Connell, Power, Raghunandan, Rama, and Sanchez (1998). Our data are collected from 154 upper-level Russian accounting students. Monetary incentives are a prominent feature of student support for some, but not all, Russian university students and this differential treatment provided an element of control not available in other natural settings.

Our results support the applicability of expectancy theory and the within-persons decision modeling approach. Specifically, we find in making their effort-level decisions, Russian accounting students receiving a performance-based monetary incentive placed significantly less emphasis on improving their overall grade-point average and significantly more emphasis on increasing esteem in the eyes of their classmates, compared to accounting students not receiving a performance-based monetary incentive. We also find a performance-based monetary incentive did not undermine the personal satisfaction derived from superior academic performance. Finally, we find the students receiving performance-based monetary incentives tended to value the valence of academic success over expectancy of success in making their effort-level decisions, whereas students not receiving a performance-based monetary incentive tended to value the expectancy of academic success over the valence of success in making their effort-level decisions.

The next section provides some background information on higher education and the study of accounting in Russian universities. Section three develops the study's hypotheses and explains the within-persons research method. The results are discussed in section four and the fifth section concludes.

BACKGROUND

In recent years Russian higher education has experienced significant changes. During much of the Soviet period, the central government promoted a policy of full access to higher education and almost every secondary school graduate had his or her college education funded from the federal budget. Since the collapse of the Soviet Union, federal funding for higher education has been reduced and access to higher education is no longer universal. Most Russian universities have had to raise tuition and as a result the majority of students now come from high and middle income groups, which comprise about one-third of the Russian population (Smolentseva, 1999).

Russian university accounting programs are normally five year programs that students begin at age 17 or 18. Before enrolling in a Russian university, the typical Russian student must secure funding from one of three primary funding sources: the federal government, a private company, or parents. For purposes of this study, the important feature of federal government funding is a monthly cash stipend, the amount of which depends on the student's academic performance. At the

Khabarovsk State Academy of Economics and Law, the setting for this study, the grades of federally funded students are reviewed at the end of each semester and if the student's academic performance fails to meet expectations, the student's monthly stipend is usually reduced or terminated. Generally, federally funded students with unsatisfactory grades receive no stipend, those with marginal grades receive a modest stipend, and those with high grades receive a more substantial stipend. These grade-based stipends are not available to privately funded students. Students with private company funding contract to work for a private company for a specified period of time after graduation in exchange for their college financing. Tax incentives are given to encourage private companies to enter into these student support contracts. Parental funding is less structured and only available to the wealthy.

Student funding from the federal budget is administered by the university and choosing the student recipients is an administrative decision. Students demonstrating superior academic ability at the secondary school level are likely to receive federal funding based on merit, but merit is not the sole criterion. Students whose parents are connected to the university or whose parents can benefit the university in some way are widely believed to receive preferential consideration in the selection process. Of the 154 student participants in this study, 47 were funded from the federal budget, 45 by private companies, 56 percent by parents, and six by other sources.

HYPOTHESIS DEVELOPMENT AND RESEARCH METHOD

Vroom's (1964) original formulation of expectancy theory consisted of two models, the valence model and the force model. In this study the valence model is expected to explain a Russian accounting student's perception of the attractiveness (valence) of academic success, defined in terms of receiving a high course grade. The force model is expected to explain the student's effort-level decision given the valence of the higher grade and the expected probability that an increased effort will result in the higher grade.

The Valence Model

The valence model captures the perceived attractiveness, or valence, of achieving a first-level outcome (academic success) by aggregating the valences of associated second-level outcomes (the potential motivators). In this study the valence of academic success, a first-level outcome, is determined by aggregating the valences of the following three second-level outcomes: (1) an improved overall GPA, (2) a strong feeling of personal satisfaction, and (3) increased esteem in the eyes of classmates. Thus:

$$V_j = \sum_{k=1}^{n} (V_k I_{jk}) \qquad (1)$$

Where:

V_j = the valence of the first-level outcome,
V_k = the valence of the second-level outcome,
I_{jk} = the perceived instrumentality, or belief, that V_j will lead to V_k, and
n = the number of second-level outcomes.

The effects of extrinsic incentives on student motivation and learning have engendered a longstanding controversy in the education literature. This debate dates back to a study by Harlow, Harlow, and Meyer (1950) that found monkeys who had previously enjoyed solving puzzles would, after being rewarded with food for each puzzle solved, no longer solve puzzles when they were not given food. Conversely, monkeys that had not been rewarded with food continued to enjoy solving puzzles. Studies with humans since Harlow et al. (1950) have found similar results (e.g., Lepper, Greene, and Nisbett, 1973; Amabile, 1979; Deci and Ryan, 1985). A common explanation for these findings is that rewards cause people to lose interest in whatever it is they were rewarded for doing.

Our first hypothesis tests whether a monetary reward for achieving high grades is associated with a decrease in the influence of grades as a potential motivator. The studies cited in the preceding paragraph suggest a monetary reward for high grades will cause students to lose interest in grades as an independent motivating influence. If this is correct, improving overall grade-point-average (GPA) should be a less influential motivating influence for federally funded students, who receive a monetary reward, than it is for privately funded students who do not receive a monetary reward. Thus, our first hypothesis is:

H1: Improving overall GPA will be a less influential motivator for federally funded accounting students than for private company and parentally funded accounting students.

Motivation is not a single characteristic and in recent years numerous contrary terms have been proposed to describe the complex nature of the forces affecting student behavior. The oldest of these dichotomies is the distinction between intrinsic and extrinsic motivation. Many educators believe intrinsic motivation, an interest in the task for its own sake, is incompatible with extrinsic motivation in which the task is viewed as a prerequisite for obtaining something else (Deci and Ryan, 1985). They acknowledge rewards motivate students, but they contend this sort of motivation comes at the expense of personal satisfaction and other intrinsic values. Amabile (1979) and Harackiewicz and Elliot (1993) find extrinsic incentives undermine intrinsic motivation in college students. Furthermore, rather than helping students to develop their own criteria for successful learning, many educators and education researchers believe extrinsic rewards encourage a dependence on acceptance, reinforcement, and approval from others (Bower, 1994; Kohn, 1993).

Conversely, other theorists (e.g., Dweck, 1986 and McKeachie, 1961) have proposed college students have multiple learning goals and that mastery and performance goals can play complementary roles in motivating student learning. Under this view extrinsic incentives can either

enhance or reduce interest in learning depending on how they are used. Cameron and Pierce (1994) find intrinsic motivation is not adversely affected by extrinsic rewards in many applications. They conclude educators need to abandon old beliefs about the negative effects of external rewards and embrace the idea of intrinsic and extrinsic motivational factors working together. Lin and McKeachie (1999) find medium levels of extrinsic motivation in combination with high levels of intrinsic motivation is more effective in facilitating college student learning than either low or high levels of extrinsic motivation.

In summary, the education literature concerning the relation between extrinsic incentives and intrinsic motivation is conflicting and controversial. In this study we address two issues related to the intrinsic and/or extrinsic motivation debate. First, we test whether a monetary incentive is associated with a reduction in the valence of personal satisfaction. Since only federally funded students receive a monetary reward for academic performance, we hypothesize:

H2: A strong feeling of personal satisfaction will be a less influential motivator for federally funded accounting students than for private company and parentally funded accounting students.

Second, we test whether a monetary incentive promotes an extrinsic orientation by fostering a dependence on approval from others. We hypothesize:

H3: Increased esteem in the eyes of classmates will be a more influential motivator for federally funded accounting students than for private company and parentally funded accounting students.

The Force Model

In the force model of Vroom's expectancy theory, Vroom hypothesized the motivational force influencing a person to act is a monotonically increasing function of the sum of the products of the valences of the second-level outcomes (V_j in Equation 1) and the expectancy that the act will be followed by the attainment of these outcomes. Thus:

$$F_i = (E_{ij}V_j) \qquad (2)$$

Where:

F_i = the motivational force to perform act i,
E_{ij} = the expectancy that act i will result in outcome j, and
V_j = the valence of outcome j.

The force model implies the motivational force acting upon a Russian accounting student to achieve academic success is explained by the sum of the valences of the second-level outcomes associated with academic success and the expectancy a particular effort-level will result in academic success. Success in this case is defined as earning a grade of "5" in an accounting course. (In Russian universities grades range from one to five with five being the highest mark.) Thus, the motivational force required to earn a grade of "5" is determined by the valence of earning a "5" and the expectancy that a particular level of effort will result in this outcome.

In this study the federally funded students have a second-level outcome not available to privately funded students, a performance-based monetary stipend. If the attractiveness of the other second-level outcomes associated with academic success are similar for federally and privately funded students, then additional valence of a monetary reward for federally funded students would cause the sum of valences for the second-level outcomes to be larger for federally funded students than for privately funded students. Thus, we hypothesize federally funded accounting students should be more influenced by the valence of academic success in their effort-level decisions than their privately funded counterparts:

H4: Regarding the relative influences of valence and expectancy in the force model, the federally funded accounting students will be more influenced by valence of academic success than private company and parentally funded students.

Within-Persons Decision Modeling

Decision modeling, as previously developed by Stahl and Harrell (1981, 1983) and employed in this study, involves a subject answering multiple decision making cases, each requiring separate decisions based on varying combinations of values for the second-level outcomes and the expectancy of success. Several prior studies have successfully used expectancy theory and the within-persons decision modeling approach to study accounting student motivation including Harrell et al. (1985), Geiger and Cooper (1996), and Geiger et al. (1998). This latter study demonstrated the appropriateness of the within-persons design for studying accounting student motivation in a cross-cultural context.

The within-persons approach avoids many of the methodological and measurement problems associated with an across-persons design (Kopelman 1977). By using each individual's decisions as operational measures of valence and expectancy an element of control is established. In this study we replicate the design used by Harrell et al. (1985) by testing the following three second-level outcomes: an improved overall GPA, a strong feeling of personal satisfaction, and increased esteem in the eyes of classmates. Each second-level outcome is manipulated at two levels, low (10 percent) and high (90 percent) and the expectancy of success is manipulated at three levels, low (10 percent), moderate (50 percent), and high (90 percent). This results in 24 decision cases, with each case presenting a unique mix of values for the three second-level outcomes and the expectancy of

success. A sample case is presented in Exhibit 1. The decision cases were randomly ordered to prevent possible bias.

Exhibit 1. Sample Case from the Set of 24 Decision Cases

Model Elements (not on instrument):	If you receive a "5" in this course, the likelihood this will result in:
Second-Level Outcomes (V_k)	…increased esteem in the eyes of your classmates is **LOW (10%)**[a] …a strong feeling of personal satisfaction is **HIGH (90%)** ...an improved grade point average is **LOW (10%)**[b]
Valence of First-Level Outcomes (V_j)	DECISION A. With the factors and likelihoods shown above in mind, indicate the attractiveness to you of receiving a "5" in this course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Very Unattractive … Very Attractive
Expectancy of Success (E_{ij})	FURTHER INFORMATION. If you exert a great study effort during the remainder of this semester, the likelihood you will earn a "5" in this course is **HIGH (90%)**.
Motivational Force (F_i)	DECISION B. With the attractiveness and likelihood information above in mind, indicate the study effort you will exert for this course during the remainder of the semester. 1 2 3 4 5 6 7 8 9 10 11 Low Effort … Average Effort … Great Effort

[a] Earning a "5" in this particular course is not likely to enhance your reputation in the eyes of your classmates.

[b] It seems likely so much effort is required to earn a "5" in this course that doing so means your grades in other courses will suffer, resulting in no improvement in your grade point average.

The participants in this study (n = 154) were third, fourth, and fifth year accounting students attending the Khabarovsk State Academy of Economics and Law, in the city of Khabarovsk in the Russian Far East. They completed the decision exercise during normal class time. Written and oral instructions were given at the time the decision exercise was administered. The students were told to assume they were at the mid-point of the semester and were currently earning a grade of "4" in an accounting course. The first decision (see Exhibit 1) asks the student to indicate the overall valence of increasing a grade of "4" to a grade of "5". The student's responses to the 24 decision

cases are used to derive an individual regression model in which the student's valence decision is the response variable and the three second-level outcomes are explanatory variables.

The second decision in the decision exercise (see Exhibit 1) asks the student to indicate the level of effort he or she would be willing to exert to increase the grade, given their valence response in decision one and a stated probability of success. The outcome of this second decision indicates the motivational force acting on the student to increase the course grade. The student's responses to the 24 decision cases are used to derive a second individual regression model in which the student's effort-level decision is the response variable and the valence of success and the expectancy of success are the explanatory variables.

RESULTS

In this section we report the results of tests investigating the impact of monetary incentives on accounting student motivation. We first report the valence model results for our first three hypotheses and then we report the force model results for our fourth hypothesis. Table 1 shows the valence and force models were generally successful in predicting the valence and effort-level decisions of Russian accounting students. Of the 154 students who completed the decision exercise, 133 had significant individual valence and force models. Six of these students were funded from non-traditional sources and, since the nature of their funding arrangements were unknown, were not considered for further analysis. This yields a resulting sample of 127 student participants.

Table 1: Sample Composition

Funding Source	Number of Students	Students with Significant Valence and Force Models
Government	47	40 (83)[a]
Private	45	36 (80)
Parents	56	51 (91)
Other	6	6 (100)
Total	154	133 (86)

[a] Percent of students with significant valence and force models.

Valence Model Results

Table 2 presents a summary of significant individual valence model results for students in the three principal funding source categories. The mean R^2 (adj) statistics range from .68 to .72, indicating a uniform good fit. Improving overall GPA was the dominant motivator in all funding source categories and it was the highest standardized beta weight in 76 of the 127 individual

regression models. Table 2 shows the mean standardized beta weights for increasing GPA is lowest for the government funded students, which is consistent with the first hypothesis. To determine whether the influence of GPA is significantly less for government funded students, we ran an unbalanced ANOVA in which the standardized beta weight for increasing GPA was the dependent variable and the three funding sources the independent class variable. This analysis indicated statistically significant differences (p=.014) across funding source categories. We also performed a second unbalanced ANOVA in which the private company funded students and the parentally funded students were pooled and compared to the government funded students. The results of this ANOVA indicated marginally significant differences (p=.062) in the influence of increasing GPA as a motivator. These results provide some support for the first hypothesis.

Table 2: Summary of Significant Valence Model Results by Funding Source

	Government		Private		Parents	
R^2 (adj.)	.72		.68		.68	
GPA	.487		.749		.619	
SAT	.271		.224		.313	
EST	.053		-.197		-.117	
Correlations	GPA	SAT	GPA	SAT	GPA	SAT
EST	-.26	-.22	-.30	-.34	-.54	-.31
GPA		-.82		-.70		-.54

GPA = Mean standardized beta weight for grade point average.
SAT = Mean standardized beta weight for personal satisfaction.
EST = Mean standardized beta weight for esteem within the group.

The second hypothesis predicts personal satisfaction will be a less influential motivator for government funded students than for privately funded students. The mean standardized beta weights reported in Table 2 indicate personal satisfaction was the second most influential motivator in all three funding source categories. Also, personal satisfaction was the highest standardized beta weight in 37 of the 127 individual regression models. As reported in Table 2, the mean standardized beta weights for personal satisfaction fall within the narrow range of .224 to .313. This suggests only minimal differences in the valence of personal satisfaction between the funding source categories.

To verify the lack of any significant treatment effect for personal satisfaction, we ran an unbalanced ANOVA in which the standardized beta weight for personal satisfaction was the dependent variable and funding source the independent class variable. This analysis indicated no statistically significant differences (p=.749) across the three funding source categories regarding the influence of personal satisfaction. We also performed a second unbalanced ANOVA in which the private company and parentally sponsored students were pooled. The results of this ANOVA also

indicated no significant differences (p=.958) in the influence of personal satisfaction. These results do not support the second hypothesis.

The third hypothesis predicts increased esteem in the eyes of classmates will be a more influential motivator for government funded students than for privately funded students. Only 14 of the 127 individual regression models had increased classmate esteem as the highest standardized beta weight and the mean standardized beta weights reported in Table 2 also indicate this was the least influential motivator in all three funding source categories. However, consistent with our third hypothesis, the mean standardized beta weight for increased classmate esteem is higher for government funded students than for either private company or parentally funded students.

To determine whether the influence of classmate esteem is significantly higher for government funded students, we ran an unbalanced ANOVA in which the standardized beta weight for classmate esteem was the dependent variable and funding source the independent class variable. This analysis indicated marginally significant differences (p=.072) across the three funding source categories. We also performed a second unbalanced ANOVA in which the private company and parentally sponsored student groups were pooled and compared to the government funded students. The results of this ANOVA also indicated significant differences (p=.030) between government and privately funded students. These results provide some support for the third hypothesis.

Force Model Results

The high R^2 (adj) statistics presented in Table 3 indicate the force model was effective in predicting the students' effort-level decisions. Also the mean standardized beta weights reported in Table 3 for valence and expectancy, both within and across categories, suggest Russian accounting students consider both valence and expectancy important factors in their effort-level decisions. The private company and parentally funded students generally weighted the expectancy of success more heavily in their effort-level decisions, while the government sponsored students generally weighted the valence of success more heavily in their effort-level decisions. Slightly more than half of the students in the private and parentally funded categories indicated expectancy had a dominant influence in their effort-level decision, while slightly more than half of the students in the government funded category indicated valence had the dominant influence in their effort-level decisions.

To determine whether the influences of valence and expectancy differed significantly across funding source categories, we ran unbalanced ANOVAs in which the standardized beta weights for valence and expectancy were dependent variables and funding source the independent class variable. These analyses indicated no statistically significant differences across categories in the influence of valence (p=.160) or expectancy (p=.209); however, when private company and parentally funded students were pooled and compared to government funded students, we found marginally significant

differences in the relative influences of valence (p=.078) and expectancy (p=.085). These results provide some rather weak evidence in support of the fourth hypothesis.

Table 3: Summary of Significant Force Model Results by Funding Source

	Government	Private	Parents
R^2 (adj.)	.93	.88	.92
VAL	.524	.417	.457
EXP	.499	.601	.577
Correlation	-.99	-.97	-.97

VAL = Mean standardized beta weight for valence.
EXP = Mean standardized beta weight for expectancy

SUMMARY AND CONCLUSIONS

In this paper we use expectancy theory and a within-persons decision modeling approach to assess the influence of monetary incentives on accounting student motivation. Both components of expectancy theory, the valence model and the force model, were found to provide a useful conceptual framework for understanding the valence and effort-level decisions of Russian accounting students. Overall, our evidence suggests monetary incentives have subtle effects on student motivation.

We addressed four hypotheses. First, we found improving overall GPA was the dominant motivator for most Russian accounting students regardless of whether or not a monetary incentive was present. However, group-level differences in the emphasis placed on improving GPA were significant; students with monetary incentives were less influenced by the desire to increase their GPA than students without monetary incentives. Second, the education literature contains much debate on the relation between extrinsic incentives and intrinsic motivation. We found personal satisfaction, an intrinsic motivator, was influential for a considerable number of Russian accounting students regardless of whether or not a monetary incentive was present. In comparing students with a monetary incentive to students without a monetary incentive, we found no significant differences in the valence of personal satisfaction. The third second-level outcome examined, increased esteem in the eyes of classmates, was the least influential motivator regardless of whether or not a monetary incentive was present. However, consistent with out third hypothesis, group-level differences in the emphasis placed on classmate esteem were significant; students with monetary incentives were more influenced by classmate esteem than students without monetary incentives. Our fourth hypothesis

concerned the force model of expectancy theory and in the context of improving course performance, we found students with a monetary incentive tended to value the valence of success over the expectancy of success in making their effort-level decisions, whereas students without a monetary incentive tended to value the expectancy of success over the valence of success in their effort level decisions.

One limitation of our study is the focus of expectancy theory on the individual decision maker. Our results provide educators with some useful general insights into accounting student motivation and the overall impact of monetary incentives on student motivation; however, motivation is an individual attribute and we observed considerable individual differences in our student participants' valence and effort-level decisions. This variation in individual results illustrates why expectancy theory is more properly applied on an individual level of analysis and why generalizations must be made with caution. Another limitation is the Russian student participants were not randomly sampled. Although we do not believe our sample selection procedures biased our results, the use of a convenience sample must be acknowledged. Finally, readers are cautioned that these results may not generalize to non-Russian students and non-accounting majors.

This research represents an initial application of expectancy theory and the within-person decision modeling approach to examine the relation between monetary incentives and accounting student motivation. The results suggest expectancy theory can provide accounting educators with a useful conceptual framework for understanding the effects of extrinsic incentives on student learning. It is hoped this initial effort will inspire accounting educators to use the natural controls provided by cross-cultural settings to examine the influence of other extrinsic incentives on accounting student motivation.

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B-SCHOOL DEANS' PERCEPTIONS OF E-JOURNALS

Robert H. Stretcher, Sam Houston State University
Geraldine E. Hynes, Sam Houston State University
Charles R. B. Stowe, Sam Houston State University

ABSTRACT

Electronic journals are clearly now part of the landscape of intellectual, peer-reviewed journals. Given that published intellectual contributions affect faculty pay, promotion, merit and tenure, this survey of business school deans reveals that not all deans regard e-journals as meritorious as their hard copy brethren. A 25.5% response rate from the 419 deans of AACSB member institutions suggests that interest in the subject was strong. An overwhelming 84.11% of Business School Deans said that their faculty evaluation policies include criteria for rating the quality of a journal in which the faculty are publishing. Among the 90 respondents comprising the 84.11%, about 20% indicated that the format of the journal (electronic versus print) was an important factor in their rating process. 42% indicated that format was of little or no importance. Interestingly, among the respondents indicating that their business school did not rate journal quality, 93% do not consider electronic journal publications to be valid intellectual contributions. Among all survey respondents, none indicate that their business school weights electronic journals superior to print journals, but almost 32% indicate that print journals are more heavily weighted than electronic.

EVALUATING BUSINESS FACULTY RESEARCH PERFORMANCE

Over the years much research has been conducted on the topic of business faculty evaluation, and particularly on the relative importance of teaching and research productivity (Ehie & Karathanos, 1994). According to the Carnegie Foundation, 45% of business faculty felt that straight counts of publications are the chief indicator of research productivity at their institutions (Boyer, 1990). Perhaps surprisingly, 45% of business faculty felt that the reputation of the press or journal publishing the research is unimportant for tenure review (Boyer, 1990). A 1993 survey (Bures and Tong, 1993) found strikingly similar results. Finance faculty affirmed that the raw number of articles in professional journals was the factor most affecting their performance evaluations.

Since 1991 AACSB has advocated standards with a strong focus on the institution's mission. Primarily teaching institutions might thus be expected to count teaching accomplishment more heavily during faculty evaluations than scholarship activity. However, other studies have found that publishing record is counted more heavily than teaching in faculty evaluations, no matter what the

stated institution's mission (Lein & Metz, 1977; Tong & Bures, 1987; Bures & Tong, 1993; Ehie & Karathanos, 1994).

In a 1989 Carnegie Foundation study, over two thirds of business faculty agreed that we need better ways to evaluate scholarly performance (Boyer, 1990). And approximately 36% of the respondents in Bures and Tong's (1993) survey expressed dissatisfaction with their current systems. This lack of confidence in evaluation systems suggests that scholarship be more creatively assessed. Boyer (1990, p. 35) urged that faculty assessment criteria take into account "a broader range of writing" and changing social contexts. "Standards must be flexible and creative…and innovation should be rewarded, not restricted" (Boyer, 1990, p. 80).

Surveys of faculty preferences over print or electronic journals indicate a general acceptance of electronic journals despite concerns over the loss of hard copy journals (Palmer, 2003). Though the sample was small, intensive face-to-face interviews with a total of 61 faculty from economics, sociology, and anthropology departments suggests that faculty may be far ahead of administration in accepting the replacement of hardcopy serials with electronic only publications. Only four faculty members in the survey indicated strong preferences for print journals and those individuals all earned their doctorates in the 1960's (Palmer, 2003). At the same time, these faculty members still valued access to printed publications. This study focuses on administrator's perceptions of faculty publication efforts and any variance of print and electronic journals. The issue of using electronic journal articles for research and actually submitting to electronic only publications was not investigated in the study of Michigan study. Because faculty promotion, tenure and merit systems are tied to publications in peer-reviewed journals, we felt that an investigation of how deans perceive electronic journals was warranted.

EVALUATING PUBLICATIONS IN ELECTRONIC JOURNALS

Perhaps the most obvious example of innovation in faculty performance is the adoption of new technologies for teaching and research (McInnis, 2002; Bloedel, 2001). Computer-mediated communication, in particular, is reconfiguring the way in which knowledge is produced and disseminated (McInnis, 2002). The Internet is creating new opportunities to publish research results (Wilga, 2000). It is estimated that, of the 44,000 active scholarly journals (refereed and non-refereed) listed in Ulrich's Periodicals Directory, over 41% now offer full text or full content online (Jerabek, 2004). And the number is steadily increasing. The costs of serials jumped 226 percent from 1986 to 2000 according to the Association of research Libraries while the Consumer Price increase during the same period rose just 49% (Albanese, 2001). In 2003, a one year subscription to the *Journal of Economics and Business* was $493, a one year subscription to *Economics Letters* was $1,823 and *Tetrahedon Letters* cost $10,345 per year (Edwards, 2003). The average number of scholarly journals in business and economics was 295 with an average cost of $457 in the year 200 up to $614 in year 2004. That represents an increase in price of 49% between 2000 and 2004

according to a survey compiled from EBSCO Publishing's Academic Search Elite (Orsdel, 2004). The actual number of scholarly business or economics related journals is much higher. A study of accounting journals in print, electronic format or both revealed over 470 publications (Colbert, 2002).

Reasons for migrating to electronic media are (1) other periodicals are taking that route, (2) it is less expensive to publish electronically than in paper format, (3) it is less labor intensive, (4) it allows for just-in-time delivery, (5) it allows for greater diffusion of knowledge across disciplines, and (6) it allows for inclusion of articles in other electronic indexes and bibliographies (Shwom, 2004). Thus, electronic publication may better serve the purposes of the contemporary researcher. Shifting to electronic publications saves libraries considerable funding in not having to pay for binding, in reducing space for serials, and in elimination of handling costs of storing hard copies (Cox, 2003). However, some evidence suggests that the pricing of electronic journals has increased just as published serials have (Falk, 2003).

As the electronic journal comes of age, new issues emerge. Both administrators and faculty have expressed concern about the role that electronic journal publications play in their research evaluation systems. As scholarship activities are increasingly heterogeneous, it becomes necessary to derive new standards by which research productivity is judged (Marine, 2002). Yet the literature provides no evidence that faculty evaluation systems are keeping pace by developing and incorporating new criteria for electronic scholarship outlets.

RESEARCH OBJECTIVES

This study sought to determine how Business School Deans regard electronic versus traditional hard copy serials. While scholarly journals have been increasingly migrating to electronic format, it was unclear how administrators evaluate electronic publications compared to printed formats when conducting faculty performance appraisals.

PROCEDURES

Population

We surveyed Deans of U.S. Business Schools that are members of the Association to Advance Collegiate Schools of Business International. A questionnaire was mailed by USPS to all 419 U.S. Business School Deans included on the AACSB mailing list of member institutions. One hundred seven usable surveys were returned, for a 25.5% response rate. Considering that most return rates for USPS mail surveys hover around 10%, this level of response indicates strong interest in this issue among Deans.

Instrumentation

We developed the survey instrument for this study in consultation with our Business School Dean and Associate Dean. It consists of 24 forced-choice items. Items are grouped into three sections:

1) "Your Business School's Current Policies" contains items on the factors applied when rating the quality of a journal, including electronic journals, conference proceedings, and abstracts.
2) "Your Personal Opinions Regarding Evaluation of Faculty Publications" contains items on respondents' own views of journal quality, including electronic journals, conference proceedings, and abstracts. This section also contains items on predicted changes to Business School policies.
3) "Demographic Questions", though not addressed in this paper, contained items on the university's size, accreditation, and Carnegie classification along with similar items about the Business School.

Data Collection and Analysis

The questionnaire was mailed to all U.S. Deans of AACSB-member schools in May 2004. The researchers' own Dean contributed a cover letter supporting the study. A return envelope was included in the packet of materials. We chose to use a paper instrument rather than a Web-based or email survey in order to capture responses of any Deans who do not favor computer-mediated communication.

Responses were entered into a database and statistical analyses were performed to identify patterns of results (frequencies, means, and percentages). Findings from sections 1) and 3) of the survey instrument (described above) are reported here.

RESULTS

An overwhelming 84.11% of Business School Deans said that their faculty evaluation policies include criteria for rating the quality of a journal in which the faculty are publishing. Among the 90 respondents comprising the 84.11%, about 20% indicated that the format of the journal (electronic versus print) was an important factor in their rating process. 42% indicated that format was of little or no importance.

Interestingly, among the respondents indicating that their business school did *not* rate journal quality, 93% do not consider electronic journal publications to be valid intellectual contributions. Among all survey respondents, none indicate that their business school weights electronic journals

superior to print journals, but almost 32% indicate that print journals are more heavily weighted than electronic. About 68% indicate equivalent treatment, based wholly on format.

When asked for their personal preferences (versus their business school's policies), we found that 57% gave little importance to format as a criterion, while only 15% indicated its relative importance in the rating of journals. Among 106 responding to the question, in their personal views, three deans felt that journals that had migrated from print to electronic were actually better, while 18 felt that migration was worse than remaining in print form. 85 deans indicated that migration to electronic form was irrelevant in their view.

DISCUSSION

Our preliminary findings indicate that electronic publications are typically considered along with paper-printed publications during Business School faculty research evaluations. However, their status in the mix remains tenuous. Business School policies vary widely in their recognition of electronic outlets for faculty research publication and in their criteria for evaluating electronic media. There appear to remain some significant biases against electronic journals, although many business schools seem to have embraced the format as viable.

Analysis of our survey results is incomplete at this time. This paper reports only on current Business School faculty evaluation policies regarding research published in journals (print and electronic). Future reports will present our findings about (1) Business School Deans' personal opinions and how they compare to their institutions' current policies, and (2) the Deans' regard for conference proceedings and abstracts (print and electronic), as well as their School's policies for counting conference proceedings and abstracts as research publications. Demographic patterns such as institutional size, region, Carnegie classification, and accreditation status will also be reported for these results. Ultimately, we hope that clearer impressions will emerge of the current status and future trends in evaluating electronic publications.

CONCLUSION

In conclusion, the rapid pace of technological change makes it impossible for any set of guidelines to apply to all publication of scholarship in electronic media. Undoubtedly, business school policies should state standards for faculty uses of electronic media as their research outlets, thus ensuring the attraction and retention of the best of the new breed of faculty. As Boyer (1990) observed, "even the best of our institutions must continuously evolve. And to sustain the vitality of higher education in our time, a new vision of scholarship is required" (p. 81).

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FACTORS AFFECTING STUDENT ACHIEVEMENT IN COST ACCOUNTING

Florence R. Kirk, State University of New York, College at Oswego
Charles A. Spector, State University of New York, College at Oswego

ABSTRACT

In the last 15 years, there has been little published research on student success in management accounting course work. To our knowledge, there have been no published empirical papers focusing on factors affecting success in upper level management accounting course work in an American classroom setting. In our research, we control for different grading schemes across instructors, and we find that student grade point average, performance in managerial accounting principles and performance in the first statistics course are all significantly related to success in cost accounting. Math achievement, student age, gender and the length of time between taking principles and cost accounting are insignificant. With regard to course sequencing, this paper considers issues not addressed before in the published literature. We find that students perform significantly better in cost accounting if they first complete Intermediate Accounting I. Performance in Intermediate I does not significantly differ between students who have already taken cost accounting vs. those who take cost subsequent to Intermediate I. We find that cost accounting students perform better in the first finance course if they delay finance until after taking cost accounting. These results may have implications for student academic advisement on course sequencing.

INTRODUCTION

Educators are motivated to understand how students learn from a number of perspectives. Faculty and advisors seek methods and environments facilitating student achievement in course work which will support future learning and eventual career success. College deans and department chairs share these goals but are constrained in providing resources by issues related to faculty staffing and deployment within limited budgets. University administrators, scholastic accrediting bodies and politicians, each reacting to demands from their own constituents, want the benefits of well-prepared professionals, but their positions require them to validate the cost of education and weigh these costs against outcomes through an increasingly demanding process of assessment. With budget limitations and greater assessment obligations occurring at a time when the 150-hour requirement has become the norm and the number of accounting graduates has fallen drastically (Miller, 2003), research on how students learn seems especially timely. With fewer students

choosing to major in accounting, accounting programs are not necessarily attracting the best and the brightest. Despite smaller numbers of accounting students, accounting programs must strengthen the quality of graduates entering the profession under the scrutiny of a wide variety of stakeholders in this post-Enron economy. Faculty need more than ever to understand how to help students learn.

In predicting student success, researchers have drawn on results of studies across a broad spectrum of education which conclude that aptitude, experience, effort and environment contribute significantly to academic achievement. Our research extends the literature exploring factors affecting student success in general (and in introductory accounting courses in particular) to address empirically factors affecting student achievement in higher-level accounting course work, focusing on cost accounting. This work builds on prior research on the effects of student ability, preparation and demographics and in addition considers how course prerequisites, course sequencing and class size affect student learning.

Beyond reconsideration of those variables identified as important by previous researchers, our research extends the literature in four important ways. First, we address factors associated with student success in cost accounting in an American setting. Second, we extend the literature on the importance of class size as a factor in the learning process by examining the subsequent performance (in cost accounting) of students who studied introductory accounting in small versus large classes. Third, we study the importance of fulfilling course prerequisites before attempting cost accounting course work. Fourth, we consider the effects of course sequencing in accounting and relevant background courses on student success in cost accounting.

LITERATURE REVIEW

Previous studies on factors affecting success in business courses have considered overall student ability, as measured by standardized test scores (SAT), and student motivation and experience, operationalized in a variety of ways, including grade point average (GPA) and performance in prerequisite courses. Other factors examined include demographics, student learning styles, and classroom environmental factors. These studies have been subject to circumstantial limitations and have yielded mixed results.

In the last 15 years, there have been only a few empirical papers which looked at factors specifically affecting performance in accounting courses. Of those, most address achievement in introductory accounting. A few papers have looked at predictors of success in intermediate accounting. We have found only one published paper empirically addressing student success in upper-level management accounting, but it is limited in scope as its main focus is the differential learning among students with different language backgrounds in Australia.

Explanatory variables tested by previous researchers in prediction of student achievement in accounting courses typically include SAT score as a measure of aptitude. GPA is used as an alternative measure of ability, although it arguably measures effort and motivation as well. Doran

et al. (1991) found that GPA and aptitude test scores were highly correlated with each other. Eskew and Faley (1988) and Doran et al. confirmed the results of prior studies which found aptitude highly significant in explaining achievement in accounting principles courses. Daroca and Nourayi (1994) found the same effect when testing for predictors of success in introductory managerial accounting; Turner et al. (1997) showed similar results when looking at factors determining success in intermediate accounting.

Researchers have operationalized experience in different ways. Eskew and Faley included variables quantifying the number of relevant, previous college courses or high school accounting courses as measures of experience, but found none of these proxies for experience significant. Doran et al. used high school accounting course work as a proxy for experience but found it to be positively related to success in the first principles course and negatively related to success in the second principles course. Neither study used student age as a measure of experience, but it has been tested as a factor explaining student success in corporate finance by Simpson and Sumrall (1979), who found it significant, and Filbeck and Smith (1996) who concluded the opposite.

Effort has been even more difficult to quantify. Eskew and Faley used the number of quizzes taken by students as a measure of motivation. Doran et al. used the number of working hours and the number of study hours, as reported by students and admittedly subject to estimation error, but they did not find these variables related to performance in principles of accounting. We consider GPA as a factor indicative of sustained student effort in college course work.

Various demographic and environmental factors have been tested for relevance to success in accounting course work. Mutchler et al. (1987) reported that females outperformed males in upper-level accounting courses. Tyson (1989) arrives at the same conclusion. Lipe (1989) did not find gender significant in predicting grades in lower-division courses, but did conclude that females outperformed males in upper-division courses. She also reported an interaction effect: male students performed better than females in male-instructed classes and female students performed better with female instructors than with male instructors.

The importance of class size in the learning experience has been studied by a number of researchers. Though faculty typically prefer to teach small classes and believe that greater interaction with students on an individual basis enhances their teaching effectiveness, research does not necessarily support this belief and is mixed at best. Schattke and McAllister (1962) asserted that learning in elementary accounting was superior in small classes. Baldwin (1993) found no deleterious effects from teaching students in mass lectures (420 students) compared to class sizes of 55-60 students. These results were replicated by Hill (1998) who compared student performance in class sizes of 120 students vs. 40 students. Kirk et al. (1999) found no evidence that larger class size in accounting principles negatively impacts subsequent student achievement in intermediate accounting. Using similar methodology, and including additional variables, we revisit class size effects in our study of factors affecting success in cost accounting.

We found only one published paper focusing on factors contributing to achievement in upper-level management accounting course work. Drennan and Rohde (2002) found student achievement in the second course in management accounting to be related to success in the first managerial accounting course. They also considered the effect of having English as a second language (when the course was taught in English) but admitted that the low variance explained by their model indicated omitted variables. Their suggestions for future research included controlling for students' inherent abilities.

HYPOTHESIS DEVELOPMENT

Building on results of prior research, this study investigates the determinants of achievement in cost accounting course work. Student GPA has been found to be related to performance in principles of accounting, introductory managerial accounting and intermediate accounting; hence, our first hypothesis is that this measure of student motivation and effort similarly affects student achievement in cost accounting. We measure each student's GPA prior to the semester in which the student enrolls in cost accounting.

H1: Student achievement in cost accounting is positively related to GPA

We expect that if there is a relationship between achievement in cost accounting and achievement in principles of accounting, it will be most apparent when examining the relationship to the second principles course because that is the semester when introductory managerial topics are taught at our school. In addition, since introductory financial accounting precedes introductory managerial accounting at our program, the second principles course would constitute more recent accounting experience than the first required course, financial accounting. Our second hypothesis is that student achievement in introductory management accounting will be positively related to performance in cost accounting.

H2: Student performance in introductory management accounting is positively related to subsequent achievement in cost accounting

In prior studies, student SAT score has been found positively related to collegiate academic performance. Not surprisingly, SAT and GPA tend to be positively correlated (Doran et al., 1991); however, they measure different attributes at different periods in time. SATs are taken during high school years and are intended to measure aptitude. GPA is a measure of achievement, no doubt influenced by aptitude, but also by several years of maturity as well as motivation, interest and effort. Hence, we include both variables in an effort to capture both natural ability and effort. Our

third hypothesis is that student natural ability, as measured by SAT score, is positively related to achievement in cost accounting.

H3: Student performance in cost accounting is positively related to SAT score

In order to include a measure of student learning environment, we look at whether class size of a student's introductory accounting courses is related to achievement in cost accounting. The authors of this paper are tenured accounting professors who tend to agree with conventional wisdom that smaller classes encourage a closer student-teacher bond and evoke more personalized attention by teachers to the instructional needs of the students. We believe that our school is ideally positioned to study the impact of class size on student learning because our school offers both small (less than 45 students) and large (45 students or more) classes in principles of accounting. Students may choose either small or large classes in Principles of Accounting I and Principles of Accounting II. All upper level classes, including cost accounting, are taught in small class formats (less than 45). Even though we acknowledge mixed results from class size effects in past research, our experience as educators leads us to expect small class size in introductory accounting to provide a more thorough and motivating learning experience which will enhance performance in cost accounting. Our fourth hypothesis is that smaller class sizes in introductory accounting provide an advantage to student learning of accounting principles which supports relatively higher achievement in cost accounting course work.

H4: Students learning introductory management accounting in small class environments will achieve at a higher level in cost accounting

We expect students will perform better in cost accounting if they enroll soon after completing introductory accounting. We include a variable to test our fifth hypothesis that a longer time gap between enrolling in the second principles course and enrolling in cost accounting negatively impacts the cost accounting grade. We expect a negative relationship between the time gap and achievement in cost accounting.

H5: Student performance in cost accounting is negatively related to the time delay between enrolling in introductory accounting and cost accounting

We include age as a variable which may be positively related to performance in cost accounting (hypothesis six), and we include gender although prior research leads us to expect a weak relationship with performance in cost accounting at best (hypothesis seven).

H6: Achievement in cost accounting is positively related to student age

H7: Achievement in cost accounting varies by student gender

We expect a positive relationship between performance in prerequisite courses (math and statistics) and performance in cost accounting (hypotheses eight and nine).

H8: Achievement in cost accounting is positively related to performance in math course work

H9: Achievement in cost accounting is positively related to performance in statistics course work

Hypotheses ten through twelve concern the sequencing of when students take courses expected to influence success in cost accounting. Although at many schools, cost accounting students are mostly accounting majors, at our school, cost accounting is a popular elective among finance majors and some general business majors as well. Students in cost accounting may take their first finance course (corporate finance) before, after or coincident with enrolling in cost accounting. Because we believe success in higher level courses may be related to a student's experience in financially-related business courses beyond principles of accounting, hypothesis ten tests whether performance in cost accounting is systematically higher for those students who have taken corporate finance prior to cost accounting.

H10: Achievement in cost accounting is enhanced if a student takes a finance course before enrolling in cost accounting

A statistics course is a prerequisite for cost accounting at our school. However, at the time of our data collection, stated prerequisites were regarded as suggestions, and the sequencing was not enforced by the college. It is our expectation that students meeting course prerequisites are better prepared for success in cost accounting, and will perform at a higher level. Hypothesis eleven is that students will achieve at a higher level in cost accounting if they take the prerequisite statistics course prior to taking cost accounting rather than after.

H11: Achievement in cost accounting is enhanced if a student takes a statistics course before enrolling in cost accounting

We similarly feel that the greater the past exposure to accounting, the more likely that a student will do well in cost accounting. In hypothesis twelve we test whether students who have taken intermediate accounting prior to cost accounting perform better in cost accounting than those whose intermediate accounting course work follows cost accounting.

H12: Achievement in cost accounting is enhanced if a student takes the first intermediate accounting course before enrolling in cost accounting

TESTS AND RESULTS

Our study includes data on 936 students enrolling in Cost Accounting for the first time between 1992 and 2000 at our School of Business (which enrolls approximately 1000 full-time business students as part of an 8,000-student state college campus). Academic grades and class rank in introductory accounting were unavailable for 508 transfer students. In addition, 29 students had not completed the prerequisite accounting principles course, hence, 537 students were dropped for the first test of the relationship of GPA to performance in cost accounting. GPA was measured at the end of the semester prior to first enrolling in cost accounting. Testing hypotheses three through nine requires full data (including age, gender and prerequisite course information), forcing another 270 observations to be dropped and resulting in 129 observations for the analysis of variance. When testing for the impact of course sequencing (hypotheses ten through twelve), we deleted observations where students took the related course elsewhere or where students were simultaneously enrolled in cost accounting and the course we were examining. See Table 1 for summary information on sample mortality.

Table 1: Sample Mortality

Panel A: Regressions on factors contributing to success in Cost Accounting					
Number of students enrolled in cost accounting 1992 - 2000					936
Less: number of students taking introductory management accounting elsewhere					-508
Less: number of students repeating introductory management accounting in the same semester as first enrollment in Cost Accounting					-29
= number of observations in regression of GPA on achievement in cost accounting Hypotheses 1 and 2					399
Less: number of students taking any prerequisite courses simultaneously or after cost accounting or missing other required data (i.e., SAT, age, gender)					-270
= number of observations in ANCOVA Hypotheses 3 through 9					129
Panel B: Tests on course prerequisites and course sequencing					
Number of students in Cost Accounting 1992 – 2000					936
Number enrolled simultaneously in corporate finance	-476	Number taking statistics elsewhere or simultaneously enrolled in statistics	-592	Number enrolled simultaneously in intermediate accounting	-764
Observations in Hypothesis 10	460	Observations in Hypothesis 11	344	Observations in Hypothesis 12	172

The dependent variable of interest is student achievement in Cost Accounting as measured by earned semester grades (on a 4.0 scale). Since several different instructors have taught cost accounting over the time period of this study, it was necessary to allow for individual instructor differences in grading schemes and tendencies; hence tests were conducted on student rank in class rather than raw grades. For each cost accounting class, student grades were ranked within their class sections. Normalized scores were then computed from the ranks using SAS's rank procedure under Blom's method. (All statistical analyses in this paper were conducted in SAS version six.)

Among the independent variables, course grades for prerequisite courses were standardized in the same way as the dependent variable. GPA was measured as student grade point average over all courses taken at our school prior to the semester taking cost accounting.

Our definition of 'large' and 'small' class sizes was based in part on the physical size of our classrooms that dictates 45 as the maximum for regular classes. Classes larger than that require a large lecture hall which typically leads to much larger classes than 45. Also the 45-student cutoff resulted in roughly half the observations being classified as 'large' and half as 'small.'

Table 2 shows the results of tests on hypotheses one and two that student success in the second principles of accounting course and student effort (as measured by GPA) are positively related to achievement in cost accounting. An analysis of variance was performed with the normalized class rank in cost accounting as the dependent variable and the independent variables being normalized class rank in principles and GPA. Both were positive and highly significant.

Table 2: Analysis of Variance

Dependent variable: normalized class rank in cost accounting			N = 399
Test	Independent Variables	t statistic	R^2 = .31
Hypothesis 1	GPA	+ 8.93	
Hypothesis 2	Normalized rank in 2nd principles class	+ 4.83	

Our second test adds additional independent variables, including SAT score as a measure of basic ability, and a covariate, class size in managerial accounting. Analysis of Covariance (ANCOVA) allows for the use of a main categorical variable (class size as 'large' or 'small') along with the other, continuous independent variables when the dependent variable is continuous (normalized class ranks). Additional independent variables include performance in prerequisite courses and demographic variables as well as a variable indicating the length of time between a student's enrollment in the second principles course and cost accounting.

Table 3: ANCOVA Results Dependent Variable: class rank in Cost Accounting (normalized)				
Model:	R^2 = .375	F = 7.94	p-value = .0001	N = 129
Independent Variables	**F**	**p value**	**hypothesis**	
SAT total	2.44	.1209	H3	
GPA prior to cost accounting	27.79	.0001	H1	*
normalized rank in introductory managerial accounting course (2nd principles course)	30.97	.0001	H2	*
time gap between introductory managerial accounting and cost accounting (2nd principles course)	.44	.5077	H5	
statistics class performance (normalized class rank)	6.35	.0130	H9	*
calculus class performance (normalized class rank)	.00	.9695	H8	
size of introductory managerial accounting class	2.85	.0941	H4	*
gender	.21	.6484	H7	
age	.45	.5051	H6	
* significant at the 10% level or higher				

Performance in the second principles class (managerial), and GPA were significant and positively related to achievement in cost accounting, as expected. GPA dominates SAT (marginally significant) although correlation between the two variables may be masking relative effects. Age, gender and the length of time between taking managerial accounting and cost accounting were insignificant. Although performance in business calculus was not significant, success in statistics was highly significant (and positive) in explaining success in cost accounting.

Class size in principles was significant, but the relationship was counter-intuitive. Although we felt small class size should lead to better preparation for success in higher level courses, the results showed that students who had taken principles of accounting in larger class groups fared better in cost accounting. We attribute the results to the manner of staffing large vs. small classes at our school. The large-lecture accounting principles teachers tend to be more experienced, tenured, senior professors who specialize in delivery of this subject. Instructors assigned to the smaller sections are more varied in their preferences and preparations. They are more likely to be less experienced or even adjunct faculty. When a full-time, experienced faculty member is assigned to teach a small section of introductory accounting, it is more likely to be the case that the course was assigned to "fill out" a teaching schedule already dominated by one or two sections of a higher level class which is the professor's specialty. Thus we suggest that staffing principles of accounting courses with experienced, course-dedicated, senior professors can overcome perceived drawbacks of large class size and achieve superior student learning.

Finally, we tested for the effects of course sequencing. First, we looked at students who took both Intermediate Accounting I and Cost Accounting, but in different semesters. Those enrolling in Intermediate I before taking Cost Accounting tended to perform at a higher level in Cost Accounting than those taking Intermediate I after taking cost accounting. The sequencing seemed to make no difference on performance in Intermediate Accounting. Results are in Table 4.

Table 4: Course Sequencing with Intermediate Accounting I
Cost Accounting and Intermediate Accounting I taken in different semesters

Panel A: Performance in Cost Accounting	**Chi-Square 18.269**	**p-value .001**	
Normalized class rank in Cost Accounting	Intermediate I taken before Cost Accounting	Intermediate I taken after Cost Accounting	Total
Low	**N = 34** 19.7% of table 45.9% of row 30.9% of col	**N= 40** 23.3% of table 54.1% of row 64.5% of col	74
High	**N = 76** 44.2% of table 77.5% of row 69.1% of col	**N = 22** 12.8% of table 22.5% of row 35.5% of col	98
Total	110	62	172
Panel B: Performance in Intermediate Accounting	**Chi-Square .058**	**p-value =.809**	
Normalized class rank in Intermediate Accounting	Intermediate I taken before Cost Accounting	Intermediate I taken after Cost Accounting	Total
Low	**N = 50** 29.1% of table 64.9% of row 45.5% of col	**N= 27** 15.7% of table 35.1% of row 43.5% of col	77
High	**N = 60** 34.9% of table 63.2% of row 54.5% of col	**N = 35** 20.3% of table 36.8% of row 56.5% of col	95
Total	110	62	172

Data on 172 students who took Intermediate I and cost accounting in different semesters at our school.

"Low" is defined to be achievement below the class median; "high" is achievement above the median.

Since a number of cost accounting students do not take Intermediate and since some take Intermediate simultaneously with cost accounting, classifications "low" and "high" do not partition the observations equally.

Table 5: Course Sequencing with Statistics
Cost Accounting and Statistics taken in different semesters

Panel A: Performance in Cost Accounting	**Chi-Square 3.8 p-value = .05**		
Normalized class rank in Cost Accounting	Statistics taken before Cost Accounting	Statistics taken after Cost Accounting	Total
Low	**N = 128** 37.2% of table 88.3% of row 44.4% of col	**N= 17** 5.0% of table 11.7% of row 30.4% of col	145
High	**N = 160** 46.5% of table 80.4% of row 55.6% of col	**N = 39** 11.3% of table 19.6% of row 69.6% of col	199
Total	288	56	344
Panel B: Peformance in Statistics	**Chi-Square .986**	**p-value = .32**	
Normalized Class rank in Statistics	Statistics taken before Cost Accounting	Statistics taken after Cost Accounting	Total
Low	**N = 69** 20.1% of table 87.3% of row 23.9% of col	**N= 10** 2.9% of table 12.7% of row 17.9% of col	79
High	**N = 219** 63.7% of table 82.6% of row 76.0% of col	**N = 46** 13.3% of table 17.4% of row 82.2% of col	265
Total	288	56	344

Data on 344 students who took statistics and cost accounting in different semesters at our school.

"Low" is defined to be achievement below the class median; "high" is achievement above the median.

Since some cost accounting students take statistics elsewhere, and some take it simultaneously with cost accounting, classifications "low" and "high" do not partition the achievement of observations equally. Similarly, many statistics students do not take cost accounting, so "low" and "high" do not partition the achievement of statistics observations equally.

When testing for the impact of course prerequisites, we determined that the number of students not fulfilling the math prerequisite was too small to test, but a number of students failed to fulfill the statistics requirement before enrolling in cost accounting. Unexpectedly, it appears that a higher proportion of students delaying their statistics course performed above the median in cost accounting than the proportion above the median among students enrolling in statistics prior to cost

accounting. The sequencing made no difference to performance in the statistics class where accounting students perform relatively well compared to all students enrolling in the statistics class. The results are in Table 5.

Table 6: Course Sequencing with Finance
Cost Accounting and Corporate Finance taken in different semesters

Panel A: Peformance in Cost Accounting Chi-Square .049 p-value = .825

Normalized class rank in Cost Accounting	Corporate Finance taken before Cost Accounting	Corporate Finance taken after Cost Accounting	Total
Low	**N = 60** 13.0% of table 30.8% of row 43.2% of col	**N= 135** 29.4% of table 69.2% of row 42.0% of col	195
High	**N = 79** 17.2% of table 29.8% of row 56.8% of col	**N = 186** 40.4% of table 70.2% of row 57.9% of col	265
Total	139	321	460

Panel B: Peformance in Finance Chi-Square 8.22 p-value = .004

Normalized class rank in Finance	Corporate Finance taken before Cost Accounting	Corporate Finance taken after Cost Accounting	Total
Low	**N = 52** 11.3% of table 40.0% of row 37.4% of col	**N= 78** 17.0% of table 60.0% of row 24.3% of col	130
High	**N = 87** 18.9% of table 26.4% of row 62.6% of col	**N = 243** 52.8% of table 73.6% of row 75.7% of col	330
Total	139	321	460

Data on 460 students who took finance and cost accounting in different semesters at our school.

"Low" is defined to be achievement below the class median; "high" is achievement above the median.

Since some cost accounting students take finance simultaneously with cost accounting, classifications "low" and "high" do not partition the achievement of cost accounting observations equally. Similarly, since many finance students do not take cost accounting, "low" and "high" does not partition equally.

The reason why students not fulfilling the statistics prerequisite do not seem to be at a disadvantage, relatively speaking, in cost accounting is difficult to understand. We can only suggest that possibly students who delay their statistics course are enrolling in other relevant courses instead, such as Intermediate Accounting, prior to cost accounting which are even better preparation for success in cost accounting.

In testing whether the sequencing of cost accounting and corporate finance impacted performance in cost accounting course work, we found that the sequencing made no difference to performance in cost accounting. However, the sequencing significantly affects achievement in the finance course. Cost accounting students who enroll in the first finance course after taking cost accounting perform at a higher level in finance than the group who take finance prior to cost accounting. See results in Table 6.

SUMMARY

Using tests that control for different grading tendencies across instructors, we report evidence consistent with several academic factors being positively associated with achievement in cost accounting course work. GPA, performance in managerial accounting principles and performance in the first statistics course are all significantly related to success in cost accounting. Achievement in math, student age, gender and the length of time between taking principles and cost were all insignificant. Class size of students' managerial accounting principles course was also a significant factor in success in the subsequent cost accounting class, but results were counterintuitive. Students introduced to accounting in larger principles classes showed higher achievement in cost accounting than students in smaller classes. We suggest that staffing large introductory courses with course-dedicated, senior professors may overcome perceived drawbacks of large class size in motivating students to learn.

On the matter of course sequencing, this paper contributes evidence not addressed before in the published literature that students perform significantly better in cost accounting if they first complete Intermediate Accounting I. Performance in Intermediate I did not significantly differ between students who had already taken cost accounting vs. those who took it subsequent to Intermediate I. We found that cost accounting students performed better in the first finance course if they delayed finance until after taking cost accounting. These results may have implications for student academic advisement on course sequencing.

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EFFECTIVELY DESIGNING AND IMPLEMENTING THE SUCCESSFUL BUSINESS FRESHMEN EXPERIENCE COURSE

Carl J. Case, St. Bonaventure University

ABSTRACT

This paper describes a systems approach for designing and implementing the business student's Freshman Experience course. The approach is useful in providing a methodology for effectively selecting and implementing core components and assisting professionals in improving the quality of education. This paper describes the necessary inputs, processes, outputs, and feedback mechanisms. Moreover, examples of operationalized objectives are presented. A detailed description of how the model was utilized in developing and conducting a successful School of Business "Business and Beyond" class is presented.

INTRODUCTION

Student retention is an ongoing concern for the academic community. Student transfer and graduate rates demonstrate the importance of the issue. According to a recent study at the U.S. Department of Education (2003), approximately one-quarter of students who intended to earn a bachelor's degree and began his/her post-secondary education at a four-year institution in 1995–96 transferred from his/her first institution and continued his/her education elsewhere. Only 55 percent earned a bachelor's degree at the first institution within six years. After three years, 77 percent were still working on his/her degrees, 4 percent had completed a certificate or degree, and 18 percent were no longer working toward a bachelor's degree (U.S. Department of Education, 2001). When the outcomes for these transfer students are considered, the cohort's overall bachelor degree attainment rate increases slightly to 63 percent.

There are several reasons why a freshman does not return to his/her first college for the sophomore year (Terenzini, 1996). Students may leave for reasons that may be beyond institutional control (e.g., lack of finances, poor student-institution fit, changing academic or career goals). The individual may be unhappy with the education received or unable to manage normal school work because of a lack of fundamental skills in mathematics and writing. The student may not understand the importance of education and/or not know how to apply classroom-learned theories to real life problems. One of the largest roadblocks to retention may be student laziness (Mahon, 2003).

Therefore, effective measures for student retention must be implemented to increase the retention of qualified students at institutions of higher learning. Institutional administrators, faculty,

and students play a vital role in improving student retention (Lau, 2003). Institutional administrators can help students stay in school by providing appropriate funding, academic support services, and the availability of physical facilities. Faculty members can help maintain a positive learning environment and students must be motivated to participate actively in his/her own learning process.

A constant challenge for educators and institutions of higher learning is how to improve student retention while improving the quality of education. A major weapon in the battle can be the "Freshmen Experience" course that many institutions employ. A "Freshman Experience" course is generally a one credit hour course that may be required of freshmen during his/her first semester in college. The difficulty, however, is how to develop the course so that students are adequately prepared to deal with both the social and academic rigor of college life. An effective course should result in more successful students and, hopefully, increase retention for the institution. The following discussion presents a systems approach to developing the course, selecting core components, and sequencing the topics. Even though the model is utilized in a School of Business "Freshman Experience" course, it is also applicable in other courses within the various academic schools of a university.

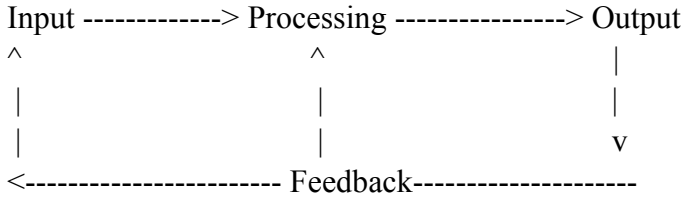

Figure 1. General System Model

APPLICATION OF THE SYSTEM MODEL TO A COURSE

The general system model (Figure 1) provides a useful framework for developing a course (Stair and Johnson, 2003). An appropriate methodology is to first identify the course outputs or deliverables. In other words, the educator needs to detail in specific and measurable terms the objectives of the course. This serves to provide direction and a basis for evaluating the success of the course. Outputs may include public speaking experience, study skills, curriculum knowledge, a resume, and so on.

Second, the primary system inputs may be defined. Inputs may include course core information, guest speakers, and students.

Third, the process component of the system model is detailed. Processes involve instruction of the course core information, sequencing of topics, scheduling of guest speakers, cooperative learning, advising, and usage of peer mentors.

The feedback mechanism for the system entails using formative and summative student evaluations, observing student behavior, examining grade point averages (GPAs) and analyzing retention. Feedback provides valuable information so that appropriate adjustments can be implemented throughout the duration of the course. GPA, however, provides limited value because moderating variables such as SAT scores and IQ may affect student performance.

BUSINESS AND BEYOND

In this study, the system model was utilized in developing and implementing a Freshman Experience course at a private, northeastern U.S. University. The sample was a convenience sample of two sections. Each section contained 18 students and was instructed by the same professor. This was a new course for the professor and a relatively new course in the School of Business.

The course is titled "Business and Beyond" in the course catalog and is a requirement for freshmen majoring in business. Various Schools within the university offer other versions (with other titles) of the course. A course coordinator provides content samples and monitors syllabi content so that each professor meets university objectives of the course. Students in other Schools of the university are not required to take the course. In addition, each professor develops his/her own syllabus, content, and schedule of activities. The Freshmen Experience courses are offered only during the Fall semester. Although each class meets for two hours per week, the student earns only one credit hour for successfully passing the course.

OUTPUT AND INPUT

In applying the system model, outputs are first identified. The system outputs for "Business and Beyond" were design to fulfill both university and School of Business objectives. University objectives include:

- provide incoming students with strategies and techniques designed to improve their academic performance;
- provide a forum in an academic setting for exploring issues related to the adjustment to college life; and,
- provide the opportunity for students to develop a mentor.

School of Business objectives are a supplement to university-specified objectives. The School of Business objectives include:

- provide an introduction to contemporary business issues;
- provide an opportunity for students to develop an understanding of the business curriculum;
- provide exposure to exemplary upper-division students; and,
- provide exposure to the different majors in the School of Business.

Objectives were next operationalized. Table 1 illustrates the outputs and inputs for each of the objectives.

The objective of "providing incoming students with strategies and techniques designed to improve their academic performance" was operationalized into six deliverables. These include skill in time management, positive study skills, public speaking experience, team skills, focus on future goals, and learning styles knowledge. Inputs to study skills and a study schedule are the 12 tips for studying and managing your time (Bragstad and Stumpf, 1982). One tip, for example, is to plan a definite time for studying each day. To promote positive study skills, the SQRRRR methodology is a useful input (Pauk, 2001). SQRRRR is a structured approach to studying which represents survey, question, read, write, recite, and review. To improve public speaking skills, professor evaluation, peer evaluation, and feedback regarding classroom presentations can be utilized. In addition, "Six Steps to Success" by Gardner, J. and J. Jewler (2000) is useful. The steps include clarifying your objective, analyzing your audience, and so on. To improve team skills, decision-making and communication techniques can be discussed. An emphasis on consensus as a decision-making mechanism can be explained, demonstrated, and promoted. Resumes, graduate and post graduate earnings estimates, internships and the Career Center can be utilized to encourage a focus on future goals. Students can submit his/her current resume and draft of his/her anticipated senior year resume. Internship and Career Center information may assist the student in planning for graduation. Moreover, students may be further enticed to think forward by examining Census Bureau statistics. The Censes Bureau estimates that an individual who works full time and does not attend college will earn about $1.2 million between ages 25 and 64 (Day and Newburger, 2002). Those with a college degree will earn $2.1 million and a master's degree $2.5 million. Doctors, lawyers, and others with professional degrees will earn $4.4 million. To provide learning styles knowledge, learning style exercises may be used. An Internet search can yield several examples. The Learning Style page at Chaminade.org provides a chart that allows the student to determine his/her learning style (2003). The 4MAT system can next be used to develop creative lesson plans for teaching learning styles (2003).

Table 1: Operationalized Objectives

Objective	Output	Input
To provide incoming students with strategies and techniques designed to improve their academic performance	skill in time management, study schedule	12 tips for studying and managing your time
	positive study skills	SQRRRR
	public speaking experience	public speaking techniques, professor and peer evaluation
	team skills	decision making and communication techniques
	focus on future goals	resume, graduate and post graduate earnings estimates, internships, Career Center
	learning styles knowledge	learning style exercise
To provide a forum in an academic setting for exploring issues related to the adjustment to college life	substance abuse knowledge	professional counselors, retention statistics
	stress management skills	stress literature, professional counselors
	financial management skills	credit card abuse statistics
To provide the opportunity for students to develop a mentor	access to model students	peer mentors
To provide an introduction to contemporary business issues	current general business knowledge	*USA Today* articles/abstract, discussion
To provide an opportunity for students to develop an understanding of the business curriculum	knowledge of general education courses, foundation courses, prerequisite courses	course catalog, academic backpack (forms)
To provide exposure to exemplary upper-division students	access to model students	peer mentors
To provide exposure to the different majors in the School of Business	general knowledge of Accounting, Business Information Systems, Finance, Marketing, and Management curriculum	guest faculty speakers for each major, plan of studies

The objective of "providing a forum in an academic setting for exploring issues related to the adjustment to college life" was operationalized into three deliverables. These include substance abuse knowledge, stress management skills, and financial management skills. To assist with substance abuse education, a professional counselor and retention statistics can be utilized.

Counselors can discuss issues related to binge drinking, alcohol content, signs of substance abuse, moderation strategies, handling substance offers, and so on. Retention statistics, as previously discussed in this paper, can be useful in demonstrating the challenge the students have in graduating. The argument can be made that there is a direct relationship between the failure to adjust to college life and those students who do not obtain his/her diploma. To promote stress management skills, a professional counselor and stress management literature can be used. Counselors can discuss issues related to what are stress, stress research, signs and symptoms, and stress management techniques. To assist in financial management skills, credit card abuse and debt management information can be provided. According to Nellie Mae, a leading provider of student loans, the average four-year college debt has increased 67% from $11,400 in 1998 to $19,000 in 2003 (Chatzky, 2003). Furthermore, 83% of undergraduates in 2001 had at least one credit card, an increase of 67% from 1998 (Zuckerbrod, 2002). The proportion of students with four or more credit cards jumped from 27% to 47% during the same period. Moreover, the U.S. Department of Education found that more than 44% of college students carried a balance on a credit card during the 1999-2000 school year. The average credit card debt was $3,066. Consequently, a discussion of credit card basics, credit card pitfalls, loan basics, and so on may assist students in minimizing the discretionary debt which may be incurred throughout the college years.

The objectives of "providing the opportunity for students to develop a mentor" and "providing exposure to exemplary upper-division students" are essentially the same objective which can be operationalized into access to model students. To promote this access, peer mentors can be selected and utilized to present/discuss issues. Peer mentors can, for example, provide day-to-day insight and suggestions in topics such as room selection, premier study locations, substance abuse temptations, time management skills, class selections, and so on.

The objective of "providing an introduction to contemporary business issues" was operationalized into the output of current general business knowledge. The *USA Today* newspaper was utilized to assist in this knowledge. The newspaper is written in terminology and at a reading level that is understandable by freshmen. In addition, it was free to students in his/her dormitory and readily accessible. Throughout the semester, student teams were required to select articles, create an abstract for each article, and present the articles in class for group discussion. An article was required for each of the five weeks that the five School of Business majors were covered. The article must be related to the major for the given week.

The objective of "providing an opportunity for students to develop an understanding of the business curriculum" was operationalized into a knowledge of general education courses, foundation courses, and prerequisite courses. The course catalog and academic backpack can be utilized to accomplish this objective. The academic backpack is a copy of the forms (detailing academic policies and procedures) that a student may need throughout his/her college experience at the University. Such forms include add/drop, major change, and transcript request forms.

The objective of "providing exposure to the different majors in the School of Business" was operationalized into a general knowledge of the Accounting, Business Information Systems, Finance, Marketing, and Management curriculum. To facilitate this knowledge, guest speakers (such as department chairpersons) and plans of study can be employed. A plan of study is a suggested semester-by-semester outline of courses for each major so that the degree may be completed in a specified time period, normally four years.

PROCESS

Once the outputs and inputs have been specified, the process component of the system model is detailed. Processes involve instruction of the course core information, cooperative learning, scheduling of guest speakers, advising, usage of peer mentors, and sequencing of topics.

Cooperative learning is instruction that involves individuals working in teams to accomplish a common goal, under conditions that involve both positive interdependence and individual and group accountability (Smith, 1995). Cooperative learning has been found to increase student retention, student satisfaction, cognitive skills, and active participation (Cooper, 1995). It has also been utilized in developing effective student self-managed work teams (Case, 2001). Cooperative learning can be employed by forming student teams, requiring each team to select articles, creating an abstract for each article, and presenting the articles in class for group discussion.

Another process is the selection and scheduling of guest speakers. Guest speakers are useful in covering topics that either the professor has little knowledge and/or students may feel less than comfortable discussing with the professor. For example, guest speakers can be utilized in the areas of substance abuse and stress management. Moreover, department chairs are useful in thoroughly presenting curriculum and career opportunities for each major. The primary considerations are guest speaker selection and early booking of speakers.

Advising is a process that will help promote one-on-one faculty-student interaction. In addition, students may feel more comfortable asking questions in a more personal environment. Advising also allows the professor to tailor curriculum choices to the individual student.

In terms of mentors, students who are role models need to be identified and selected. Mentors should be both academic and social role models with the willingness, time, and ability to assist freshmen in dealing with school-related issues. Once mentors are selected, a meeting prior to the semester should be held so that prospective mentors can be briefed regarding course expectations and his/her role in and outside the classroom.

A final and critical process is the sequencing of course topics. Topics should be sequenced to be useful for each student, as the information might be needed during the semester. For example, stress management was scheduled immediately preceding the first exam. Time management and study skills (SQRRRR) were presented in week #2 so students would be able to use the knowledge

throughout the entire semester. Table 2 depicts a sample 15-week schedule. Topics with asterisks are those in which peer mentors were required to attend.

Table 2: Sample Course Schedule

Week	Activities
1	Syllabus student introductions, student team formation, graduate earnings
2	Retention statistics student study schedule*, time management*, SQRRRR*
3	Acct/BIS curriculum credit cards, public speaking
4	Student accounting presentations
5	Student business information systems presentations
6	Stress management, exam #1
7	Substance abuse*, learning styles*
8	Finance curriculum
9	Career Center resumes, University and School of Business curriculum
10	Marketing curriculum internships
11	Student finance presentations
12	Individual meetings with advisor for next semester registration
13	Student marketing presentations
14	Academic backpack forms(add-drop change of major forms, etc.)
15	Exam #2

FEEDBACK

The last aspect of the system model is the feedback mechanism. Feedback is necessary to determine model effectiveness. When actual and desired outcomes are not consistent, adjustments may need to be implemented. Feedback entails using formative and summative student evaluations, observing student behavior, examining GPA, and evaluating retention.

In the study course, students were provided with course and self-evaluations during week fourteen. A survey instrument was developed and administered anonymously. A five-point Likert style scale was utilized to measure fourteen factors. Each factor was measured based upon the student's opinion regarding the importance of each factor for a successful college experience and his/her knowledge about each factor. Thirty-one students completed surveys. Factors included liberal arts understanding, knowledge of classroom skills, extracurricular activities, School of Business activities, and so on. A liberal arts understanding includes knowledge about philosophy, theology, history, and science. Knowledge of classroom skills includes knowledge regarding note

taking, exam taking, and so on. Involvement in extracurricular activities includes activities such as performing arts, academic clubs, and the campus radio. Involvement in School of Business activities includes activities such as field trips, speakers, and social events. Table 3 illustrates the percentage relative importance of each of these factors.

Table 3: Percentage Relative Importance of Factors for a Successful College Experience

Factor	Not at all Important				Very Important
	1	2	3	4	5
Ability to manage time effectively	0%	0	10	26	65
Ability to manage stress effectively	0	0	16	29	55
Understanding of liberal arts	0	13	48	29	10
Opportunity to examine alternative majors	0	3	16	39	42
Opportunity to examine careers	0	3	6	35	55
Understanding learning style so I can study more effectively	0	0	13	26	61
Understanding School of Business curriculum	0	0	6	52	42
Understanding degree requirements	0	0	10	42	48
Understanding of University core requirements	3	3	19	35	35
Regular meetings with advisor	0	10	23	35	32
Knowledge of academic support services	0	6	13	42	39
Knowledge of classroom skills	3	3	3	45	42
Involvement in extracurricular activities	0	6	26	26	42
Involvement in School of Business activities	3	0	32	29	35

Results suggest that students perceive nearly all the surveyed factors to be important for a successful college experience. The most important factors (rating of 4 or 5) are understanding School of Business curriculum (94%), time management (91%), career knowledge (90%), understanding degree requirements (90%), understanding learning style (87%), classroom skills (87%), stress management (84%), alternative majors (81%), and academic support services (81%). Moderate factors include understanding University core requirements (70%), examining extracurricular activities (68%), regular meetings with the advisor (67%), and School of Business activities (64%). The least important factor was an understanding of liberal arts (39%).

Students were next surveyed to indicate his/her knowledge relative to the fourteen factors. This data is useful in determining the effectiveness of the processes. Table 4 illustrates the percentage knowledge of each factor.

Table 4: Percentage Knowledge of Factors

Factor	No Knowledge				Very Knowledgeable
	1	2	3	4	5
Time management	0%	3	10	52	32
Stress Management	0	3	19	45	32
Understanding of liberal arts	6	3	32	45	13
Understanding of alternative majors	0	3	32	39	26
Techniques used to explore careers	0	19	19	48	13
Learning styles	0	10	26	35	29
Understanding School of Business curriculum	0	3	23	48	26
Understanding degree requirements	0	6	23	48	23
Understanding of University core requirements	6	3	13	48	29
Role of academic advisor	6	3	0	52	39
Knowledge of academic support services	3	3	23	35	35
Knowledge of classroom skills	0	0	35	45	19
Extracurricular activities	0	3	42	35	19
School of Business activities	0	10	39	32	19

These results suggest that students feel knowledgeable in nearly all the surveyed factors. The most knowledgeable factors (rating of 4 or 5) are the role of the academic advisor (91%), time management (84%), stress management (77%), and understanding University core requirements (77%). Moderate factors include understanding School of Business curriculum (74%), understanding degree requirements (71%), academic support services (70%), examining alternative majors (65%), learning style (64%), classroom skills (64%), and career knowledge (61%). The least knowledgeable factors are an understanding of liberal arts (58%), extracurricular activities (54%), and School of Business activities (51%).

Table 5: Correlation of Importance to Knowledge by Factor		
Factor	Correlation Coefficient	Significance (2 tailed)
Ability to manage time effectively	0.072	.700
Ability to manage stress effectively	0.050	.790
Understanding of liberal arts	0.330	.070
Opportunity to examine alternative majors	0.101	.591
Opportunity to examine careers	0.065	.730
Understanding learning style more effectively	0.117	.530
Understanding School of Business curriculum	0.445*	.012
Understanding degree requirements	0.238	.198
Understanding of University core requirements	0.528**	.003
Regular meetings with advisor	0.567**	.001
Knowledge of academic support services	0.585**	.001
Knowledge of classroom skills	0.405*	.024
Involvement in extracurricular activities	0.519**	.003
Involvement in School of Business activities	0.432*	.015
* .05 significance ** .01 significance		

Instruction effectiveness can be further examined by comparing "relative importance of each factor for a successful college experience" with "knowledge of each factor." Table 5 presents the Spearman rho correlation coefficient for each factor. Results indicate that seven of the fourteen factors have a significant correlation between the importance and knowledge of each factor. Understanding School of Business curriculum, classroom skills, and involvement in School of Business activities have a correlation with each factor's importance and knowledge at the .05 level of significance. Understanding University core requirements, regular meetings with an advisor, academic support services, and extracurricular activities have a correlation with each factor's importance and knowledge at the .01 level of significance.

In terms of GPA, students achieved a higher overall GPA than the prior year's freshmen. After the first semester, the 26% of the freshmen had achieved a 3.25 GPA or greater. In addition, only 13% had a GPA below 2.0, compared to a traditional 20-25%. Moreover, the retention rate for the sophomore year was 75%.

WEAKNESSES

Two weaknesses of this research should be considered. One weakness relates to the sample. Replication of the survey with additional students, additional sections, and additional Universities would improve the robustness of the results. A second weakness is the self-reported nature of the survey instrument. Students are using recall to estimate importance and knowledge of the fourteen factors. Memory may be unreliable, recency effects may occur, and the Hawthorne Effect may be evident. Respondent anonymity is utilized to minimize the Hawthorne Effect.

CONCLUSION

This paper details a system approach for designing and implementing the business student's Freshman Experience course. The model serves as an effective educational framework for operationalizing course outputs, selecting inputs, implementing processes, and obtaining feedback. The model was used to develop and implement a School of Business "Business and Beyond" class. Written student evaluations, anecdotal student comments, correlation statistics, GPA, and retention figures suggest that the system approach and course were successful.

Overall, the approach is useful in assisting educators in gaining a deeper understanding of course design and implementation. Ultimately, retention should be increased while improving the quality of education and student learning.

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GENDER DIFFERENCES IN STUDENTS' PERCEPTIONS OF GROUP LEARNING EXPERIENCES

Rebecca Kaenzig, Appalachian State University
Stella Anderson, Appalachian State University
Eva Hyatt, Appalachian State University
Lynn Griffin, North Carolina A&T State University

ABSTRACT

This paper examines the effects of gender on students' perceptions of and experiences with group assignments. The motivation for the paper was based on the premise that group learning is an important component of undergraduate business education and that there is a difference between males and females in the way these group assignments are perceived. Even though ample literature exists related to gender differences, no studies could be found that examined the effects of gender on students' perceptions of group tasks.

A survey was administered to 294 seniors enrolled in courses in the College of Business at one southeastern university. Using a Likert-Scale format, students were asked to respond to statements which described their attitudes toward and their experiences with group projects. Demographic data was collected which allowed differences in responses between males and females to be examined.

Results revealed that males, more so than females, felt all group members contributed equally to group projects; whereas females felt they did more than their share of the group work than did males. Females also indicated they did more of the secretarial and organizational work related to group projects than did males.

INTRODUCTION

It is generally agreed that the classroom experience plays a crucial role in the development of behaviors and attitudes that will affect the professional lives of college graduates. Further, since the majority of courses taken by business majors in their junior and senior years are business courses, the business school and its faculty play a major role in the development of the attitudes, values and skills these students bring to the workplace (Rosener & Pearce, 1989). One issue of interest in recent years is that of diversity and what is being done on the college level to foster diversity among the student body and give students the skills needed to function effectively in a diverse workforce. There are questions about whether appropriate changes have been made in most

business school classrooms to reflect the increasing diversity present in today's student bodies (Sullivan & Buttner, 1992). While there are many aspects of diversity, this paper will focus on the gender aspect and look at the differences between males and females regarding their attitudes towards and experiences with group assignments. Qualitative focus groups and quantitative written surveys were used to gather the data.

LITERATURE REVIEW

Although most business school professors acknowledge there are differences in student learning styles, most do not know how to accommodate these differences when planning assignments, projects and classroom activities (Sullivan & Buttner, 1992). Although there may not be differences between women and men in terms of cognitive ability or academic performance, how men and women approach and prepare for class are different and their learning styles are different (Gallos, 1995a). Gilligan (1982) offers interview research results supporting the notion that gender differences in attitude toward formal learning experiences are due to intrinsic psychological differences between men and women, describing men as being more driven by issues of separation, and women as being more driven by issues of connection. Gender role stereotypes often picture women as more communal and concerned with the welfare of others than men, and men as more assertive and controlling than women (Eagly, 1987). Such differences provide a foundation for understanding how gender contributes to differences in learning style. Gallos (1995b) argues that women and men do not have parallel experiences. Gallos (1995a) contends that women require a community of support, confirmation, encouragement and faculty interest in their personal development. By contrast, men need classroom activities that develop skills. Women tend to have more self-doubt in the classroom, while men are more likely to attribute problems to external causes. These differences result in different learning styles that are not equally supported by the educational system. Women in formal learning situations often suffer from a lack of confidence, great fear, self doubt, an inability to accommodate novelty, and feelings of alienation (Gallos, 1995a). Such feelings most likely derive from gender role stereotyping, in which women are still seen as soft and yielding, in combination with an educational system that rewards behaviors that are strong and assertive (Scheuneman, 1997). As a result, women tend to believe that they perform less well in class, learn less than they actually do, and feel less confident than men in their abilities to succeed at related future endeavors. Brazelton indicated that male students in accounting classes were more likely to participate in class interaction and dominate class discussions than female students. Also, perhaps as a result of this behavior, males felt they received more useful feedback from instructors (Are Male Accounting Students Favored? 1998).

In recent years, the use of groups and of cooperative or experiential learning tasks has increased in American universities and particularly in business schools. One major player in the movement to bring about changes in the way accounting education is delivered, the Accounting

Education Change Commission (AECC, 1990), urged accounting faculty to use instructional methods that encourage, among other things, group work. It was felt the use of group work would increase and develop communication skills, as well as improving students' abilities to work in groups to solve problems or complete projects. The increasing use in business classes of groups for class projects raises the question of whether men and women experience these assignments in different ways. Since educators should be and generally are interested in accommodating individuals with varied learning styles (Hammer, 2000; Kolb, 1984) and if differences do exist in the learning styles of males compared to those of females - which the literature supports (Gallos, 1995a; Gallos, 1995b; Gilligan, et al., 1988), then any activity or assignment, i.e., a group assignment, that does not equally support these different learning styles should be closely scrutinized.

METHODOLOGY

In order to identify the issues underlying potential gender differences in learning experiences, focus groups with business students were conducted. Churchill and Brown (2004) say the following about focus groups. The focus group, should be a small group (8-12 members) of individuals brought together to talk about a particular topic in a group discussion format, and is ideal for generating hypotheses that can be further tested quantitatively and for structuring questionnaires. Focus group respondents should be selected so that groups are relatively homogeneous. This helps to minimize conflict between group members, intimidation of some members by others, and differences in perceptions and experiences. For this study, therefore, male and female business students participated in separate focus groups of 10-12 members each. The focus groups (about 1 hour each) were conducted by one of the authors, who is an experienced focus group moderator and were audio-taped for future reference. The focus group responses/discussions were analyzed by all three authors with the goal of finding interesting gender differences and patterns regarding learning experiences (Krueger, 1998). These findings were then used to develop a questionnaire to quantitatively measure potential gender differences in group learning situations. The questionnaire included fourteen five-point Likert-scale-type items dealing with group projects, 5 questions dealing with feelings toward a group computer simulation experience, and general demographic questions. A copy of the instrument is shown in the End Notes.

The questionnaires were distributed and completed in multiple sections of two senior-level business courses. Senior-level courses were chosen to ensure that respondents were nearing the end of their undergraduate studies and therefore had had the maximum opportunity to participate in group assignments. A total of 294 responses were obtained. The sample was 42% female. The mean and median age was 22. There were no significant gender differences in either self-reported overall grade point average (GPA) or GPA in business classes.

RESULTS

For each of the nineteen questions on the survey, mean responses were determined for males and for females. T-tests were then done, again on an item-by-item basis, to determine if there was a difference in the responses given by males and those given by females. Table 1 (below) shows the mean scores for males and for females on each of the nineteen survey questions. The last column shows the significance of the t-test and indicates which mean values were significant ($p<.05$).

Table 1: Mean Responses on Survey Questions by Gender

Item #	Mean Response for Females	Mean Response for Males	t-test results
1	3.65	3.43	.09
2	2.72	2.87	.23
3	3.26	2.72	.000*
4	3.92	3.81	.38
5	3.52	3.55	.86
6	3.11	3.50	.003*
7	3.87	3.60	.008*
8	3.58	2.82	.000*
9	3.53	3.11	.000*
10	4.10	3.85	.05*
11	3.18	3.30	.37
12	2.29	2.03	.05*
13	3.63	3.58	.70
14	2.80	2.91	.35
15	3.12	3.92	.001*
16	2.69	2.58	.66
17	3.59	4.19	.002*
18	3.66	4.03	.05*
19	1.88	1.77	.55

(* $p < .05$)

On half the items related to group projects in general (items 1-14), there were significant differences between the responses given by males and those given by females. Items #3, 7, 8, and 9 all refer to the respondents' contribution to the group assignment relative to the contribution of

other group members. Scores on all four of these items were significantly higher for females, indicating females felt they were more frequently taken advantage of than did males; that they more often did more than their share of the work, and they more frequently did the menial/secretarial-type tasks (i.e., organizing the group, doing the write-up, etc.). Female respondents also had higher mean scores on items #10 and 12. This indicates that females disliked being dependent on others for their grade(s) more so than did males and that females felt they were more frequently pressured by slackers to submit favorable peer evaluations for the slackers. Males, on the other hand, indicated a greater sense of fairness in group work than did females (item #6), saying that all group members did equal amounts of work on group projects.

On the other half of these fourteen items, no differences between genders was found. These items dealt with issues such as preferring to work alone on assignments, satisfaction with the outcome of group projects, feeling responsible for the grades of others, feeling comfortable grading others and giving low grades when deserved, feeling guilty about not doing your fair share of the work, and getting a lower grade than was felt to be deserved.

For the five items (#15-19) that asked about a particular team-based simulation exercise, significant differences between the responses provided by males and those provided by females were found on three of the items. Males, more than females (a) viewed the experience as being a valuable learning experience (item #15), (b) felt more confident in their decision-making skills, as required by the game (item # 17), and (c) perceived that they worked well with other members of their team (item #18). There were no gender differences regarding how "comfortable" students were with the competitive nature of the exercise or with their feelings of inclusion.

DISCUSSION

We find differences between males and females in the way they assess group dynamics and their own contributions to the group experience. In general, women seemed to be less satisfied with team-based assignments than did men. Our findings call into question the effectiveness or value of group-based learning projects, especially for women. Instructors need to be aware that perhaps group composition may affect a number of dynamics that go on within student groups and such dynamics may be gender-based. Understanding why there is a difference in how males and females view group experiences requires further investigation.

Limitations of our study should be noted. The population of students surveyed was of traditional age; whether these findings would hold true with other populations is unclear. Our subjects were business students with no distinction made between different disciplines or majors. Further study is needed to determine whether the differences found here are more or less significant when looked at across various business disciplines. Also, while we observed a number of differences between male and female students, the underlying explanations and causes require further study.

Finally, in light of the idea that many of students' attitudes and behaviors translate into workplace attitudes and behaviors, issues of gender-based educational experiences are critical. For example, with regard to group-based work we know that in the workplace women who defer to men in group interactions in a traditionally male arena are likely to receive lower performance evaluations, leading to fewer opportunities such as promotions and salary increases (Goltz & Giannantonio, 1996). Clearly further investigation of the effectiveness of the behaviors learned in a group setting would be valuable, especially if there are tangible career consequences for both men and women.

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APPENDIX
Survey Instrument

The following questions deal with your experiences relating to group projects in your business classes. Please indicate how often the following things occur or have occurred.

	Never	Not very Often	Some -times	Often	Most of the time
I prefer doing projects by myself over working with a group.	1	2	3	4	5
I am usually more satisfied with the outcome of a group project than with a paper I write on my own	1	2	3	4	5
I have been taken advantage of by group members	1	2	3	4	5
I feel comfortable truthfully evaluating and reporting my group members' performance.	1	2	3	4	5
I turn in poor evaluations for group members with poor performance.	1	2	3	4	5
All group members usually pitch in and do equal amounts of work on group projects.	1	2	3	4	5
I do a lot of the organizing and getting people together to work on group projects.	1	2	3	4	5
I often end up being the group secretary and do much of the writing and finalizing of the project.	1	2	3	4	5
I end up doing more than my fair share on group projects.	1	2	3	4	5
I don't like being dependent on others for grades.	1	2	3	4	5
I feel responsible for my group members' grades.	1	2	3	4	5
I have been pressured by group members who have been slack to turn in favorable evaluations for them.	1	2	3	4	5
I feel guilty when I do less than my share of the work, even when the project turns out well.	1	2	3	4	5
I have gotten a grade lower than I deserved.	1	2	3	4	5

Please indicate if you participated in a computerized simulation game as part of MKT 3050 - Principles of Marketing. Yes No

APPENDIX
Survey Instrument

Please answer the following questions regarding the simulation game:

	Never	Not very Often	Some -times	Often	Most of the time
It was a valuable learning experience for me.	1	2	3	4	5
I felt uncomfortable with the competitive nature of the assignment.	1	2	3	4	5
I felt confident participating in the decision making required by the game.	1	2	3	4	5
I felt like I worked well with the members of my team.	1	2	3	4	5
I felt left out of the team's decision-making.	1	2	3	4	5

Questions about yourself.

What is your major?

What is your current overall GPA? _____ GPA in your COB classes? _____

What is your gender? _____ Female _____ Male

What is your age? _____ years