

# The Journal of Academic Administration In Higher Education

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# A COMPARATIVE STUDY OF INTERNATIONAL AND AMERICAN STUDY ABROAD STUDENTS' EXPECTATIONS AND EXPERIENCES WITH HOST COUNTRIES IN SELECTED INSTITUTIONS OF HIGHER EDUCATION

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## ABSTRACT

*This was a comparative study of international and American study abroad students' experiences and expectations with the host countries. The rationale for this study was to acquire a deeper understanding of different experiences of students who study abroad and to understand whether their expectations of the host country have an impact on their experiences. An opportunity sample of American study abroad and international students was selected from the United States student population and their expectations and experiences of the host country compared.*

*The study addressed 6 research questions, using a mixed-method approach. The principal instrument for the investigation was the Cross-Cultural Participant Questionnaire conducted online. Associated hypotheses with the research questions were analyzed using Independent sample t-tests and Paired samples t-tests at an alpha level of .05 and the results were described using descriptive statistics. The open-ended questions were analyzed according to established qualitative techniques. The survey was completed by 421 respondents comprised of 155 international students, 252 American study abroad students, and 14 unknown labeled as others.*

*The results of this study identified language fluency, building relationships with the host nationals, learning about a new culture, and personal change as significant expectations of the students. Overall, the students reported being satisfied with the services provided. International students were slightly more satisfied with access to support services than the American study abroad students. American study abroad students had experiences that closer matched their expectations of study abroad than was the case for international students.*

## INTRODUCTION

According to Open Doors, the annual report on international education published by the Institute of International Education (2009), new international student enrollment increased 15.8% than the previous year for the first time at U.S. institutions in 2008.

Considering the vast number of students attending institutions outside their home countries, it is imperative that the higher educational experience be studied within the context of students' expectations. This is essential because students

evaluate their experiences of education within the context of their expectations and use this evaluation to assess satisfaction of the institution.

For those students enrolled in study abroad programs, the transition from citizen to foreign national presents levels of personal development and maturity as well as stressful demands that were evident in the students' personal experiences. Such an experience, according to Neill (2005) "is to be judged by the effect that experience has on the individual's present, their future and the

extent to which the individual is able to contribute to society" (para. 9).

For international administrators and recruiters, there is no lesson plan to follow when dealing with students studying abroad (Smith, 2005). Therefore, each student's experience ought to be examined within the confines of the specific circumstances and the available resources present in the institution. Smith suggested the lack of a curriculum or guiding plan forces educators to fall back on core values. In most instances, these values were used to reflect and formulate judgments that might best suit learners engaged in a common experience (Smith). American institutions represented an opportunity for international students to learn about a foreign culture while earning a degree (Hoffa, 1998). In the same way study abroad programs offered students the experience of broadening their knowledge of other cultures, living and understanding foreign cultural norms, and appreciation of worldly differences (Hoffa & Pearson, 1993). As a result of their unique experiences, international and American study abroad students present an opportunity for in-depth comparison of their cross-cultural experiences.

### STATEMENT OF THE PROBLEM

Although in recent years there has been research done on students' experiences (e.g.: Barger, 2004; Hellsten, 2002; Zeszotarski, 2003), very few studies have focused on comparing the experiences and expectations of international and American study abroad students in host countries. Based on Hellsten's research, international students and American study abroad students viewed the study abroad experience as an investment in their personal, professional, economic, social, cultural, and linguistic development. The students expected socialization and cultural integration in the host environment, to bring about faster learning outcomes. In a sense, they were learning from experience and adapting to environmental change.

As Neill (2004) suggested, learning from experiences often results in a direct participation in the events of life, in this case the study abroad experience. Thus, a void exists in the literature on international and American study abroad students' experiences in host countries. Because the experi-

ences of these students are not only important for student recruitment and retention but also for student affairs professionals, the international community, and school administrators, it is essential that colleges and universities use student data to better understand, improve, and change campus environment, thereby creating settings more conducive for student development.

The rationale for this study was to acquire a deeper understanding of different experiences of students who study abroad (international and American students) and to understand whether their expectations of the host country have an impact on their experiences. The study further assessed the similarities and differences of international and American study abroad students' experiences. In this sense, students' experiences and expectations are indicators of the institutions' responsiveness to students' needs and acts as a measure of institutional effectiveness, success, and vitality. Measuring students' experiences is important for maintaining and increasing enrollment and making better informed decisions in the areas of student recruitment and retention.

### SIGNIFICANCE OF THE STUDY

Students attend institutions overseas for various reasons, the least of which is global educational experience (Hoffa, 1998). As part of the globalization initiative among institutions of higher education, research suggested that, American institutions were increasingly encouraging their students to study in other countries so they could obtain a broader perspective of the world (Hechanova-Alampay, Beehr, Christiansen, & Van Horn, 2002). Similarly, the literature reported professional development as one of the major reasons international students chose to experience study abroad in the United States (Hellsten, 2002). Additionally, according to Goodman and Kaufman (n.d.), students who studied in other countries had the opportunity to experience cultural differences, gain an understanding of how others view their country, and are better able to share their values with the host country.

This study is the first comprehensive study that compares the experiences and expectations of international and American study abroad stu-

dents in their host countries. Significant investigation of existing literature was done to identify similar studies and none was found. This study is also significant because it is the first reported view of international and American study abroad students' expectations and experiences in a host country. This study can promote interest in organizing, formulating, and disseminating clear and revised policies to address student learning developmental goals as they relate to the expectations students desire in a study abroad setting and the experiences they encounter. This study can also bridge the gap in research regarding the experiences and expectations of international and American study abroad students in host institutions.

By conducting this study, feedback was obtained from the students on the importance of experience in their personal and professional growth. From the study's findings, higher education administrators may get a better understanding of international students' expectation of American higher education institutions and use this information to facilitate a more rewarding experience for study abroad students. In addition, feedback from study abroad students will help administrators better prepare students for prolonged stay in a foreign country. Although expectations may differ considerably among individuals, there are standard expectations of what an institution should provide and what the student should expect. Unless their expectation can be made compatible with their experiences, students will find difficulty in achieving the developmental outcome of the learning experience.

### DELIMITATIONS AND LIMITATIONS OF THE STUDY

The study was delimited to participants who were international students currently enrolled in selected higher education institutions in the United States and also to American students enrolled in selected higher education institutions in the United States who have embarked on a study abroad program within the last 5 years. The students were able only to describe their own experiences and expectations. The feedback from the students was limited to responses surrounding their experiences and expectations of higher education campuses. Contact with the students was

done through third parties (international study abroad coordinators). Therefore, generalizations of the findings of this study may not be applied to all international and American study abroad students in higher education.

### CONCEPTUAL FRAMEWORK

A theoretical framework for foreign students' experiences can be formulated using the experiences of international and American study abroad students along with the existing theory of Kolb's experiential learning model and Dewey's work on education and experience. It is also reasonable to apply Kurt Lewin's force field theory to study abroad programs, which reports that behavior is a function of both the individual and the environment (Owens, 2000). The environment the students are in will influence their learning experiences and provide opportunities for informal learning.

The experiences of the learner are shaped both by the informal and formal learning processes. In a sense, study abroad can be classified as a mix of both informal and formal learning. Students enrolled in study abroad programs are afforded the opportunity to evaluate their total learning experiences in a formal and informal learning environment. Therefore, the experiences of international and American study abroad students are an opportunity for positive reflective observations for educators.

### KOLB'S EXPERIENTIAL LEARNING

Kolb (1984) indicated that humans were unique in the sense that adaptation does not only occur in the physical but also in the learning process. Kolb stated, "We are thus the learning species, and our survival depends on our ability to adapt not only in the reactive sense of fitting in the physical and social worlds, but in the proactive sense of creating and shaping those worlds" (p.1). Kolb indicated that the focal point of learning should be immediate personal experience. He suggested that personal experience provided the texture, meaning, and life to abstract concepts. Kolb indicated that with personal experience one can test as well as question the validity of an idea discovered during the learning process. He stated, "Knowledge is continuously derived from



and tested out in the experiences of the learner” (p.27).

### OVERVIEW OF JOHN DEWEY'S WORK ON EXPERIENCE AND EDUCATION

Dewey (1938) contended that knowledge and skills gained in one situation are used to understand and deal with future situations. This synthesis is part of the learning process encountered throughout life. Dewey (1938) suggested that an experience is derived from the interaction of an individual and the immediate environment. The environment, according to Dewey, can be an event under discussion, a book being read, or toys that one interacts with.

Dewey theorized that from the interaction of the principles of continuity and interaction experiences arose (Neill, 2005). Dewey's continuity principle was based on the idea that an individual's future is influenced, for better or worse, by each experience, and the principle of interaction was based on a situation influencing the experience of an individual (Neill, 2005).

### ASSUMPTIONS

In this study, the following assumptions were made:

1. The students had preconceived expectations before they left their home countries for the host institutions.
2. International students knew they had to adapt to a new culture of learning.
3. Students were willing participants in study abroad program

### RESEARCH QUESTIONS

The following research questions were addressed in this study:

1. Is there a difference between expectations and experiences of international students study abroad?
2. Is there a difference between expectations and experiences of American study abroad students?

3. Do experiences of international students in America differ from those of American study abroad students?
4. Do expectations of international students in America differ from expectations of American study abroad students?
5. To what extent are international and American students' post-study abroad expectations similar or different?
6. What programs or interventions do international and American study abroad students say will make their experiences more meaningful?

### RESEARCH DESIGN AND METHODOLOGY

The study was a comparative study of international and American study abroad students' experiences and expectations with host countries. The purpose of the study was to investigate international students in America and American study abroad students in an attempt to compare both groups' experiences and expectations as they relate to studying in a host country. According to Babbie (1989), we live in a world that consists of two realities, experiential reality and agreement reality. Experiential reality is knowledge from a direct experience while agreement reality is knowledge that is generally believed to be real by the majority. For scientific purposes, accepted reality (experiential or agreement) must have “both logical and empirical support” (Babbie). The study attempted to capture both the internal and external reality of students' experiences and expectations about the host countries and thus it was appropriate to use both methods to analyze the information. Quantitative methods generally consider external reality; things that can be measured and seen. Qualitative methods consider internal reality; feelings, and perceptions of individuals.

### RESEARCH DESIGN

The study used a mixed-methods approach (quantitative and qualitative methods of research). The

quantitative tests enabled measurement and comparison of students' responses to questions posed in the survey instrument, whereas the qualitative method enabled the researchers to gather insights into what students were actually experiencing. Creswell (2003) defined a quantitative study as a study to test a theory using strategies of inquiry in order to determine whether predictive generalization holds true by using statistical procedures. In contrast, he defined a qualitative study as understanding a human or social problem using strategies of inquiry such as narratives to build a holistic picture from the individual's perspective.

### POPULATION AND SAMPLING PROCEDURES

The population for this study comprised of international students currently enrolled in selected higher education institutions located in the United States and American students enrolled in selected higher education institutions located in the United States who have been on study abroad programs within the last 5 years. Eight institutions for this research were chosen based on enrollment of international and study abroad students as well as willingness to participate. These institutions were University of North Carolina at Chapel Hill, Appalachian State University, University of Maryland (UMBC), Minnesota State University Moorhead, University of Minnesota - Twin Cities, Georgia State University, Duke University, and Old Dominion University. The target sample size was 500 respondents. The number 500 was chosen because the study used a mixed methods approach and for manageability purpose 500 was deemed the cutoff point.

It was not realistic to survey all study abroad students (international and American) in the United States, so an opportunity sample was taken. The opportunity sample represented the targeted population of institutions willing to take part in the study. All appropriate approvals were obtained from the East Tennessee State University, University of North Carolina at Chapel Hill, Appalachian State University; University of Maryland (UMBC), Minnesota State University Moorhead, University of Minnesota – Twin Cities, Georgia State University, Duke University, and Old Dominion University Institutional Re-

view Boards for research with human subjects. Because of the nature of the study, confidentiality had to be maintained to ensure students were comfortable responding to the survey.

### INSTRUMENTATION

A Cross-Cultural Participant Questionnaire designed to assess students' expectations and experiences of host countries while on study abroad programs was utilized. The Cross-Cultural Participant Questionnaire was conducted online with the dual purpose of collecting quantitative as well as qualitative data. See appendix A

### QUANTITATIVE ANALYSES

Information from the Cross-Cultural Participant Questionnaire was used to analyze the students' responses in this study. Data was reported with the assistance of tables. The gaps between experiences and expectations were calculated. The study addressed six research questions. The research was conducted using an alpha level of .05 and the results were described using descriptive statistic and frequency counts. The primary variables studied were students' experiences and expectations. The following null hypotheses were analyzed using Independent sample t-tests and Paired sample t-tests.

- Ho11: There is no difference between international students' mean expectations scores and their mean experiences scores of their stay in the United States.
- Ho12: There is no difference between mean experience scores for male and female international students.
- Ho21: There is no difference between American study abroad students' expectations and their experiences with their host country.
- Ho22: There is no difference between mean experience scores for male and female American study abroad students.
- Ho31: There is no difference between mean experience scores for international students in America and mean experience scores for American students in study abroad programs.

Ho41: There is no difference between the expectations of international students in America and expectations of American students in study abroad programs.

QUALITATIVE ANALYSES

The research questions were also analyzed with the aid of qualitative methodology. The study involved analyzing students' responses from the online survey to capture the students' perception of their expectations and experiences of the host country. Data for the study was collected from via the online survey tool. The responses from the survey were analyzed to gather information on pre- and post-study abroad expectations as well as deeper insight into students' experiences. The following questions from the survey was analyzed manually and sorted into themes:

- Q31: What programs or services were the most meaningful or helpful on the host campus?
- Q42: What were your initial expectations for the study abroad experience?
- Q43: How have your expectations changed? Explain new expectations, if any?
- Q44: Please describe your experiences with the host institution?
- Q45: What programs or interventions do you think would have made your experience more meaningful?

ANALYSIS OF DATA

In this study the researchers sought to answer six research questions related to the expectation and experiences of the host country of international and American study abroad students. Data for this study was compiled from the results of an online survey instrument (Appendix A). Responses were separated based on student groups so that the group scores could be compared. Independent t-tests and paired samples t-tests were used to analyze the data. The open-ended questions were analyzed according to established qualitative techniques. The qualitative techniques used in the study were a mix of descriptive account and category construction. By analyzing the data, themes were identified and developed.

The following null hypotheses were analyzed using Independent sample t-tests and Pearson Product-Moment correlations. The research project addresses six research questions. The research was conducted using an alpha level of .05 and the results were described using descriptive as well as inferential statistics. The primary variables under study are students' experiences and students' expectations.

- H1: There is no relationship between international students' expectations and their experiences with the host institution.
- H2: There is no difference between mean experience score for male and female international students.
- H3: There is no relationship between American study abroad students' expectations and their experiences with the host institution.
- H4: There is no difference between mean experience score for male and female American study abroad students.
- H5: here is no difference between the experiences of international students and study abroad students.
- H6: There is no relationship between length of stay and experience.
- H7: here is no difference between mean experience score for international students and mean experience score for American students in study abroad programs.
- H8: There is no difference between the expectations of international students and American study abroad students.
- H9: There is no relationship between length of stay and expectation.
- H10: There is no difference between mean expectation score for international students and mean expectation score for American students in study abroad programs.

The procedures used for testing the research hypotheses is documented in table 1 below. All analyses and mathematical computations was completed using Version 11.5 of SPSS (SPSS, 2003).

Table 1 documents the research questions the associated hypotheses and the test that was conducted. Descriptive (rather than measurable) data was collected from questions 5 and 6. Therefore these research questions have no associated hypotheses. The researchers also analyze themes from questions 52 and 55 of the survey instrument to answer research questions 5 and 6.

QUANTITATIVE APPROACH

Descriptive statistics and frequency counts were employed to describe the expectations and experiences of study abroad students. A five point scale measuring to what degree the respondent believed that the items matched his or her experiences and expectations was used with (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. The expectations and experiences were assigned a score based on items on the

TABLE 1 RESEARCH QUESTIONS ASSOCIATED HYPOTHESES AND TEST			
Research Questions	Hypothesis		Test
Is there a relationship between expectations and experiences of international students?	H1	There is no relationship between international students' expectations and their experiences with the host institution.	Correlation
	H2	There is no difference between mean experience score for male and female international students.	Independent sample t-test
Is there a relationship between expectations and experiences of American study abroad students?	H3	There is no relationship between American study abroad students' expectations and their experiences with the host institution.	Correlation
	H4	There is no difference between mean experience score for male and female American study abroad students.	Independent sample t-test
Do experiences of international Students differ from those of American study abroad students?	H5	There is no difference between the experiences of international students and study abroad students.	Independent sample t-test
	H6	There is no relationship between length of stay and experience.	Correlation
	H7	There is no difference between mean experience score for international students and mean experience score for American students in study abroad programs.	Independent sample t-test
Do expectations of international students differ from expectations from American study abroad students?	H8	There is no difference between the expectations of international students and American students in study abroad programs.	Independent sample t-test
	H9	There is no relationship between length of stay and expectation.	Correlation
	H10	There is no difference between mean expectation score for international students and those for American students in study abroad programs.	Independent sample t-test
To what extent are international students and American students' post study abroad expectations similar or different?		Survey Question 52	Descriptive
What programs or intervention international and American study abroad students say will make their experiences more meaningful?		Survey Question 55	Descriptive

survey instrument. The expectation score was created by summing 10 items on expectations from the Cross-Cultural Participant Questionnaire.

The 10 items on expectation from the questionnaire were socialization and cultural integration, experience increase global awareness, leadership skills & career advancement, increase cultural knowledge, differences in people and culture, formal friendships with the host nationals, host language confidence, support network in the host community, better career opportunities at home, and personal changes. Likewise the experience score was created by summing the responses of the students' experiences of the 10 experience items. The experience items were identical to the 10 expectation items identified earlier.

As part of the analysis of the data, gap scores were calculated for specific items in the questionnaire. The gap score was the difference between expectation scores and experience scores. Gap scores provide institutions with an easy method of identifying areas where significant differences between expectations and experiences lie. These gaps allow administrators and policy makers to identify specific areas for change or improvement. Paired samples t-tests and independent t-tests were used to evaluate differences in mean. The data were evaluated with an alpha level of .05.

The survey, completed by 421 respondents, was broken down as follows, 155 international students, 252 American study abroad students, and 14 others. The 'other' category was students who were unsure of how to identify students status. Some were international students enrolled in United States institutions on study abroad programs in other countries, others were American students no longer enrolled in school and some just chose to identify themselves as 'other.' Only the responses of the international and American students were used for the study. The international students who responded represented 54 countries and the American students studied in 34 countries. The responses from the 'other' category were discarded.

The largest response to the survey came from American study abroad students with 59.9% of the responses; international students represented

36.8% and other represented 3.3%. The exact number of graduate, undergraduate and gender profile of the students could not be recorded because not all the students reported their student status and gender. A breakdown of the demographic details that were obtained from the questionnaire can be found in Table 1

### RESULTS OF THE STUDY

The review of the literature revealed that study abroad students measured their experiences using several variables according to research (e.g., Chen, 1996; Hellsten, 2002; Phillips, 2005; Rajapaksa & Dundes, 2002). These included cross-cultural interaction, language confidence, friendship, support network, and host community. Additionally, students gain added learning experiences by associating with others from different cultural backgrounds and of different ethnicities.

The results of this study identified language fluency, building relationship with the host nationals, learning about a new culture, and personal change as significant expectations of the students. The findings of the study confirmed earlier research of Chen (1996) and Hellsten (2002). In Chen's research students had various reasons for studying abroad including individual growth, cross-cultural learning experience, and international understanding. Hellsten documented the experiences of international students in Australia and reported that these students wanted their expectations to match their experiences.

The study found that students frequently bonded with other international students or nonnative students. Both American and international students reported having trouble establishing friendships with the host nationals and the students reported establishing closer connections with students in similar situations. The results of the study were consistent with the studies by Chen (1996), Hellsten (2002), and Rajapaksa and Dundes (2002). These researchers identified the importance of friendship in helping students adjust to a new environment.

While concern over language fluency was an issue for most of the students, the students did not indicate whether lack of fluency in the host language led to social isolation and adjustment

issues as indicated in a previous study by Phillips (2005).

The research of Trice (2004) and Peterson et al. (1999) emphasized the importance of social interaction with the host nationals. Trice's research found that students with similar cultural background to host nationals interact more with the host nationals than those with different cultural backgrounds, while Peterson et al. identified the development of international 'ghetto' when visiting students are isolated from host nationals. My research confirmed the issues laid out by Peterson et al. and Trice. The students (American and international) reported bonding more with other international students because of shared experiences and difficulty establishing friendships with the host nationals.

The study found international and American study abroad students had to make adjustments to the host institution. International students indicated that their experiences with faculty were mixed, while American students expressed surprise about the formality of the classes and professors. Unfamiliarity with the university system led to frustration for the students working out class schedules and registration issues. Both international and American students indicated that support was lacking when it came to identifying and locating certain resources on campus.

The results from the research confirmed the studies of Bennett (1988), Chisholm and Berry (2002), Lee (1997), and Rajapaksa and Dundes (2002). Bennett (1988) indicated that American classrooms relied heavily on discussion and inquiry, as opposed to self-directed learning, leaving students ill-equipped for the sort of everyday self-directed experiential learning faced abroad. Rajapaksa and Dundes also revealed that students on study abroad programs found different classroom experiences from their home country. Lee attributed feelings of discomfort in the classroom to culture shock.

Overall, the students learned to adapt and make the most of their learning experiences. This confirmed Murphy-Lejeune's (2003) research that affirmed that students must adapt and transform as necessary in order to maximize the experience.

### RECOMMENDATIONS FOR FURTHER RESEARCH AND PRACTICE

The following recommendations for practice were given based on the study's findings:

1. Address areas where significant gaps exist between experience and expectation.

Administrators should investigate where significant gaps exist between expectations and experiences. Areas where students had high expectations and these expectations fell short of the experiences are grounds for investigation by policy makers. Areas where expectations were lower than experienced provides another area of opportunity for investigation. By investigating the actual experiences administrators are better able to plan pre-departure orientations to better prepare the students on what to expect. By analyzing gaps between expectations and experiences administrators can provide better service to the student population.

2. More extensive pre-departure preparation and orientation.

Students should be given at least a 2-day course on living in and dealing with different cultures. Longer orientation sessions that provide realistic material on living in a foreign country will better prepare students to have realistic expectation and provide them with the right frame of mind to maximize the experience. Students who intend to go on study abroad programs should research the country and the culture as much as possible. Movies, newspaper, and novels are important source of information; they can aid the student in identifying cultural norms that they might find unsettling (Hoffa et al., 1993). Forearmed is forewarned, with advance knowledge

- of the culture, students are better able to adjust and derive maximum benefit from their experience.
3. Increased involvement of international students in campus events.
- International students indicated wanting to be included and involved in campus events. These students are willing resources, rich in knowledge about countries that host study abroad students. International students also enrich the campus environment and provide an understanding of how other societies view America and Americans. Administrators should make use of this available resource (international students), by having them take part in pre-departure workshops for students going on study abroad, as well as being available to help students understand different cultures.
4. Increased preparation and planning.
- Lack of structural or systematic planning and preparation is often blamed for the failure or dissatisfaction of students with the host institutions. This failure or dissatisfaction results from the inadequate preparation on the part of the students, as well as the institution. The institutions, therefore, need to view data about students' experiences (e.g.; Chisholm & Berry, 2002; Hellsten, 2002; Trice, 2004; Zhao et al., 2005) to see if there are gaps between expectations and experiences. If gaps exist, then the institution should identify interventions that can be employed to minimize these gaps. Identifying the expectations and experiences of students is only the first step in the process. Institutions concerned with study abroad programs must go a step further by creating an orientation program for all involved and developing a knowledge base of different cultures and culture specific situations. Subsequently, gaps in training for personnel to match expectations with experiences can also be identified from students' analyses of their exposure to a host culture.
5. Make students feel welcome.
- Institutions have an obligation to involve, serve, and retain the students they recruit. One of the ways of doing this is to make students feel welcome by providing services and support that help students better adapt to the host culture. Family friend programs and housing for families are areas that can be implemented to assist students better adjust to living in a foreign country. Administrators can also provide the students access to the host culture by directing them to historical sites, museums, cultural events, and traditions of the host country. Additionally, administrators can provide programs where the students are able to share about their culture and interest with the campus population or even the host community. Making students feel welcome is about ensuring students feel at home in the host culture.
- The following recommendations for further research:
1. A qualitative study should be done with a small focus group of international and study abroad students to pinpoint areas of the study abroad experience that needs improving.
  2. An evaluation of the support services available to students as well as the support services students want from host institutions should be done.
  3. Further study should be done on preparing students on transitioning into a foreign institution.

4. A comparative study of students embarking on multiple study abroad initiatives to determine whether their expectations and experiences are similar.
  5. A comparative study of study abroad undergraduates and graduates students should be done to determine differences in expectations and experiences.
  6. A study should be done on the language ability of students embarking on study abroad. This may include investigation of the student's home language, relationship of the student's native language to the host language as well as what exposure to the host language students have.
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# **COPING WITH BUDGET REDUCTIONS: SWITCHING EXAM LAYOUTS REDUCES UNIVERSITY COSTS WITH NO IMPACT ON STUDENT GRADES**

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## **ABSTRACT**

*Recent budget cuts have necessitated that many departments cut costs while trying to preserve quality of instruction. One cost-cutting measure is printing exams with a layout of 2 pages on a single side of paper, which cuts the amount of paper used in half relative to the traditional 1 page format. In this study I examined the potential effect of this layout change on exam scores. Two classes took exams where half of the tests had the traditional layout of 1 page per side, and the other half of the tests had 2 pages per side. I found no differences in exam scores between 1- and 2-page layouts, with a high statistical power. This finding indicates a viable option for departments looking to cut costs and reduce paper usage without negatively impacting student performance on exams.*

As a result of the financial crisis of 2008–present, many state universities have been faced with a significant reduction in budget while student demand increases. Many states have faced budget shortfalls that have resulted in significant cuts to state university funding (Laster, 2010). For example, Nevada universities have lost more than 25% of their state financing in 2009 (Wolverton, 2010), Arizona State University lost 18% of its base state budget between June, 2008, and February, 2010 (University of Arizona Office of Public Affairs, 2010), Michigan State University is spending \$332 million less on education than it did a decade ago (Miller, 2010), and California State University has lost more than 1 billion dollars in state general fund support for the combined 2008–2009 and 2009–2010 academic years (California Faculty Association, 2010). Universities have utilized numerous and varied strategies to cope with the cuts, among them increases in student fees, decreases in student admissions, program cancellations, faculty and staff layoffs, furloughs, energy conservation, and reduction of purchases of equipment and supplies. As a result of these changes, university Deans and department Chairs are challenged with the task of maintaining the quality of instruction with fewer resources. As an example, the oper-

ating expense budget of the Psychology Department at California State University, Sacramento (CSUS) was cut by 50% in 2009 (B. Behrman, personal communication, October 27, 2009), and again by another 40% in 2010. The faculty were told that basic supplies including paper, ink cartridges, and Riso copier masters could not be purchased due to a lack of funds, and that photocopying in the department would be restricted to exams to conserve the remaining paper and ink. In addition to the restriction of copying only exams, faculty were encouraged to find other ways to further reduce paper usage on exams.

One strategy adopted by some faculty in the department is printing and copying exams with a layout of two pages per side and utilizing both the front and back sides of the sheet of paper. This strategy allows four exam pages to be printed on a single sheet of paper, reducing the amount of paper used per exam. This method of printing and copying also reduces more paper than simply shrinking the font size of an exam. Furthermore, this strategy aids in reducing paper and ink supply costs to departments, but it also address many environmental concerns over the pollution generated by paper production (Abramovitz & Mattoon, 1999). However, faculty expressed concern that this change in exam layout may negatively

impact student performance on exams. Previous studies have shown that some aspects of exam appearance can have an impact on student performance. For example, research on the color of paper on which exams are printed has indicated that paper color can impact grades on a test. Sinclair, Soldat, and Mark (1998) found that scores on exams printed on blue paper were significantly higher than those printed on red paper. Skinner (2004) and Tal, Akers, and Hodge (2008) found that scores were lowest on blue paper compared to other colors, whereas students' scored highest on white paper. Even though the researchers found contradictory results on the effects of specific colors, they all find that color does impact student exam grades. In this study I investigate whether the layout of an exam, specifically the number of pages printed on each side of a sheet of paper has an impact on student performance.

METHODS

Undergraduate introductory psychology students from two different classes took a midsemester exam as part of the requirements for the course. Class A had 122 students (44 women and 87 men) while Class B had 197 students (104 women and 93 men). Each exam covered material from the prior section of the course and was not cumulative. Exams consisted of 24 true-false and 26 multiple-choice questions, for a total of 50 questions. The exam questions were different for the two classes. For each class' exam, half were printed and copied in the standard format of one page per side of the paper (one page on the front and the next exam page printed on the back). A 14-point sized Arial font was used with 0.75 inch margins on each side. The total number of sheet of paper used per exam in this format was 4 (7 exam pages copied front and back). The other half of the exams were printed with two exam pages per side of a sheet of paper and then photocopied back to back. The result was two exam pages on the front of the sheet of paper and two exam pages on the back side of the paper (see Appendix A for directions on how to create this format). This format was used for convenience since it would not require any reformatting of the test, as changing the font or margin size would. The total number of sheets of paper used per exam in this format was 2. Before print-

ing, a 14-point sized Arial font was used, which resulted in a 9-point Arial font when printed due to the scaling of fitting two pages on one side. So the 1 page format had a larger font size than the 2 page format. Questions and question order on both versions of each class exam were identical. White paper was used for all exams. For each exam, students chose their own seats. I randomized which students would receive each exam layout. The resulting design was a 2 (class) x 2 (page layout) between subjects design.

RESULTS

Table 1 shows descriptive statistics for each class and layout type. A two-way between-subjects ANOVA was performed (SPSS Version 17.0) with number of questions correct as the dependent variable, and class and exam layout as the fixed factors. No significant main effect was found for the page layout (tests printed on one page versus two pages to a side),  $F(1, 315) = 0.653, p = .420$ . A power analysis of the main effect test was performed (G\*Power Version 3.1.2) and yielded a value of 99%, well above the 80% accepted value set by Cohen (1977; 1992), indicating that the likelihood is very low of a Type II error,  $r = .01$ . The value of  $r$  for this research is also below the established .05 level recommended by Cashen and Geiger (2004) for testing null hypotheses. The main effect for class (class 1 versus class 2) was also not significant,  $F(1, 315) = 2.058, p = .152$ . A power analysis of the main effect test was performed (G\*Power Version 3.1.2) and yielded a value of 99%, also indicating a low likelihood of a Type II error. The interaction between exam and exam layout was also not significant,  $F(1, 315) = 2.558, p = .111$ , with a power analysis of the interaction also showing 99% power.

TABLE 1 DESCRIPTIVE STATISTICS						
	Class 1			Class 2		
Measure	N	M	SD	N	M	SD
1-page layout	62	37.0	7.1	98	37.2	5.7
2-page layout	60	37.6	6.5	99	35.5	5.4

DISCUSSION

I found no significant main effect for the page layout factor. Scores for exams printed and copied on one page per paper side were statistically equivalent to the scores for exams printed and copied with two pages per paper side. With the 99% power for the test, the likelihood of a Type II error is very low ( $r = .01$ ). Therefore, it is justified to conclude that printing two pages per exam does not appear to negatively impact student performance on exams. There was no significant main effect of class, indicating that students from both classes performed equally well on the test. Finally, the interaction was not significant, so scores from one class were not dependent on the page layout.

The font size for exams printed on two pages did shrink from 14-point Arial font to 9-point Arial font. It is logical that this size difference would not impact student grades as students regularly read books, magazines, and other printed material with font sizes comparable to 9-point. Although the difference did not impact student performance, instructors using this method should provide an announcement beforehand for any students with visual impairments that may require a larger font size. Only one student in the present study (whose data were not included) reported a visual impairment that necessitated having an exam printed in larger font.

This finding helps support a decision by department chairs and faculty to switch to printing exams with two pages per side on a sheet of paper, when looking for a way to reduce paper and ink costs. Switching the layout to two pages per side for these exams resulted in a change from four to two total pages for each exam. If this format were adopted entirely by a single 120-student class and assuming four 50-question exams per semester, the resulting paper saved would be 960 sheets (nearly two reams of paper). The current price for a ream of paper is approximately \$8 (Staples, 2010). A single class with 500 students would save 4000 sheets over the course of a semester, which amounts to 8 reams of paper (a savings of approximately \$64). While these amounts alone would be insignificant to many departments, a single department with adoption by multiple classes over many semesters would amount to significant changes in amount saved. In the Fall

2010 semester, the Psychology Department at California State University, Sacramento had a total of 3221 students across all classes, which is only a moderate size in comparison to some larger universities (California State University Class Schedule, 2010). With this same estimate of paper reduction, the department would reduce printing by 25,768 sheets, or 51 reams of paper. This would amount to a single semester savings of approximately \$408, or a yearly savings of \$816. For departments with limited operating expenses, this could make a very large impact. The University of Michigan's Psychology department, one of the larger ones in the country, taught approximately 7507 students in the undergraduate courses in Fall 2010 (University of Michigan Office of the Registrar, 2010). Using the same estimate of 4 tests per class, the amount of paper saved would be 60,056 sheets, or 120 reams of paper. The total semester savings would be approximately \$960, and a yearly savings of \$1920 assuming a comparable enrollment for the spring semester.

In addition to the money saved by purchasing less paper, departments would also reduce their copying costs by purchasing less ink and masters for copiers such as RISO machines. Currently, six cases of RISO ink and 6 cases of RISO masters cost approximately \$4234 (Riso Products of Sacramento, personal communication, October 11, 2010). While it is difficult to qualify the exact amount saved in RISO supplies, it is clear that adopting this simple printing format of 2 pages per side on a sheet of paper, could save a university thousands of dollars if adopted by multiple departments or colleges. By switching entirely to this new format, departments and universities would not only help reduce costs, but would also become more "green" by reducing the amount of paper and ink used in printing exams.

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## APPENDIX

To print 2 pages to a side of paper on a Macintosh (Office 2008 for Mac):

1. Go to the file menu and select “Print”
2. In the print dialog box, click on the pull-down menu typically labeled “Copies and Pages” and then select “Layout”
3. Change “Pages per sheet” to 2.
4. Click “print”

Instruction to print 2 pages to a side of paper using Windows (Office 2010?):

1. Go to the Microsoft Windows icon in the upper left corner and select “Print”
2. In the print dialog box, find the “Zoom” area (lower right corner)
3. Change the “Pages per sheet” box from 1 page to 2 pages.
4. Click “OK”



# GENDER EQUITY IN FACULTY RECRUITMENT EXPERIENCES UNDER THE NSF ADVANCE PROGRAM: A CASE STUDY

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## ABSTRACT

*This is a case study of equality of experience in the faculty job interviewing process following the implementation of a National Science Foundation funded ADVANCE program at a major U.S. research university in 2001. The University of California, Irvine established an Equity Advisor program in order to increase gender equity in the hiring process. Five years later, in 2005, we interviewed 75 female and male candidates for faculty positions about their job interview experiences. We found very few gender differences in experiences and a high level of satisfaction among the candidates' encounters with the campus' level of gender equity as well as the university on the whole. Through indirect evidence, we have reason to conclude that the ADVANCE program increased gender equity awareness and improved the candidates' assessments of their job interview experiences with regard to gender equality issues. We call for further research on how intervention programs like ADVANCE mitigate gender inequities.*

Gender disparities among university faculty in the United States are striking. Compared to female faculty members, males tend to occupy more tenured positions, earn more money, and spend less time teaching and servicing (Glazer-Raymo 1999; Bellas 1994; Bellas and Toutkoushian 1999). Research also shows that university culture is "chilly" towards women and that the "good old boys network" still exists (Monroe, Ozyurt, Wrigley, and Alexander 2008; Sandler and Hall 1986).

To address these gender disparities, the National Science Foundation (NSF) began in 2001 to fund university-wide programs to improve gender equity. These initiatives, called ADVANCE programs, leave the methods and program designs to the Principal Investigators at each campus. The University of California, Irvine (UCI) implemented an ADVANCE program in 2001

during the first round of NSF funding; through 2010, it remained the only campus in the larger University of California system to have received an ADVANCE Institutional Transformation Award.

A main goal of the ADVANCE program was to increase the recruitment of women into faculty positions. To facilitate this, UCI implemented an initiative, called the Equity Advisor Program, in all schools throughout the campus. Equity Advisors are senior faculty members, appointed as Faculty Assistant to the Dean in their respective schools. The Equity Advisors actively participate in faculty recruitment by approving search strategies and raising awareness of best practices in recruitment. Search committees seek input and approval from the school's Equity Advisor before they formalize a candidate list. By the 2006/2007 academic year, 90% of all faculty

searches had Equity Advisors sign off on the plan and advertisement form, review the search activity statement, distribute pamphlets or discuss best practices with the committee chair or full committee, and meet with the full search committees. Equity Advisors reviewed and made suggestions if necessary on the applicant pool list in 85% of all searches.

The campus' unique institutional support and the role of the Equity Advisors in recruiting female faculty provide an interesting case for understanding gender differences in faculty recruitment. This report is a case study of the equality of experience of the interview process during the period of the ADVANCE initiative at UCI. Five years after the ADVANCE implementation, we interviewed male and female candidates for faculty positions to assess their job interview experiences. Although we can't directly show that the ADVANCE program caused the patterns we observe, we reason that they suggest that the program improved the hiring process.

#### CONTEXT: FEMALE FACULTY HIRES

One explanation for the under-representation of female faculty in tenure track jobs is that proportionately fewer are hired. Compared to other campuses in the UC system, UCI has been relatively successful at hiring female faculty since the initiation of ADVANCE. During the course of the program, the proportion of female faculty hires rose substantially, as displayed in Figure 1. In 2001/02, 27.848% of all UCI hires were female, however by 2008/09 that number had increased to 43.529%. We see that the rate of female faculty hiring was greater at UCI than at other campuses in the UC system. Using Theil regressions (Hollander and Wolfe 1973), we estimate a yearly 1.98% increase of female hires on average at UCI, compared to a 0.079% increase at the other campuses in the system. Using Hollander's test of parallelism for two regression lines (Hollander and Wolfe 1973:209-15) over 100,000 random-assignment permutations, with a 95% confidence interval we find that the growth rate (i.e., the slope) of female faculty hires at UCI exceeds other UC campuses by between 1.977 and 3.088% each year. Though the difference in slopes between UCI and others in the UC system holds up to this robustness test, we

exercise caution in placing too much emphasis on an initially small sample with sixteen data points.

Even though it appears that the ADVANCE program changed the hiring process at UCI, due to data limitations, we cannot identify the program as directly responsible for the increase in female hires. We do know, however, that while the program has been instituted UCI has been more successful at hiring women than the average campus in its system.

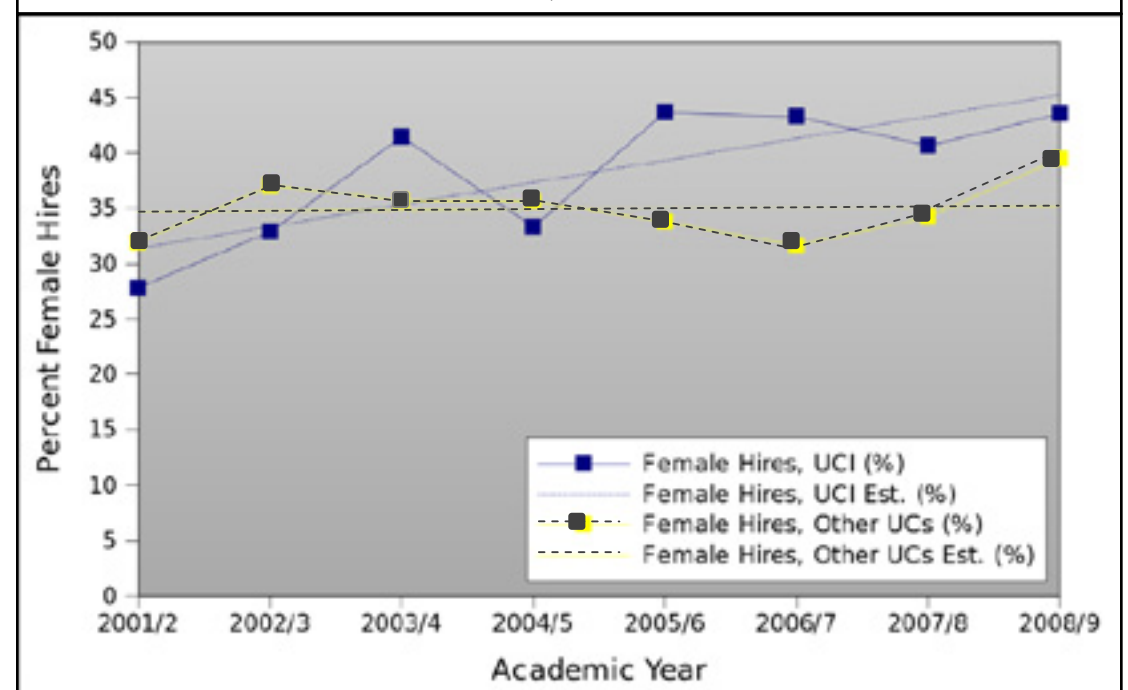
There are several aspects of the recruitment process that may affect the proportion of women hired: the field and sub-field of the search, the wording of the job announcement, the gender distribution of the applicant pool, the job interview process, and the negotiating process. Here we focus on the job interview process, which is a critical step in obtaining more female faculty. If female job candidates perceive UCI to be a "chilly" climate for women, then they may have a different propensity to accept a job offer.

#### THE JOB INTERVIEW STUDY

At UCI, a main goal of ADVANCE was to improve female faculty recruitment. To understand the recruitment experience, ADVANCE commissioned a survey in 2007, five years after the program's establishment. The survey targeted individual job candidates who interviewed for tenure-track positions during the 2005/2006 and 2006/2007 recruitment cycles. It aimed to both assess the effectiveness of recruitment practices and to identify any specific problems by collecting information on candidates' experiences during their UCI interviews.

The campus administration provided names and phone contact information for candidates who visited during the 2005/2006 and 2006/2007 academic years. Information was systematically missing from certain schools and departments. The ADVANCE administrator attempted to collect missing information from the schools and departments themselves. Departments tended to submit either complete information or nothing at all. A few departments gave only the names and contact information of those they hired. In the end, we collected names of 172 candidates (of the 255 estimated candidates) who interviewed for a tenure track position between 2005 and

**FIGURE 1**  
**PERCENT OF NEW HIRES AT UCI AND OTHERS IN THE UC SYSTEM**  
**WHO ARE WOMEN, BY ACADEMIC YEAR\***



\*Data for this table were collected from the ADVANCE website and the Office of the President ([http://www.ucop.edu/acadadv/datamgmt/newappts\\_sep\\_inc.html](http://www.ucop.edu/acadadv/datamgmt/newappts_sep_inc.html)). The program ADVANCE began in the fall quarter of the 2001/02 academic year. The Theil regression formula for UCI is  $Y = 29.417 + 1.980 \cdot x + e$ , where Y is the percent hires who are women, x is the number of years since the 2000/1 academic school year, and e is the error term. For the other campuses in the system the Theil regression formula is  $Y = 34.577 + 0.079 \cdot x + e$ .

2007. We were able to contact 81 of these job candidates. Of these, we conducted 75 interviews by phone between June and November of 2007. We assured anonymity to these interviewees. Only one candidate refused to participate in the interview and five others offered to complete it later, but we were unable to reach the candidates a second time. The remaining 90 job candidates could not be included in our study, as our repeated calls to them were unanswered and/or we had incorrect contact information. Additionally, we have supplemental information on candidates who received offers and those who accepted. Appendix 1 reports the potential and completed interviews by department, and Appendix 2 reports the percent completed by whether or not the candidate is now working at UCI.

Contact rates varied from 38% in the School of Social Sciences to 50% in Engineering, with an average of 44% across all schools. The contact rate of female job candidates was slightly higher than the male contact rate (53% vs. 40%).

Hence, we have two problems with the sample: first, we did not receive a complete list of all individuals who interviewed during 2005/2006 and 2006/2007; and second, we had incorrect contact information for almost half (47% of the population that was identified). This resulted in an unrepresentative sample of the population. Namely, we have an overrepresentation of candidates who accepted job offers at UCI, as their contact information was easier to acquire since they are currently employed there. This leads us to exercise caution in generalizing our results to the entire population of job candidates. Overall,

our sample under represents candidates who did not receive offers and candidates who turned offers down. However, the gender difference between respondents who accepted offers and those who did not was not statistically significant. This similarity between the two samples allows us to analyze gender differences without being overly concerned with the underrepresentation of respondents who did not join the faculty. However, to be confident in our results on gender, we pair each table on male/female respondents with candidates who are now at the campus with those who are not at the campus. This approach shows that responses are similar for those who are currently UCI faculty and those who are not.

Respondent demographics are reported in Table 1. Our sample is 65% male and 35% female. The majority of the respondents are white (77%), and there are 11% Asian, 5% Latino/a, and 7% other. We were unable to reach any African-American respondents and do not have information on how many interviewed during these years. Seventy-three percent of candidates interviewed for as-

TABLE 1 RESPONDENT DEMOGRAPHICS		
Variable	%	N
Gender		
Female	35%	26
Male	65%	49
Race/Ethnicity		
White	77%	58
Asian	11%	8
Latino/a	5%	4
African-American	0%	0
Other	7%	5
Rank of Interview Position		
Full Professor	23%	17
Associate Prof.	4%	3
Assistant Prof.	73%	55
Outcome of Interview		
Accepted Campus Job	65%	42
Declined Campus Job	8%	5
Didn't Receive a Campus Offer	28%	18
	Mean	N
PhD Year	1998	75
Number of Offers	1.667	75

sistant professor, 4% for associate professor, and 23% for full professor positions. The campus did not offer positions to 28% of our respondents and of the 47 who received offers, 42 accepted. The average year in which our respondents received their PhD was 1998 and the average respondent received approximately two offers overall.

ANALYSIS

We begin the analysis by reporting the respondents' overall assessments of their job interview experiences at UCI. We compare women's and men's experiences as job candidates. We found that both women and men overwhelmingly rated their experiences as excellent or very good, without a statistically significant difference between women and men. Women were slightly more likely to report that their experiences were excellent and men slightly more likely to report that they were very good. A very small proportion of both genders rated their experiences as poor (3%) or very poor (1%) (see Table 2). One female respondent reported that her interview experience was good overall, but that she had some very negative gendered interactions (i.e., inappropriate comments from faculty). So even with the implementation of a comprehensive gender equity program, gender issues arose, though perhaps less frequently than before ADVANCE.

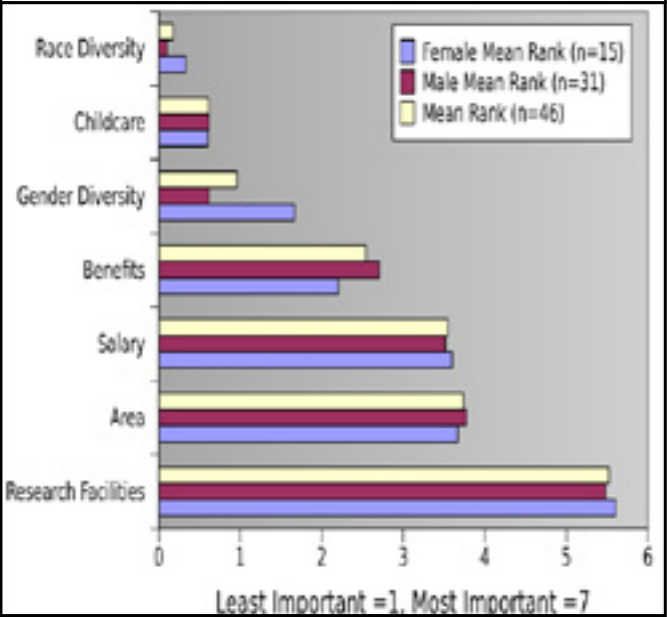
Similarly, there are no significant differences in the ways respondents of different racial/ethnic backgrounds or professorial ranks responded to this question. Asian candidates were less likely than other racial/ethnic groups to report that their interview experience was excellent, and more likely to report that it was very good (but our sample includes only 8 Asian candidates). There were no striking differences in reports of overall interview experiences by rank (note that the number of associate professor candidates (3) is too small to assess).

But as one might expect, those who chose to work at UCI had significantly more favorable views of their interview experiences than those who didn't (bearing in mind that those who did not come to UCI are of two types: those who received offers and rejected them [n=5] and those who did not receive offers [n=18]). While almost half of those who accepted UCI's offer reported that their

TABLE 2  
RATING OF OVERALL INTERVIEW EXPERIENCES BY  
GENDER, RACE/ETHNICITY, RANK, AND PLACEMENT AT THE CAMPUS.

	Excellent	Very Good	Average	Poor	Very Poor
<b>Gender</b>					
Female	46% (12)	38% (10)	11% (3)	4% (1)	0% (0)
Male	40% (19)	44% (21)	12% (6)	2% (1)	2% (1)
Tau-b= .0537 p=.6861					
<b>Race/Ethnicity</b>					
White	44% (25)	40% (23)	12% (7)	2% (1)	2% (1)
Asian	25% ( 2)	62% ( 5)	0% (0)	12% (1)	0% (0)
Latino/a	50% ( 2)	25% ( 1)	25% (1)	0% (0)	0% (0)
Other	40% ( 2)	40% ( 2)	20% (1)	0% (0)	0% (0)
Fishers Exact p=.6319					
<b>Rank</b>					
Full Professor	50% ( 8)	37% ( 6)	12% (2)	0% (0)	0% (0)
Assoc. Professor	33% ( 1)	33% ( 1)	33% (1)	0% (0)	0% (0)
Assist. Professor	40% (22)	44% (24)	11% (6)	4% (2)	2% (1)
Tau-b = .0646 p=.28					
<b>Placement</b>					
Not At the Campus	30% ( 7 )	39% ( 9)	17% (4)	9% (2)	4% (2)
At the Campus	49% (19)	44% (17)	8% (3)	0% (0)	0% (0)
Tau-b = -.2534 p=.018 (one-tailed)					

FIGURE 2  
OF THOSE WHO RECEIVED OFFERS,  
MEAN RANK OF IMPORTANCE OF FACTORS IN  
MAKING DECISION TO ACCEPT OR DECLINE BY GENDER

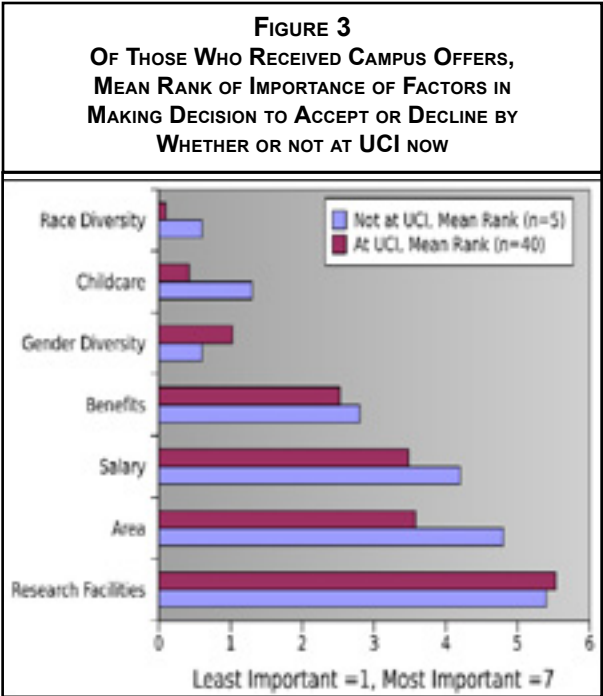


interview experience was excellent, only 30% of those who didn't end up there did so. At the other end, none of the candidates who came to the campus reported that their experience was poor or very poor, while 13% (3) of those who didn't come reported them as such.

Because the importance of different factors in deciding whether or not to take a job may differ by gender, we asked candidates who received offers to relay their thoughts regarding its details. First, we asked them to rank-order the importance of several variables in their decision-making processes to accept or decline the offer. Figure 2 reports how they ranked each of seven factors.

Job candidates ranked research facilities as the number one factor in making their decision to either accept or decline the UCI offer, fol-





lowed by the area, salary, benefits, gender diversity, childcare, and racial/ethnic diversity. On average, female and male candidates ranked the factors in the same order, but females tended to rank gender diversity higher than males.

In order to overcome possible concerns that our unbalanced sample doesn't represent candidates employed elsewhere, we break these rankings down by whether or not they came to UCI. As mentioned above, we have a small sample in the "not at the campus" category, so we use caution in interpreting the results.

When we consider whether or not the candidate accepted the offer, we find a very similar, but slightly different rank-ordering of factors. Namely, those who declined the offer ranked childcare above gender diversity. (See Figure 3.)

Next we asked those who received offers to rate UCI on a number of factors using a seven-point scale. Table 3 reports the results by gender of the job candidate.

Job candidates rated the gender diversity of UCI's graduate programs as relatively high (5.8 on a 7 point scale), followed by research money (5.689), gender diversity of the undergraduate student body (5.643), gender diversity of the faculty (5.385), the area (5.302), benefits (5.231), and housing (5.095). They rated the following in the slightly above average range:

TABLE 3 OF THOSE WHO RECEIVED OFFERS, MEAN RATING OF HOW FAVORABLE THE CAMPUS WAS WITH REGARD TO VARIOUS FACTORS. BY GENDER (7= CAMPUS IS VERY FAVORABLE)			
	Overall Mean Rating (N)	Female Mean Rating (N)	Male Mean Rating (N)
Research Money	5.689 (45)	5.267 (15)	5.900 (30)
Summer Salary	4.686 (35)	4.214 (14)	5.000 (21)
Area	5.302 (43)	5.467 (15)	5.214 (28)
Housing	5.095 (42)	5.571 (14)	4.857 (28)
Salary	4.867 (45)	4.800 (15)	4.900 (30)
Benefits	5.231 (39)	5.267 (15)	5.208 (24)
Gender Diversity of Faculty	5.385 (39)	5.357 (14)	5.400 (25)
Gender Diversity Grad Prog.	5.800 (25)	5.333 ( 9)	6.063 (16)
Gender Diversity Undergrad.	5.643 (14)	5.250 ( 4)	5.800 (10)
Childcare	4.867 (15)	5.600 ( 5)	4.500 (10)
Race Diversity of Faculty	4.500 (36)	4.083 (12)	4.708 (24)
Race Diversity Grad. Prog.	4.739 (23)	4.500 (10)	4.923 (13)
Race Diversity Undergrad.	4.625 (16)	3.600 ( 5)	5.091 (11)

TABLE 4 OF THOSE WHO RECEIVED OFFERS, MEAN RATING OF HOW FAVORABLE THE CAMPUS WAS WITH REGARD TO VARIOUS FACTORS BY WHETHER OR NOT THEY ACCEPTED (7= CAMPUS IS VERY FAVORABLE)		
	Accepted Offer Mean (N)	Declined Offer Mean (N)
Research Money	5.718 (39)	5.200 ( 5)
Summer Salary	4.788 (33)	3.000 ( 2)
Area	5.595 (37)	3.000 ( 5)
Housing	5.306 (36)	4.200 ( 5)
Salary	5.026 (39)	4.400 ( 5)
Benefits	5.222 (36)	5.333 ( 3)
Gender Diversity of:		
Faculty	5.353 (34)	5.250 ( 4)
Grad Prog.	5.818 (22)	5.667 ( 3)
Undergrad.	5.538 (13)	7.000 ( 1)
Childcare	5.083 (12)	4.000 ( 3)
Race Diversity of:		
Faculty	4.419 (31)	4.500 ( 4)
Grad. Prog.	4.650 (20)	5.333 ( 3)
Undergrad.	4.467 (15)	7.000 ( 1)

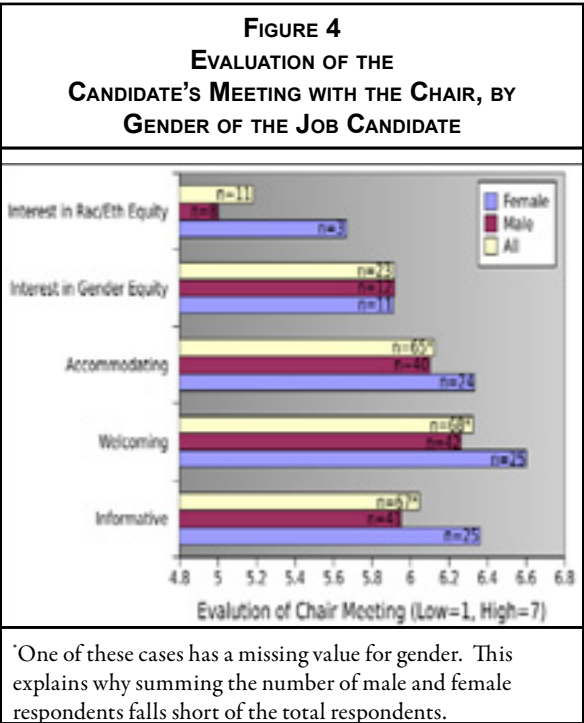
salary and childcare (both 4.867), racial diversity in the graduate program (4.739), summer salary (4.686), racial diversity in the undergraduate population (4.625), and racial diversity of the faculty (4.500). There are no significant differences between female and male ratings of any of these factors, though females tended to rate UCI lower on all diversity measures.

Next we consider whether or not candidates who accepted offers differed in their ratings of UCI on these factors from those who declined. On average, those who accepted the offer rated the campus higher on these factors. But we interpret these differences cautiously because we have only five candidates who received and declined offers. We report these differences in Table 4.

Overall, those who accepted offers had a slightly more favorable assessment of the campus on most variables. Of particular note, those who declined offers had the same (or slightly higher) assessments of gen-

der and race diversity on campus. This indicates that UCI does not tend to lose candidates due to perceptions of gender or race inequities. Rather, those who declined the offer tended to rate UCI lower on financial factors and on childcare options. The one difference that stands out the most pertains to the geographical area in which the campus is situated. Some of the responses to open-ended questions help to explain this difference. Candidates who accepted offers oftentimes mentioned that they liked the area due to its proximity to friends and/or family. Candidates who declined offers did not mention these connections. When candidates didn't have connections to the area, other aspects (including high costs associated with housing and general living expenses) may have guided their ratings. Again, our sample size in the "declined UCI's offer" category is very small, and our conclusions are only suggestive.

We now return to our analysis of the entire sample of job candidates (those who received and those who didn't receive offers). Here we consider the candidates' perception of the "face" of the campus by asking about their meetings with department chairs, deans and other faculty members. We reason that candidates' experiences with these campus representatives give them a sample



of the campus climate. In particular, the meetings with deans and department chairs give candidates a feeling for the priorities of the people in powerful positions. Meetings with faculty members tend to allow candidates the opportunity to ask pointed questions and to find out how various groups are treated on campus.

Most candidates (91%) met with the department chair and 44% reported meeting with the dean. We asked whether the chair/dean was informative, welcoming, accommodating, and whether or not s/he showed an interest in gender and racial diversity during these meetings. Figure 4 reports the responses on the department chairs, by gender of the job candidate.

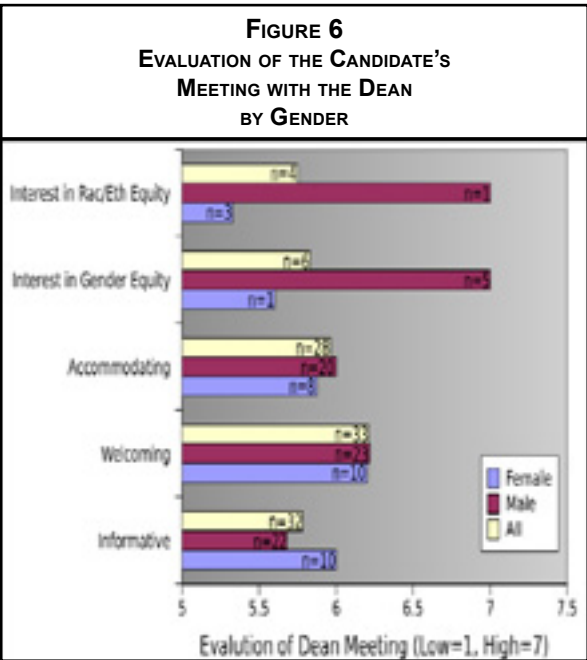
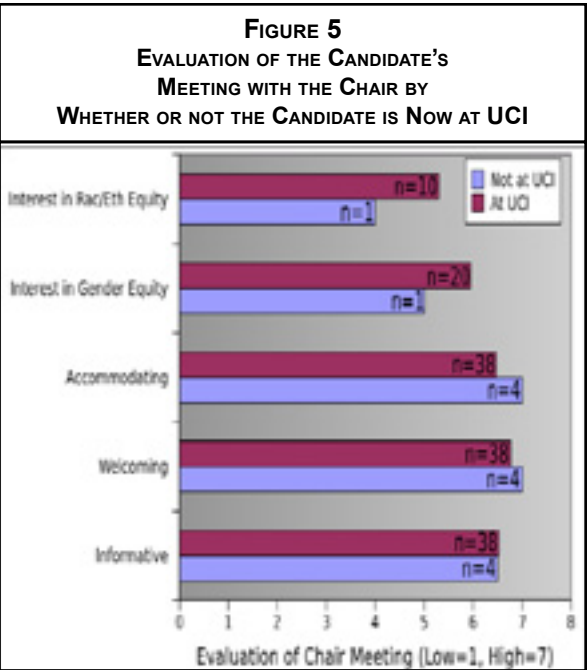
Overall, candidates rated department chairs positively on all of these factors: they have an average rating of over 6 on a 7-point scale on being informative, welcoming and accommodating, a mean of 5.9 on interest in gender equity, and 5.1 on interest in racial/ethnic equity.

Next we access evaluations of the department chair by whether or not the job candidate accepted a job offer. Figure 5 reports the results. Again, we use care in interpreting these results due to the small sample size. Mean ratings of meetings with the department chair do not significantly differ by whether or not the candidate accepted the campus's offer.

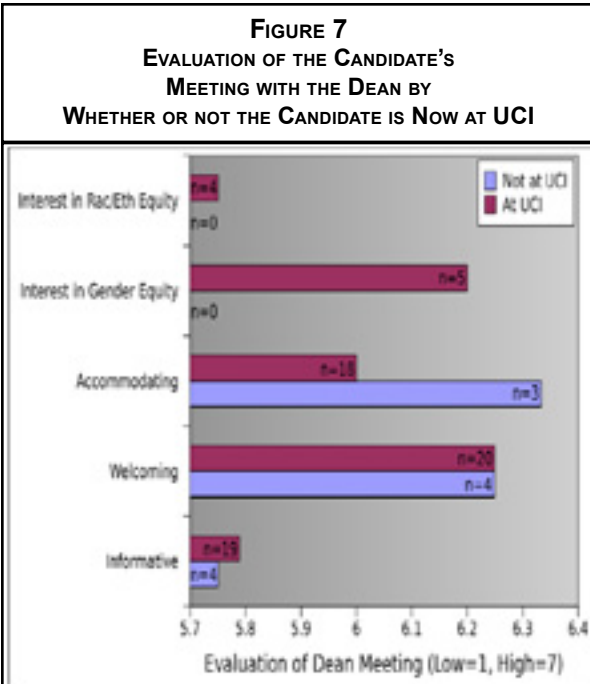
Next, we consider the same variable concerning the candidates' meetings with the dean. Figure 6 reports similarly high ratings of the deans on the extent to which they were informative, welcoming, accommodating, and interested in gender and racial equity.

We see large gender differences in assessment of deans' interest in gender and race diversity, with men more likely to rate such interest high, but we take considerable caution in interpreting these results given our very small sample size.

Next we consider ratings of the deans by whether or not the candidates accepted an offer. Figure 7 reports very similar ratings for candidates who



accepted and those who declined UCI's offer, except for assessments of whether or not the dean was accommodating. The latter difference is based upon a small sample: it suggests that those not at the campus rated the deans as more accommodating.



faculty members portrayed gender equity on campus, 58% of the female, and only 6% of the male candidates offered responses. Female respondents offered the following examples: faculty members seemed aware that parenting responsibilities oftentimes fall disproportionately on women; the department recently hired several young females; no different treatment by gender; favorable maternity leave policies; no inappropriate questions during interview; female faculty members seemed happy, and they were informed about resources for women. One of the three male candidates who offered an example mentioned the campus's equal opportunity job advertisement, another mentioned that there didn't seem to be a gender problem in the department, and the third said that female faculty members seem to think that more needs to be done.

**PORTRAYALS OF GENDER EQUITY ON CAMPUS**

Finally, we asked job candidates how the female faculty members portrayed gender equity on campus during their meetings with them. A little over half (56%) of female job candidates reported that they portrayed the campus as equitable, while 44% said the topic didn't come up. The response by male candidates was very different: only 7% reported that female faculty members portrayed the campus as equitable, 2% reported that it was portrayed as inequitable, 2% that it was in-between, and 88% said the topic did not come up. This indicates that female faculty members consider gender equity a topic to discuss with female but not male candidates (see Table 5).

When the candidates were asked to provide examples in their own words regarding how female

**CONCLUSION**

The findings of this interview project reveal that in the aftermath of the ADVANCE program, the UCI departments conducted effective interviews, and job candidates favorably evaluated their experiences there. An overwhelming percent of job candidates rated their interview experiences as excellent or very good. These ratings did not significantly differ by gender, rank, race/ethnicity, but some did differ by whether or not the candidate came to the campus. Regardless of gender, candidates reported that faculty, department chairs, and deans all made candidates feel welcome and were informative. One difference between women's and men's experiences was that women were much more likely to discuss gender equity during the interview process. When they mentioned it, existing female faculty members portrayed the gender equity situation on campus as favorable.

Our initial concern about the unrepresentative sample is somewhat warranted in that we found that those who are now at the campus reported more positive overall job interview experiences than those who are not now at the campus. But as we demonstrate in our tables, these differences appear inconsequential for our analyses on many of the specific questions and the responses are invariant by gender. As a group, the candidates who

**TABLE 5**  
**FEMALE FACULTY MEMBERS' PORTRAYAL OF GENDER EQUITY AT THE CAMPUS BY GENDER OF JOB CANDIDATE**

	Equitable (N)	In-between (N)	Not Equitable (N)	No Mention (N)
Female	56% (14)	0% (0)	0% (0)	44% (11)
Male	7% (3)	2% (1)	2% (1)	88% (38)

did not come to the campus respond similarly to those who later accepted positions at UCI; any differences between the two groups were insignificant.

We found that interviewing job candidates is useful in understanding the dynamics of gender in the hiring process. This research helps to assess the state of gender equity that candidates experience in the job interview process, and enables adjustments to maximize a high yield of female recruits in underrepresented fields. In addition, it gives insight into the perceptions that existing faculty members portray to potential recruits in the interview process. Both types of information are important for universities working toward gender equity in faculty member representation.

How has the ADVANCE program shaped job candidates' experiences? Because we did not have the benefit of data before and after the implementation of ADVANCE, we cannot formally establish causation between the Equity Advisor system and the favorable experiences of job candidates. Yet, our study shows that male and female job candidates' experiences do not significantly differ after the implementation of ADVANCE. Since gender inequities tend to abound at universities, we are encouraged by the similarities in women's and men's experiences in the interview process. We are also encouraged by the increasing percent of female hires at the campus over the period of the ADVANCE program (from 30% in 2000/01 to 39% in 2006/07), especially when compared to the rate of female hires system-wide.

Candidates that accepted UCI's job offers and those that didn't tended to have similar views on gender and race diversity on campus. Although our numbers of respondents for comparison was small, this finding indicates that UCI is not losing female candidates due to perceptions of gender inequity. The ADVANCE program most likely had a role in this outcome.

We found that candidates routinely stated that department chairs and deans had considerable interest in gender equity. This assessment most likely eases female candidates' possible concerns about climate and their potential to get work done. Interest in gender equity on the part of department chairs and deans was most likely enhanced by their exposure to the ADVANCE

program. The Equity Advisors, appointed as "Faculty Assistants to the Dean," have regular and frequent contact with deans and department chairs regarding gender equity in the hiring process. This contact no doubt raises their familiarity with, and in many cases, their concern for producing an equitable hiring outcome.

Taken together, these results suggest that a campus-wide gender equity effort and the specific practices implemented by ADVANCE, improved the yield of female hires. We also conclude that the implementation of best practices coexists with favorable faculty candidates' reports of their experiences in interviews. Overall, these results call for further examination of the role that ADVANCE, or other interventions, plays in mitigating gender inequities in the interview process.

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APPENDIX 1 POTENTIAL AND COMPLETED INTERVIEWS* BY GENDER AND DEPARTMENT			
	Percent of Interviews Completed		
	Female (N)	Male (N)	Total (N)
Engineering	100% ( 2)	46% (24)	50% (26)
Mechanical	100% ( 1)	14% ( 7)	37% ( 8)
Civil and Environmental	- ( 0)	37% ( 8)	37% ( 8)
Chemical	- ( 0)	50% ( 4)	50% ( 4)
Electrical	100% ( 1)	100% ( 2)	100% ( 3)
Bio Medical	- ( 0)	67% ( 3)	67% ( 3)
Social Sciences	43% (21)	33% (24)	38% (45)
Cognitive Sciences	50% ( 6)	20% ( 5)	36% (11)
Logic and Phil of Science	100% ( 1)	33% ( 3)	50% ( 4)
Economics	83% ( 5)	37% ( 8)	46% (13)
Sociology	100% ( 1)	100% ( 1)	100% ( 2)
Political Science	100% ( 6)	29% ( 7)	23% (13)
Chicano and Latino	0% ( 1)	- ( 0)	0% ( 1)
Anthropology	0% ( 1)	- ( 0)	0% ( 1)
Biological Sciences	54% (13)	39% (18)	45% (31)
Neurobiology and Behavior	- ( 0)	100% ( 1)	100% ( 1)
Molecular Biology	33% ( 3)	0% ( 3)	17% ( 6)
Ecology and Evol Biology	60% (10)	43% (14)	50% (24)
Physical Sciences	61% (13)	41% (56)	45 % (69)
Math	40% ( 5)	16% (19)	21% (24)
Earth System Science	75% ( 4)	57% ( 7)	64% (11)
Chemistry	100% ( 1)	67% (15)	69% (16)
Physics and Astronomy	67% ( 3)	40% (15)	44% (18)
Total	53% (49)	40% (122)	44% (171)
*We do not have information on the population of candidates interviewed. This is a percentage completed of the names we received.			

<b>APPENDIX 2</b> <b>POTENTIAL AND COMPLETED INTERVIEWS BY</b> <b>WHETHER OR NOT CANDIDATES ARE</b> <b>NOW AT THE CAMPUS AND DEPARTMENT</b>			
	Percent of Interviews Completed		
	At the Campus (N)	Not at the Campus (N)	Total (N)
<b>Engineering</b>	<b>69% (13)</b>	<b>29% (14)</b>	<b>48% (27)</b>
Mechanical	33% ( 3)	40% ( 5)	38% ( 8)
Civil and Environmental	100% ( 2)	17% ( 6)	38% ( 8)
Chemical	100% ( 1)	33% ( 3)	50% ( 4)
Electrical	100% ( 3)	- ( 0)	100% ( 3)
Bio Medical	67% ( 3)	- ( 0)	67% ( 3)
<b>Social Sciences</b>	<b>80% (20)</b>	<b>12% (25)</b>	<b>42% (45)</b>
Cognitive Sciences	60% ( 5)	17% ( 6)	36% (11)
Logic and Phil of Science	50% ( 2)	50% ( 2)	50% ( 4)
Economics	100% ( 5)	14% ( 8)	46% (13)
Sociology	100% ( 2)	- ( 0)	100% ( 2)
Political Science	75% ( 4)	- ( 9)	8% (13)
Chicano and Latino	100% ( 1)	- ( 0)	100% ( 1)
Anthropology	100% ( 1)	- ( 0)	100% ( 1)
<b>Biological Sciences</b>	<b>86% ( 7)</b>	<b>33% (24)</b>	<b>45% (31)</b>
Neurobiology and Behavior	100% ( 1)	- ( 0)	100% ( 1)
Molecular Biology	100% ( 1)	0% ( 5)	17% ( 6)
Ecology and Evol Biology	80% ( 5)	42% (19)	50% (24)
<b>Physical Sciences</b>	<b>85% (13)</b>	<b>36% (56)</b>	<b>45% (69)</b>
Math	- ( 0)	21% (24)	21% (24)
Earth System Science	80% ( 5)	50% ( 6)	64% (11)
Chemistry	100% ( 3)	62% (13)	69% (16)
Physics and Astronomy	80% ( 5)	31% (13)	44% (18)
<b>Total</b>	<b>81% (52)</b>	<b>29% (119)</b>	<b>45% (171)</b>



# INFLUENCES ON ACADEMIC PROGRAM ELIMINATION

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## ABSTRACT

*Gumport (2000; 2001) argued that higher education has shifted from a social institution to an industry preoccupied with increasing enrollment and revenue. The shift may result in academic restructuring decisions that neglect educational and social responsibilities. The influence of revenue and cost considerations was empirically tested through an examination of universities' decisions to eliminate e-business master's programs. Questionnaire methodology was used. Results suggest that enrollment had more influence on program elimination than other factors including the curriculum, faculty characteristics, and administration issues. Costs had no significant influence on the decisions which suggests that universities may be ineffectively patterning their behavior on industry.*

## INTRODUCTION

The external environment of higher education has changed significantly in the 21st century. Political support of higher education has softened resulting in erosion of public funding. Degree programs are increasingly being eliminated as universities restructure (Eckel, 2002; Michael, 1998; Yan, 2009). Gumport (2000; 2001) proposed a macro-organizational explanation for why some programs are eliminated while others survive: higher education has shifted from a social institution to an industry. Likewise, Rhodes (1995) argued that universities have an economic focus and pre-occupation with cost containment. This suggests that universities' base for legitimacy has changed from dictating what should be learned to providing students with what they appear to want to learn. A customer focus may increase enrollment and revenue but such academic consumerism can put students in the role of consumers rather than members of a community (Readings, 1996). Moreover, higher education's focus on short-term economic demands as a means to adapt to market forces may result in neglect of a wider range of societal responsi-

bilities, including educational functions and long term public interest (Gumport, 2001).

The higher education-as-industry perspective contends that degree program elimination is justified when insufficient revenue is generated through enrollments. Feldman (2005, p.63) contended that as universities make program decisions, "education leaders would be wise to ...learn from the experience of many U.S. corporations that have reinvented themselves to respond to the market changes." However, Rhodes (1995) argued that such decision processes are oversimplified in universities and do not adequately take into account program outcomes. External factors, such as enrollment, may carry too much weight in program evaluation while inadequate attention is devoted to internal considerations, such as the curriculum, which can impact program success (Gardiner, Corbitt, & Adams, 2010).

A type of degree program that has been pervasively eliminated in recent years is the e-business major (Fusilier & Durlabhji, 2008; Rob, 2003; Tatnall, Singh, Burgess, & Davey, 2008). This was an innovative degree introduced in the 1990s



with the rise of Internet use for business. The numbers of such degrees grew rapidly (e.g. Dodor & Rana, 2009; Durlabhji & Fusilier, 2005) but almost as abruptly are being discontinued. Elimination of e-business degree programs is contrary to evidence that (a) e-business continues to grow steadily showing resistance to the recession (U.S. Census Bureau News, 2010) and (b) demand for e-business, IS, and IT related skills is increasing despite the dot-com bust and widespread reports of off-shoring of jobs (OECD, 2008; Panko, 2008). Literature on academic program elimination is reviewed in the next section to further explore this apparent inconsistency.

### REASONS FOR ACADEMIC PROGRAM ELIMINATION

Michael (1998, p. 379) argued that while “much thought is given to academic program development, often little attention is paid to program discontinuation.” According to Michael (1998), factors that can influence program discontinuation include need for the program, institutional capacity to offer it, post graduation employment rates for students, funding, and politics internal or external to the institution.

Navarro (2008) drew on the work of Pfeffer and Salancik (1974) to argue that the traditional areas of business schools (e.g., finance, marketing) are empowered and fight to enhance their own interests which results in fewer resources and courses on newer or less traditional topics, an example of which could be e-business. Consistent with this logic, resource dependence theory (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 2003) suggests that organizations’ power and vitality are based on their ability to acquire resources. Resource dependence theory helps to explain how universities might behave if they operate as an industry. Enrollment and revenue are primary resources for universities. On the basis of case studies, Tatnall et al. (2008) identified difficulties in attracting students as a reason for an e-business program’s elimination and Rob (2003) attributed an e-business program’s failure to its lack of a core faculty, another critical resource.

The resource dependence perspective assumes that organizations can exhibit active choice be-

haviors as they cope with constraints imposed by the external environment (Oliver, 1991). In the e-business education context, this means that discontinuation is not necessarily automatic for programs lacking resources. E-business subject matter can be retained in other, surviving degree programs when an e-business major is discontinued. Strategies could include infusing e-business subjects throughout the business school curriculum (Krovi & Vijayaraman, 2000) and taking a multidisciplinary approach to teaching e-commerce (Gunasekaran, McGaughey, & McNeil, 2004).

Eckel (2002) found that the actual reasons for academic program discontinuation were sometimes not consistent with the stated goals of program elimination. Programs that were cut did not always have the lowest enrollment or produce the greatest cost savings by their cancellation, rather they were the easiest to cut – their elimination generated the least resistance from faculty, administrators, and other stakeholders. Weiss (1998) detailed the causes of failure for a program intended to promote interdisciplinary communication at eight institutions. Problems included funding, faculty attitudes, and administration changes, lack of program focus and structure, and insufficient institutionalization. To elaborate on the last point, if a program was seen as an “add-on,” it was more likely to be lopped-off (Weiss, 1998, p. 9).

### PURPOSE OF THE STUDY

Evidence suggests that student interest in e-business majors dropped dramatically after the dot-com bust of 2001 (Scott, 2001). However, as Internet penetration increases worldwide, e-business opportunities are expanding. Bhargava and Soni (2007) reported that lack of knowledgeable, qualified personnel is a top barrier facing U.S. small business entry to e-commerce. Wu and Hisa (2008) pointed out that new, different business models and enhanced dynamic capabilities are needed to take advantage of the impending radical and disruptive innovations in Internet commerce. This suggests that education on this topic is essential to exploit the economic growth opportunities offered by the Internet. It would seem that universities have an obligation to offer and promote such education. The present

study explored reasons for e-business master’s degree program elimination using the hypotheses stated below. If higher education operates as an industry, the resource dependence perspective might predict the following:

1. Enrollment should have more influence on program elimination decisions than other factors such as course content and curriculum considerations.
2. Costs and efficiency considerations should have more influence on program elimination decisions than factors such as course content and the curriculum.

Other potential influences on program elimination decisions were derived from the literature and explored: post graduation employment rates for students, students’ sense of community, business involvement, faculty characteristics, administration, program structure, accreditation, and politics internal and external to the institution.

### METHOD

#### Identification of Discontinued e-business Master’s Degree Programs

A list of worldwide e-business master’s degree programs was obtained from previous research conducted from November, 2002 to February, 2003 (Durlabhji & Fusilier, 2005; Fusilier & Durlabhji, 2005). From April to July of 2007, the web site of each of the programs was checked to determine whether it was still in operation. If there was uncertainty, the school was e-mailed or called for confirmation about the program’s status. Ninety-eight discontinued programs were identified at 85 institutions. Thirteen institutions had eliminated two separate e-business programs, for example, a master of science in e-commerce and an MBA with a concentration in e-commerce.

The original list of programs from 2002-2003 was compiled through exhaustive web searches to find web page descriptions of e-business master’s-level degree programs by institutions of higher education around the world. A variety of search and meta-search engines were employed in the web searches: Google, Lycos, MSN, AskJeeves,

Yahoo, Dogpile, Netscape Search, About.com, and Snap.com.

Programs were considered e-business if their titles and/or the degree awarded contained the words e- (or electronic, Internet, or network) commerce or business, or any e-functional business area, such as e-marketing. Some programs that did not have any of these terms in their titles were included in the study if the curricula suggested that they were in fact e-business programs. Programs were included in the study only when a detailed curriculum description was available. Only English search terms were used. This yielded some web sites in languages other than English. These sites were either translated by the authors or by an Internet translation site.

#### Identification of Members of the Sample

The web site of each institution was searched for a member of the faculty who would be likely to know about the reasons for the program’s elimination. Criteria used for sample selection focused on evidence that the individual had:

1. Been a member of the institution since at least 2002 so that he/she would likely have first-hand awareness of the program elimination process.
2. Been an administrator such as department head, dean, or coordinator or at least held the rank of assistant professor level or higher since 2002. Those at higher rank might have more involvement in a program elimination decision than an instructor or adjunct faculty member.
3. Published or taught in the area of e-business or related fields.

One individual was designated as a respondent for each of the 85 institutions that had discontinued e-business master’s degree programs.

#### Questionnaire

A questionnaire was constructed in English to solicit reasons for e-business master’s program elimination. It appears in the Appendix to this

paper. Its content was based on the literature reviewed in this paper’s introduction concerning academic program discontinuation. Responses to the items could be made on five-position categorical boxes that included No Influence, Slight Influence, Moderate Influence, Strong Influence, and Very Strong Influence. A Not Applicable box was also included as well as space for open-ended comments. The questionnaire contained three sections pertaining to (a) student issues [five items and open-ended comment space], (b) faculty and curriculum [15 items and open-ended space], and (c) administrative factors [11 items and open-ended space]. In an effort to establish content validity, the items were evaluated by three faculty members to assess their pertinence to each issue under consideration as well as their understandability. Necessary wording changes were made as a result.

After receiving Institutional Review Board - Research Protections approval, a link to the electronic questionnaire was e-mailed to each member of the sample. A cover e-mail explained the study purpose. The questionnaire was anonymous and participation voluntary.

RESULTS

Twenty completed questionnaires were obtained for a 24 percent response rate. Responses came

from institutions in the following countries (numbers of responses appear in parentheses): Australia (5), China (1), England (2), Scotland (1), and USA (11). A second request was e-mailed to the non-respondents two weeks after the first request but it did not yield additional responses. One sample t-tests were conducted to compare the mean response on each item to zero. Test results that reach statistical significance suggest that an item mean is greater than zero. In the present case, this means that the factor in question appears to influence the decision to eliminate the program. Results appear in Table 1 and are graphically displayed in Figure 1.

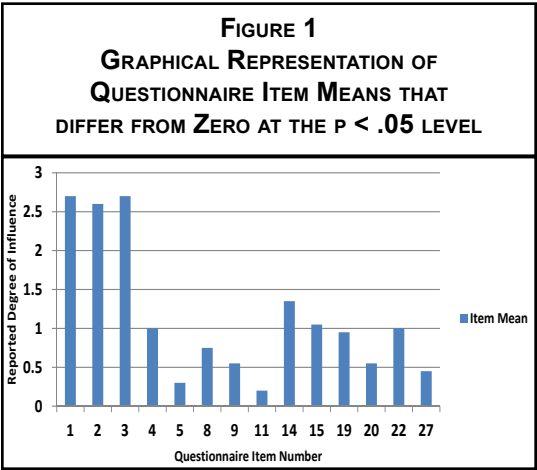


TABLE 1 STATISTICALLY SIGNIFICANT RESULTS OF ONE-SAMPLE T-TESTS FOR ITEM MEANS				
Questionnaire Item	Mean	SD	t(19)	Sig.
(1) Low enrollment	2.70	1.46	8.30	.0001
(2) Few applicants	2.60	1.57	7.41	.0001
(3) Decreasing numbers of applicants	2.70	1.53	7.92	.0001
(4) Concerns about job placements for graduates	1.00	1.21	3.68	.0020
(5) Lack of a sense of community among students	0.30	0.57	2.35	.0300
(8) Faculty attitudes	0.75	1.25	2.68	.0150
(9) Lack of faculty interest	0.55	0.95	2.60	.0170
(11) Not enough technical courses	0.20	0.41	2.18	.0420
(14) e-business content integrated in other courses	1.35	1.53	3.94	.0010
(15) Merger with another program	1.05	1.64	2.87	.0100
(19) Program did not meet business needs	0.95	1.36	3.13	.0050
(20) Lack of business involvement	0.55	1.00	2.46	.0240
(22) Lack of administrative support	1.00	1.62	2.76	.0130
(27) Department was re-organized	0.45	0.89	2.27	.0350

Comparisons among item means suggested that means for the items concerning low enrollment (Item 1), few applicants (Item 2), and decreasing numbers of applicants (Item 3), did not differ from one another but each of them was greater than all other item means. Descriptive statistics appear in Table 1. For example, the mean for low enrollment (Item 1) was significantly greater than the means for Item 15: Merger with another program ( $t(19) = 3.12, p < .006$ ) and Item 14: e-business content being integrated into other programs ( $t(19) = 3.18; p < .005$ ). Item means for program cost, funding, and inefficiency did not differ significantly from zero. These means also were not greater than others in a statistically significant sense.

DISCUSSION

While respondents identified a number of reasons for e-business master’s program discontinuation, low enrollment and few applicants were reported to be the most influential factors in the decision. Hypothesis 1 is therefore supported. The education-as-industry and resource dependence perspective appear to describe the behavior of the responding organizations. The finding also attests to the apparent existence of academic consumerism. On average, the incorporation of e-business content into surviving programs had less influence on the program elimination decision than enrollment considerations. This could mean that e-business content is being lost from business schools’ curricula.

However, a minority of the schools did report that e-business subject matter was integrated into other courses or the e-business program was merged with another degree. Such active responses to the environment are consistent with the resource dependence perspective (Oliver, 1991). Revising and updating coursework also reflects the assurance of learning assessment activities encouraged by AACSB for business school accreditation (AACSB, 2010; Gardiner et al., 2010). Effective program assessment and revision may help to avoid the elimination of socially useful programs and courses that have low enrollment.

Program cost, funding, and efficiency did not appear to influence the program elimination

decision. This finding does not support Hypothesis 2. While universities may behave like profit seeking entities by focusing on gain through increased enrollments, they do not seem to devote sufficient attention to the cost aspect of the profit equation. This is consistent with Rhodes’s (1995, p. 29) argument that inadequate information and deliberation is given to university restructuring: “decision making is not so much guided as it is justified by information.” The inadequate attention to costs may result from a lack of access to such data by faculty and even, sometimes, administrators. Enrollment information is typically much more available. Promoting cost awareness by sharing such data among the faculty could increase its consideration in program elimination decisions.

Other resource concerns that apparently influenced the program elimination decision were lack of business involvement, the program’s inability to meet business needs, and lack of administrative support. Faculty attitudes and interest also seemed to influence the discontinuation decisions. Dodor and Rana (2009) reported that attitude contributed to institutional readiness to offer e-business education. The present data extend this finding by suggesting that faculty attitudes and interests play a role in sustaining programs.

Shortcomings of the Study and Directions for Future Research

The present study’s small sample size constrains generalization of the results. Future research might investigate program elimination decisions with larger samples and also apply alternative research methods. For example, archival data might be used rather than the present study’s self-report approach. Higher education’s operation as an industry could be researched to explore whether notions such as academic consumerism exert more influence on program decisions in for-profit universities, which unabashedly use an industry model, versus non-profits.

CONCLUSIONS

The present study empirically tested hypotheses derived from conceptual literature on academic program restructuring (Gumport, 2000, 2001;

Rhodes, 1995). Results suggest that low student enrollment exerted the greatest influence on program elimination decisions but no influence was detected for cost considerations. This means that the universities appear to be ineffectively patterning their behavior on industry. If universities use the industry model for program elimination decisions, all relevant data should be considered including costs as well as enrollments and revenue. Furthermore, elimination of e-business programs and subject matter may deprive students and businesses of knowledge necessary to recognize and harness the opportunities offered by technology innovation.

The industry model for decision making does not necessarily preclude consideration of long-term outcomes. Only when it is incorrectly used does it put undue focus on the short-term. Investment in e-business education could promote long-term university interests by empowering students with foundational skills to build successful careers in an increasingly technological business world. E-business education could furthermore help to improve general economic well-being by addressing this critical skill need for businesses (Bharadwaj & Soni, 2007). But the long-term focus tends to dictate what students should learn rather than what they might want to learn, a stance inconsistent with academic consumerism. When the industry model of education is applied effectively by taking the long-term perspective into account, a university's decisions may not necessarily be at odds with its duties as a social institution.

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**APPENDIX**  
**FACTORS AFFECTING E-BUSINESS**  
**PROGRAM DISCONTINUATION**  
**QUESTIONNAIRE**

Response scale:

- No influence (coded 0)
- Slight Influence (coded 1)
- Moderate Influence (coded 2)
- Strong Influence (coded 3)
- Very Strong Influence (coded 4)
- Not Applicable

**Student Issues:** Indicate the role of each of the issues below in the discontinuation decision. Please use the scale associated with each item. If you have additional comments regarding any issue, please enter them in the textbox provided.

1. Low enrollment
2. Few applicants to the program
3. Decreasing number of applicants to the program
4. Concerns about job placements for the program's graduates
5. Lack of a sense of community among the students in the program

**Faculty/curriculum issues:** Indicate the role of each of the issues below in the e-business master's program discontinuation decision. Please use the scale associated with each item. If you have additional comments regarding any issue, please enter them in the textbox provided.

6. Insufficient number of faculty
7. Inadequate faculty qualifications
8. Faculty attitudes and concerns
9. Lack of faculty interest
10. Inadequate quality of courses
11. Not enough technical courses in the program
12. Not enough non-technical business courses in the program

13. Not enough e-business courses in the program
14. E-business content was integrated into other courses in other master's or MBA program(s)
15. Merger with another program
16. Program was redesigned and given a different title
17. Courses were not coordinated within the program or with core master's/MBA courses
18. The program lacked focus or structure
19. The program did not meet business needs
20. Lack of business involvement in the program

**Administrative issues:** Indicate the role of each of the issues below in the e-business master's program discontinuation decision. Please use the scale associated with each item. If you have additional comments regarding any issue, please enter them in the textbox provided.

21. Administrative changes
22. Lack of administrative support
23. Program cost
24. Funding cuts
25. Program inefficiency
26. The program did not conform to the college mission
27. The department that housed the program was re-organized
28. The program was redundant with another program in the university
29. Other universities have similar programs
30. Accreditation concerns (AACSB or other accrediting body)
31. Politics external to the university

# SUMMER BUDGETING: OPTIMAL ALLOCATION OF TEACHING RESOURCES TO COURSES<sup>1</sup>

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## ABSTRACT

*"As government subsidies to universities have been reducing in recent years, the more efficient use of resources becomes an important issue for university administrators." (Kao & Hung, 2008, page 653). This can result in various forms of business-like incentives and penalties, as well as the emergence of what has been termed 'academic capitalism' (Rhoades & Slaughter, 2004) including revenue sharing. As universities attempt to become more like businesses, they are experimenting with business models to encourage units to become more effective and efficient in their use of resources. A linear optimization model was constructed to determine which courses to offer during summer session in order to maximize various outcomes. The model can be adapted and enhanced for other situations. An application of the model and discussion of lessons learned along the way – in model development, analysis of the results, and in re-application of the model, once the actual enrollments came in – provides additional insights.*

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<sup>1</sup> A previous version of this paper was presented at the Midwest Academy of Management, Annual Meeting, May 19, 2008

## INTRODUCTION

The rising cost of higher education has long been a matter of significant concern to the public and to college administrators (Ehrenberg, 2000; Velder, 2004; Martin, 2005; Archibald & Feldman, 2008). Managing those costs is becoming increasingly important because revenues at many colleges and universities are adversely impacted by both reductions in public funding, and, or increased competition among colleges for students (Kao & Hung, 2008, page 653; Knapp and Siegel, page 110, 2009). In response, colleges and universities are '...actively engaging in dialogues about the budgeting tools that will most effectively assist them in achieving institutional goals

and objectives within their strategic plans and being accountable for the use of scarce resources..." (Zierdt, 2009). These institutions, many, but not all of which operate as non-profit entities, are becoming more willing to apply concepts of efficient business management into their approaches to manage costs (Rhoades & Slaughter, 2004).

The areas in which colleges can apply cost management methods and techniques are numerous. The application of incentive systems to encourage effective cost management is one way in which colleges are borrowing from business practice to enhance financial performance. One area in which college administrators are developing incentive systems to help to manage costs is in sum-

mer enrollment and course offerings. Historically, many colleges have de-emphasized summer enrollments while students work, pursue internships, service learning, or take time away from their studies for other reasons. This allows significant blocks of time for maintenance and other university activities. However, the net result is significant under-utilization of facilities and other resources. This relatively inefficient use of resources has led some administrators to consider ways in which they can increase enrollments during summer in order to increase revenues and, or more efficiently utilize existing resources, while only marginally increasing costs.

Anecdotal evidence suggests that while a variety of approaches to managing summer revenues and, or costs have been attempted at various institutions of higher learning, it appears that relatively few have considered using decision-making models which facilitate the optimal allocation of resources. We will specifically consider the situation of optimal course selection during summer session in the presence of business-like ‘incentives’ (Rhoades & Slaughter, 2004).

### PRIOR RESEARCH

A variety of studies concerning scheduling, resource allocation, and economic analysis in this or related contexts have been reported in the literature. We review a few examples of research that is illustrative of various approaches to problems related to, but significantly different from the one considered in this study. Course scheduling has been frequently discussed in the literature and in its basic form, consists of filling a “timetable (rooms by times) with courses so that certain constraints are satisfied.” (Hinkin and Thompson, 2002). Constraints stated in the literature often include various types of students, faculty preferences, and administrative preferences. Variations on the academic scheduling problems have been addressed through variations on mathematical programming, logic programming, decisions support systems, and development of application specific software (Hinkin and Thompson, 2002). The situation described in this study does bear some similarities to a scheduling problem, but differs significantly, in that we are not attempting to fill a time-table and our objective is not limited to cost minimization.

However, we are attempting to make an economically optimal allocation of resources.

Badri and Davis (1998) created a multi-objective zero-one course scheduling model which utilized goal programming as an aid in faculty-course-time assignments. They also discussed various challenges encountered when assigning courses to faculty members in academic departments. Their model certainly has scheduling implications and accounts for faculty preferences. However, a careful discussion of efficient use of resources that explicitly considers organizational incentives for revenue generation and or cost management was absent from their study. The relevance of their research to this paper is that Badri and Davis (1998) highlight the value of optimal decision making in a related context.

Boronico (2000) developed a hierarchical mathematical model to assist with departmental course scheduling for undergraduate courses. Their article provided a model overview and simulation results including attention to a set of goals and objectives. In 2008, Boronico and Nag specifically developed a policy for academic coursework offered during the summer period, and a mathematical model that may be used to guide management policy. It was suggested that the economic ramification of summer course policies may not be well understood, including understanding the potential long-term effect of discounting on summer per-credit charges. An empirical example was provided to demonstrate how administrators may utilize optimization and economic principles to address summer course pricing in an imperfect and ambiguous market. Both of these studies address aspects of the current question, but do not deal with the core issues directly.

Nelson and Hevert (1992) examined the impact of class size on economies of scale and marginal costs in higher education. Their results indicate that failure to control for class size may lead to biased estimates of economies of scale and relative marginal costs. Evidence of constant returns to scale for schools that expand output holding class size constant was found and increasing returns to scale if class size is allowed to expand. These findings are useful and the results will be implicitly incorporated into our modeling of efficient allocation of resources to optimize financial outcomes for the college. In particular, class

sizes may vary for a number of reasons and our approach accommodates varying class sizes for each class that may be offered. In addition, we allowed the cost of offering specific courses to vary, based upon available faculty resources. This can also affect marginal returns for specific courses, as can incentives and penalties.

Kao and Hung (2008) examined the relative efficiency of university departments using Data Envelopment Analysis (DEA). The results of their analysis were used to determine relative weakness in university departments that could be targeted for improvement. Their method of analysis can be particularly useful when colleges or universities are looking to identify relatively strong departments which are utilizing their resources effectively in order to transfer their practices to departments which are relatively less efficient in accomplishing their goals. However, that outcome is based upon the presumption that the analyst(s) can correctly identify how and why relatively more efficient departments are achieving higher efficiencies. The methodology also assumes that colleges and departments are using comparable systems of converting resources into outputs – an assumption that may be open to challenge in some contexts. Still, their study is noteworthy in the context of this study because it explicitly attempts to measure efficiency and utilize the knowledge obtained for enhancing efficiency in other areas of a college or university. Rather than assume that we can discern how more efficient departments are able to obtain higher levels of efficiency and then transfer them to relatively less efficient departments, we develop a method that may be used to enhance the efficiency of all departments, which could change the efficient frontier found in the Kao and Hung’s (2008) study. Essentially, our modeling will take a more direct approach and specifically determine the most efficient use of existing resources in a given academic unit.

Finally, Maltz, Murphy, and Hand (2007) stated that enrollment management is a process critical to many universities that rely on tuition for a significant portion of their operating budgets. Their study describes how the implementation of a system to support decisions in the enrollment process allowed for increased responsiveness as well as substantially increased institutional

knowledge of the process itself. This, in turn, led to dramatic improvements in both operational performance and in the attainment of strategic admission objectives. This is certainly what is driving the present study and contributes to the development of the model that is described later in this paper. Our study, then, can be viewed as an extension of their study.

To the best of our knowledge, we could not find a prior study which specifically sought to financially optimize summer-course assignments in the context of an incentives scheme. Therefore, we present a model that is designed to accomplish that objective. A relatively parsimonious model was desired, both for practical application, as well as to provide opportunities for future adaptation and extension. After developing the model, we will discuss how it was applied in a summer course scheduling situation and adaptations that might be applicable in other contexts.

### MODEL

We used a mixed binary-integer linear programming model to determine optimal allocation of college or departmental resources for summer sessions, in the presence of fixed budgets, incentives and penalties for goal accomplishment and, or failure. The objective of the model presented below is to maximize ‘profitability’ of summer session course offerings within a department or college. Profitability may include an allocated budget, costs associated with offering a course, incentives and disincentives.

It is not uncommon for a college to have an allocated budget amount for summer programs. This amount may be assigned by a higher administrative unit or may be self-imposed. The costs associated with offering a course are primarily instructional and very often, are fixed, regardless of course size. While we will examine fixed costs only, it is certainly possible to model fixed and variable costs as a function of course size in the modeling context that we will propose. Incentives and penalties may be externally implemented. For example, as part of a revenue sharing program, a university may share some of the revenue obtained from summer courses with a college or department when the college or department meets or exceeds a university-set goal. Similarly,



the University may also impose penalties if the college or other unit falls short of attaining a desired goal. The presumption is that the unit offering summer courses is best able to manage costs and may be motivated to more efficiently use existing resources. As noted previously, allocated or fixed budgets are often provided by a higher administrative authority – the amount of which, the receiving unit may or may not be able to influence. When the allocated budget is not influenced by the resource allocation decision, then it is not necessary to include it in the model. Our model formulation assumes that this is the situation; however, we include the allocated budget for conceptual completeness and acknowledge that the model will require modification if the allocated budget can be changed through the resource allocation decision-making process. The fixed budget is identified in our model as ‘BaselineBudget’.

The total cost of courses offered is included in the objective function and requires the following information: which courses can be offered, and how much will it cost if a given course is taught. For purposes of simplicity and brevity, we assume that the costs of offering a course are fixed (they do not contain a variable cost component) and known. In our experience, this assumption is quite reasonable in most situations. We identify each course that can be offered as ‘course<sub>i</sub>’. The subscript ‘i’ represents the set of courses and a specific value for ‘i’ represents a specific course. Each ‘course<sub>i</sub>’ is a binary (0-1) decision variable where a value of one represents that a course will be taught and a value of zero indicates that it will not be offered. Each course that is considered possible to offer will have a cost which includes the cost of faculty and any ancillary support that would be directly related to the course and that would be incurred only if the course were offered. The set of course costs is represented by costofcourse<sub>i</sub>. The product of course<sub>i</sub> and costofcourse<sub>i</sub> indicates the cost incurred if a course is selected by the model to be offered. The sum of the products generated in this manner is the total cost of offering all selected courses.

Incentives and disincentives can be handled in a variety of ways. In this model, we assume that a baseline budget was provided in order to support a pre-determined goal, both of which are known

in advance. In our model, the goal is measured in actual student credit hours generated from offered courses. When credit hours generated from course selection exceed the goal an incentive is applied. Likewise, if the number of credit hours actually generated falls below the goal, a penalty is applied. The incentive is applied at a constant rate for each credit hour generated in excess of the goal and a penalty is applied at a constant rate to the shortfall in credit hours if the goal is not attained. The incentive and penalty per credit hour can be the same (e.g. the same size of reward or penalty for the same sized deviation from the goal), or they can be different. For example, an incentive that is greater than a penalty (for the same sized deviation) will encourage different behavior than incentives and penalties that are equally sized. Therefore, care must be exercised when administrations are setting incentives and penalties, as one can rationally expect their relative sizing to affect rational decision making! It is also important to understand that the model is constructed to make decisions based upon estimated demand. Once actual demand is realized, actual credit hours taught may differ from planned credit hours. Incentives or penalties will be applied based upon actual hours taught; therefore, practical application of the model depends upon reasonably accurate demand forecasts.

The estimated total incentive will be the product of the incentive received per credit hour in excess of the goal (noted as ‘incentive’ in the model below) and the number of credit hours generated in excess of the student credit hour goal (which are denoted as SCHOverGoal in the model below). Likewise, the penalty component of the objective function is comprised of the product of ‘penalty’ (cost incurred per credit hour for the shortfall in credit hour generation below the goal) and the gap between student hours generated and the credit hour goal (denoted as SCHUnderGoal). The objective function then is formally defined to maximize:

$$(1) \quad \text{BaselineBudget} - \sum_{i=1}^n (\text{course}_i * \text{costofcourse}_i) \\ + \text{Incentive} * \text{SCHOverGoal} - \text{Penalty} * \text{SCHUnderGoal}$$

The model requires the inclusion of at least a few constraints. First, we develop a constraint that

forces the model to offer a set of courses that does not exceed the initial or baseline budget. This is constructed using previously defined information and appears as:

$$(2) \quad \sum_{i=1}^n (\text{course}_i * \text{costofcourse}_i) \leq \text{BaselineBudget}$$

This constraint requires that the allocated budget (the BaselineBudget) is the maximum amount that can be spent on course offerings. We also acknowledge that incentive systems might be constructed to allow one to exceed the basic budget when it is financially wise to do so. This potentially higher risk option might be useful when incentives provide a significantly large enough reward that the addition of more courses is ‘worth it’ because the cost of an added course is more than offset by the reward received from offering the course. There are a number of ways one might approach this from a modeling standpoint, each of which would be dependent upon what was assumed about the specifics of the incentive system. Our model will begin with the simpler assumption that the option of exceeding the budget is not an option and leave such a model extension to a future study.

A constraint is also needed to determine the number of credit hours that have been generated either in excess of, or below the desired goal. To determine these values, we must introduce a variable that includes the total number of credit hours actually generated and is represented in the model as ‘SCHgenerated’ – a non-negative decision variable. Mathematically, SCHgenerated is merely the sum of all of the products for each course<sub>i</sub> being considered in the model: estimated number of students in a course (StudentsCourse<sub>i</sub>) multiplied by the credit hours per student (CreditHoursPerCourse<sub>i</sub>) in the course multiplied by whether the course is offered or not.

$$(3) \quad \text{SCHgenerated} = \sum_{i=1}^n \text{StudentsCourse}_i * \text{CreditHoursPerCourse}_i * \text{Course}_i$$

Next, we develop a constraint that quantifies the amount by which the goal has been exceeded or how short we have fallen from achieving the goal. To do this, we need two variables that were introduced previously: SCHOverGoal and SCHUn-

derGoal. The constraint given below, operating in concert with other constraints in the model will determine appropriate values for these variables in the model.

$$(4) \quad \text{SCHgenerated} - \text{SCHOverGoal} + \text{SCHUnderGoal} = \text{SCHGoal}$$

As is often the case, some courses must be offered in order to meet various obligations. This situation is easy to accommodate in the model. One simply identifies each course<sub>i</sub> that must be offered and for each, a constraint of the form below is included in the model.

$$(5) \quad \text{Course}_{i=1}$$

The following constraint ensures that a class is either offered or that it is not offered limiting the actual values of the decision variable to those two choices only.

$$(6) \quad \text{Course}_{i=0,1} \text{ (binary) for all values of 'i'}$$

Finally, the three other decision variables must be required to take on only non-negative values in order for the constraints to function logically as a group.

$$(7) \quad \text{SCHOverGoal}, \text{SCHUnderGoal}, \text{SCHgenerated} \geq 0$$

## MODEL APPLICATION

The model was applied in a college of a university located in the upper Midwestern United States. The college has historically offered classes during the summer. Summer courses were budgeted entirely separately from the academic year. Each college in the university received a budget from the university administration overseeing ‘summer sessions’ that provided the total dollars that were available to spend for a given summer within the college. These budgets were adjusted annually, based upon the success of the college in drawing summer enrollment. University policy required that faculty who teach courses during summer session be paid according to a university-wide schedule that differentiates pay for summer teaching based solely upon rank. In addition, faculty who teach individualized ‘courses’ (e.g. directed readings, directed studies, thesis work,

etc.) were compensated at a fixed rate per undergraduate student and at a slightly higher fixed rate per graduate student.

The university implemented a program to encourage colleges to maximize summer enrollment. This program involved a baseline credit hour production level or goal, and also a baseline budget to support the attainment of that goal. The incentive portion of the program rewarded colleges for exceeding their goal by ‘paying’ them an additional \$100 per credit hour generated in excess of the goal. However, if the credit hour production was less than the goal, the college was charged (penalized) \$60 per credit hour for the difference between the goal and actual credit hours generated. This incentive/penalty system placed a premium on increasing summer enrollments. Colleges had complete control over which courses were offered and which ones were not offered during summer sessions. However, they were expected to meet any obligations to offer courses that had been created in the past or present. For example, if the course catalog indicated that a particular course would be offered during the summer session, it would be difficult to cancel it. Courses that were offered might be cancelled, if enrollments were not sufficient to support their existence, since extremely small courses may not be large enough to generate enough credit hours to make it cost effective to offer them. If the college was able to cancel classes that did not meet targeted enrollment amounts, there was an opportunity to save dollars that could be used to offset penalties that might be imposed. However, course cancellations were generally not desirable because they adversely affect students, faculty, and the reputation of the college.

Faculty members were not required to teach during the summer and their participation in summer teaching was completely voluntary. Some wished to teach to earn extra income, while others taught because of a desire to assure students year-round access to critical courses. Still others taught because summer provides them an opportunity to ‘try out’ new or novel courses.

The advent of this incentive system provided impetus to optimize summer course scheduling. A faculty member who is familiar with linear optimization methods assisted the college in model development and analysis. The basic model de-

scribed above was developed with the following conditions in mind.

The desired outcome was to choose which courses to offer in such a way that the college’s ‘profit’ from teaching summer courses would be maximized.

- Total Instructional costs (faculty pay) must be less than the baseline budget.
- The model must be able to identify whether student credit hours generated will be above or below the goal, and if so, by how much. Additionally, the model must explicitly consider the total incentive and penalty in the budget.
- Some courses were ‘mandatory’ and had to be offered. However, their impact on the incentives, and or penalties incurred was of interest.
- Implicitly, the College should offer a ‘reasonable’ number of courses to justify the baseline budget. A constraint was not developed for this condition, because the definition of a ‘reasonable’ number of courses was not precisely defined. However, this condition was explicitly considered when evaluating the results of any analysis.

## DATA

A number of ‘inputs’ were required in order to create and use the model. We describe the data that were used as ‘input’ below.

- The ‘goal’ of credit hours to be generated as stated by the university.
- The ‘baseline’ budget (in US\$) allowed by the university.
- The incentive (\$100/credit hour in excess of the goal) and the penalty (\$60/credit hour in shortfall of the goal).
- All possible courses that might be offered during the summer. To be considered as possible to offer, a course must have a faculty member who is willing to teach it.
- Cost of instruction for a course.
- Actual credit hours per student for each course (e.g. a 3credit hour course.)

- A forecast of the number of students anticipated to enroll in each course.
- Cost of instruction for undergraduate and graduate independent study ‘courses’.

## RESULTS

When the model was first run, it indicated which courses should be offered and those which should be cancelled. It recommended a minimal number of courses, with a net shortfall in student credit hours below the university set ‘goal’; however at a substantial ‘profit’. The recommended courses were typically at least moderately large and were staffed primarily by junior faculty.

Historically, a course that generated at least 10 students typically was allowed to run. The model indicated that in our context, this was about the right threshold for assistant professors, but the number of students was required to be substantially higher for associate and especially full professors – because they were paid on a per course basis and were compensated at a higher rate per course than assistant professors. Thus, the model did what might be expected. Large classes were selected no matter what the rank was of the faculty member teaching them, because they were relatively ‘profitable’. Small classes with higher ranked faculty were recommended to be ‘not offered’ due to their low or negative profitability. The model did not choose to ‘offer’ any independent study courses. That is because the marginal value in credit hours generated was less than the cost of those credit hours even under the existing incentive scenario. These results had several negative implications. First, senior faculty who had grown accustomed to teaching during the summer were not likely to be pleased to hear that their services would not be required. Second, encouraging junior level faculty to teach during the summer, rather than develop their research programs seemed to be potentially counter-productive. Third, students (and faculty) who were counting on independent study courses would be disappointed and the result would be delayed graduation for some students.

Some courses that had been historically offered during summer, and for which students had an-

anticipated their continued offering were slated to be not offered, due to the combination of relatively low enrollments and, or higher ranking faculty teaching those courses. There were several cases where a course did not have sufficient enrollment to justify its existence, but it had historically been offered, and students needed the course in order to graduate “on time”. In addition, the model suggested only a minimal number of courses be offered. Although it might have made sense (economically, in the short run) to offer very few summer courses, there was a clear expectation at the university level that a “reasonable” number of courses should occur in the summer. The number recommended by the model appeared to fall short of what was felt to be a ‘safe’ number of courses to offer.

## DISCUSSION

Because the model was an imperfect abstraction of reality, it did not account for a number of important situations, which ultimately had to be reconsidered and re-evaluated. However, at the same time, the results obtained from the initial run provided new insights to the college. Following the preliminary run, several adjustments were considered, including:

- What is the minimum number of courses that should be offered, in order to satisfy the university? This question suggested that additional constraints might be imposed to encourage the model to select more courses – at a somewhat reduced level of profitability. One way to handle this would be to add a constraint that forces a minimum number of courses to be taught.
- What is the minimum number of credit hours that should be generated? The issue here was closely related to the prior discussion and as such, a possible response would be to create a constraint that requires some minimum number of credit hours to be generated. This, like the possible response to the preceding suggestion would be self-imposed by the college, in the hope that adverse reactions from the university would be avoided. Both this approach and the one noted in the prior question are



somewhat arbitrary and were considered with an appropriate degree of caution.

- What should be done about courses that are 'on the margin' – almost profitable, but not quite? They do increase credit hours, which is good, but at a cost that will decrease profit slightly. There were actually quite a few of courses that fell into this category. Careful examination of the model results and sensitivity analysis indicated that several courses could be added at minimal cost while substantially increasing the credit hours that were generated. This approach yielded a relatively simple and quite reasonable approach to the issue of breadth of course offerings and generation of student credit hours. We note that applying either of the first two suggested responses (constraints in minimum number of courses or credit hours generated at high enough levels) would eventually reveal similar outcomes.
- What should be done about rebalancing the participation of faculty at different ranks? Should some junior faculty be restricted in how many courses they can teach? Should some senior faculty be allowed to teach, even if it is unprofitable? Implementation of the prior suggestion actually helped with this issue as well; however, this is a potentially complex question that is probably best examined outside of the model.
- What about dropping courses that have been traditionally offered (even though the college was not officially committed to do so) due to low enrollments – even though students need them to 'graduate'? Negative feedback by students to the university in the presence of scaled back course offerings might incur an adverse response from the university. These issues were considered on a course by course basis. In some instances, it was deemed practically necessary to 'require' that the course be offered; however in other instances, the opposite decision was made.
- What about using summer sessions to 'try out' new courses? Is this a good idea? The

response to these questions hinged upon a few factors a) how accurate are forecasts, b) is demand generated sufficiently large enough to make the courses economically feasible, c) will demand for these courses decrease demand for other courses that are offered, d) will offering these courses entice more students to stay and take more courses during the summer? Because it is likely that the answers to these questions are likely to vary by situation, we omit further discussion of our experiences with them.

Once these issues were dealt with, a final decision was made and implemented. That decision was based upon the forecasted demand for the courses that would be offered. Unfortunately, and contrary to prior experience, the forecasts for a significant number of 'offered courses' turned out to be inaccurate. Without an existing model, further analysis of the situation could have been highly problematic. However, the existing model was updated very quickly with the actual enrollment numbers, the analysis was re-run and the results were re-evaluated and a revised plan was developed and implemented.

#### LIMITATIONS AND FUTURE RESEARCH

The objective of the model is pure 'profit' maximization. This can result in less courses being offered and less students being taught. It might also have other unintended consequences. However, the purpose of revenue sharing or other types of incentive systems is to encourage decision-makers to make more 'profitable' decisions. There are aspects of the university setting that do not exactly mimic for profit operations and these must be carefully considered in order to utilize profit maximization methods. Pure profit-taking may be interpreted as an inappropriate use of resources and a university may choose to withdraw or restrict resources in the future, or it may redesign the incentive/penalty system to be more difficult or even impossible to utilize effectively. The college in the example in the present study noted this issue and deemed it appropriate to reduce profits and not risk upsetting university administration.

Another issue with this type of model is that all of the functions in the model are required to be linear. However, not all cost or revenue structures are in reality always linear. To the extent that the revenue and cost structures are linear, this approach may prove useful; however, if non-linear revenue functions are apparent, an alternative methodology may be advisable.

Future research might take a number of angles. It could identify relevant extensions or adaptations to the model presented herein. Additional implementations/case studies could provide added insight into the nuances of model applications. Another approach might include a determination of the types of revenue sharing/incentive systems in operation in colleges and universities to determine the extent to which this model is capable of accommodating them. Such research would most likely identify variations on this model that would be appropriate, as well as the potential need for different types of models.

#### CONCLUSION

This study reports on the phenomenon that is becoming increasingly experienced at many universities and colleges – reward systems that encourage 'profit' minded decision making in the allocation of resources and other decision making. We specifically considered the situation of allocation of resources in the presence of an incentive/penalty system in the context of summer course/instructor allocation. A model was developed to aid in optimal selection of courses to offer during a summer session. An application of the model was reported, wherein it was established that the model is useful as a decision making aid. In addition, valuable insights were obtained as a result of model development and implementation. These were discussed as well. The study concludes with a discussion of assumptions and future research directions.

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# PERFORMANCE FUNDING OF PUBLIC UNIVERSITIES: A CASE STUDY

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## ABSTRACT

*Key Performance Indicators (KPIs) are often used to give feedback concerning a post-secondary institution's progress toward policy goals. In this sense, KPIs are used to create a sense of accountability. The Government of Alberta (Canada) implemented an accountability policy initiative in the early 1990's. One aspect of the policy was the creation of KPIs. The KPIs would be used to allocate funding to universities and colleges on the basis of their relative performance. After a number of years the Alberta Government abandoned performance funding and the KPI initiative. They could not resolve the many political and managerial problems arising from the quantification process. Recent moves by Arizona, Illinois, and other financially strapped States to implement performance funding create a rationale to re-examine the collapse of performance funding in Alberta. The case study approach preserves the policy initiative so that post-secondary education stakeholders can reflect more deeply on the impact of KPIs. Alberta's case demonstrates that KPIs are a powerful policy tool to accelerate institutional responses to governmental policy. It is also important to carefully consider that KPIs might encourage managerial behaviour that results in negative unintended consequences.*

## INTRODUCTION

This study was designed to increase understanding about the impact of key performance indicators (KPIs) on higher education policy processes in the Canadian Province of Alberta. Alberta borders on British Columbia to the west and the State of Montana to the south. The Government of Alberta was highly influenced by ideas from the new public management movement of the early 1990s. In part, that movement led to a great interest in performance funding models for its public universities and colleges. One of the many ways to deepen our understanding of KPIs in higher education is to document cases where they have been deployed.

Accountability is a hot topic at the political, policy, and administrative levels of post secondary administration. A deceptively simple reaction to the pressure for more accountability has been to create "objective" quantitative measurement systems. The Alberta experience reveals a shift in what it means to be accountable when these mea-

surements are used. Reflecting on the Alberta experience may provide fresh perspective in light of the renewed national and international interest in performance funding. The visceral - both negative and positive - responses to Alberta's KPI initiative indicate that there is no consensus regarding the administrative value of KPIs. Policy decisions have a pervasive effect as they pass through the levels of an institution. Every time we can improve our conceptual understanding of this process, we can refine the entire cycle of policy development and implementation.

Recent developments in the State of Illinois highlight how important it is to learn from previous policy cycles. As part of its response to a near bankrupt situation, the Illinois State Board of Higher Education has implemented an "Education Accountability Report (Illinois, 2011)." The 97th General assembly of Illinois will consider House Bill 1503: Illinois Board of Education—Performance Based Funding. In response to these developments the president of the large Illinois University stated, "They're not going to

let us go any longer with what they consider ineffectiveness.” (Rodriguez, 2011) There is a striking similarity with the circumstances faced by the Government of Alberta almost 20 years ago. Illinois tried this approach itself ten years ago and dropped performance funding when agreeable measures could not be found (Dougherty, Natow, Hare, and Vega, 2010). Consequently, we have little reason to believe the current policy initiative will end differently. Legislators do not appear to be familiar with previous performance funding initiatives. Accountability sounds like a step towards responsible policy for them. However, they are reaching this conclusion without due consideration of previous policy regarding performance funding.

This study is, therefore, set in the context of policy formulation. The institutional framework (government, department of higher education, universities, colleges, and faculties) of the higher education system influence how the policy process operates. Brook (1989), points out that governments obtain a political advantage by delegating delivery of education to university administrations. The government has only indirect control mechanisms, such as board appointments to those universities. Epstein (1983) and others have identified that measuring performance is an important two-way communication tool in such circumstances. Requiring measurement symbolically shifts responsibility to the university and gives the university a legitimate way to structure its activities for public reward.

The current process and cycle of measuring university activities in Canada can, according to Aucion and Bakvis (1988), be traced to the formation of the 1960 Glassco Commission. That Commission foresaw a need for a performance emphasis in public policy and suggested that Canadian governments can be more responsive and responsible by moving management of programmes out to agencies (Canada, 1962). Similar perspectives, known as New Public Management, were adopted in the United Kingdom and New Zealand. This trend was renewed by the recommendations of Canada’s Smith Commission (1991). In the early 1990s, the national news magazine in Canada (Maclean’s) started an annual ranking of universities. The secular interest in the Maclean’s survey served to demonstrated

the broad appeal of the approach. Therefore, the accountability policy adopted by the Government of Alberta in 1993 was consistent with the developments in policy analysis.

The subjective construction of the social world occurs in the context of organisations through the processes of policy formulation and implementation. There are well established theories to guide investigations into these processes. Lerner, Goldberg, and Tetlock (1998) have documented cases where accountability systems failed. They theorised that KPIs will only be successful in special cases and concluded that accountability systems do not guarantee that accountability will be achieved. Very little research has been done concerning what conditions would constitute appropriate conditions for KPI deployment; consequently, we must deepen our understanding about the use of KPIs as a policy implementation tool given that KPIs are such a powerful and popular administrative tool.

The purpose of this paper was to explore the deployment of KPIs by the Alberta Department of Advanced Education and Career Development (AECD) as they worked to implement the Government of Alberta’s accountability policy. The specific focus of this study was the KPI project within AECD. The AECD KPI project provided an excellent case-study opportunity to explore the relative advantages and dangers of KPI usage. This paper explores the background of the policy and provides a brief history of the project. The resulting case study is used to suggest a conceptual role for KPIs and how that case may be used to improve administrative practice around the use of KPIs.

BACKGROUND

Financing public universities is a complex task. Every discipline within an institutional framework has some unique features to its learning, teaching, and research processes that make performance measurement difficult. In his recent book on the subject, Herbst, (2007) shows that managerial autonomy has been an historically successful approach to sound governance of these complex institutional realities. However, he also shows that the same autonomy is a source of frustration for policy makers. Policy makers want

public universities to be responsive to their economic and social agendas. The American Association of State Colleges and Universities issued a report entitled Performance-based Funding: A Re-Emerging Strategy in Public Higher Education Financing (Harnisch, 2011). The report provides a high-level summary of 26 performance funding initiatives from 1979 until 2007. These programs have all lapsed or remain a tiny portion of university funding because the challenge of reducing governance down to quantifiable indicators has not been achieved—even though the goal remains attractive.

Quantifying all aspects of a policy or a strategy can trigger two significant types of problems. First, it is difficult to accurately and adequately reduce a strategy into quantitative terms. Second, it is difficult to predetermine the resulting administrative impacts. KPIs as a quantification of strategy have become more than feedback mechanisms—they are feed-forward mechanisms. This change elevates the symbolic significance or capital attached to KPIs because they become the definitions of expected performance. Consequently, university administrators have an increased incentive to focus their attention exclusively on KPIs. In the short term it may be easier to increase KPI performance by engaging in opportunistic behaviour by only taking actions that have an immediate effect on the KPI. Measuring retention at a college may reflect a policy decision to ensure sound student recruitment and to provide attention to struggling students. A college could respond with programs to help these students and eventually receive a reward for doing so. However, the administration could also respond by applying covert pressure on deans and faculty to stop issuing failing grades. In this scenario, the administration would achieve successful accountability by displacing the long-term goal.

Policy formulation and implementation are at once intertwined and separate processes. Pal (1997) described the complex relationship between policy formulation and design as shown in Figure 1.

Discussions about policy formulation must consider how the policy will be implemented. Implementation experiences are used to modify and refine policy. These can also be regarded as

FIGURE 1  
POLICY DESIGN AND IMPLEMENTATION.  
(PAL, 1997, P.146)

		Policy Formulation	
		Good	Bad
Policy	Good	I	II
Implementation	Bad	III	IV

separate processes. A sound formulation process includes a thorough consideration of the external environment and available organisational resources. A sound implementation process occurs when administrators take steps to focus the complex web of systems and organisational behaviours towards a new policy direction. Every administration wants to arrive in the situation represented by cell I in Figure 1 because the combination of good policy formulation and good implementation represents the best possible combination for organisational success. The best conditions do not, however, guarantee organisational success. Policy discussions that consider ongoing implementation experiences will increase an organisation’s chances of experiencing cell I. Cell III represents a weaker potential for organisational success because poor implementation processes offset good policy formulation. Given the complexities involved, cell IV, which represents the weakest chances for organisational success, cannot be dismissed as an unlikely event. The implementation of KPIs by the Government of Alberta represents an attempt to increase the probability of experiencing cell I by increasing the linkage between policy formulation and implementation.

AECD adopted the new application of KPIs in 1993. There is a long chain of policy-implementing agencies involved in higher education. It starts with the governments (political) policy setting body, then the government department (AECD), then the individual universities, then to specific colleges or faculties within those institutions, then, finally, to specific academic departments or programs. Each additional “link” in the implementation chain introduces more

agency cost. Fortunately, it has also resulted in an extensive set of public documents used to communicate policy and implementation actions between the agencies. Such complete documentation of the policy as it passes through the implementation chain is almost never available when implementation occurs within a single entity. Documentation and analysis of AECD implementation of KPIs as part of the Government of Alberta's accountability policy adds to the scarce stock of implementation cases that can be used to evaluate new developments in policy implementation theory.

The case study is commonly used to investigate implementation in complex situations. This pattern began with the Pressman and Wildavsky (1979) investigation into the failure of a new federal housing policy to improve conditions at the end of the implementation chain. Federal policy and money was passed down, eventually reaching the local Oakland, California housing authority, but conditions did not improve. Since Pressman and Wildavsky, the case method has dominated policy implementation studies (O'Toole, 1986). The modern use of cases studies follows the classical pattern of case methodology found in philosophy and other social science research. It is also commonly employed by professional schools because it is a highly effective method of capturing important human experiences. Although knowledge may be separated from experience, a case study increases understanding by promoting the linkage between knowledge and experience.

Several alternative models of policy implementation exist. Mazmanian and Sabatier (1981) developed a conceptual model around independent variables such as policy, structure, tractability, and dependant variables that represent situations within an implementing agency. Jenkins' (1978) model emphasises circumstances in implementing agencies. Mitnick and Backoff (1984) based their model on agency and communication theory. Goggin (1990) bases his model on communications theory. Pal (1997) echoes management practice in the Federal Treasury Board (1995) and Alberta Treasury Departments (1994a) by modelling implementation around the selection of a series of management techniques used to hasten progress toward a stated goal or policy direction. Much research remains to be done to

incorporate our expanding understanding of accountability processes. An ongoing concern is how to limit the agency costs associated with reducing the incentive for administrative gamesmanship (Meier and O'Toole, 2006).

There are also several alternative assumptions about decision making in the context of policy analysis. In the context of policy analysis, there are three classifications of theory: low level, mid level, or high level. Low-level theories emphasize the role of interpersonal interaction. An example this type of theory is found in Dye's (1978) work. Mid-level theories emphasize the role of organizations and other social groups. The work of Bolman and Deal (1991) and Morgan (1995) exemplifies this type of theory. High-level theory emphasizes larger issues about the meaning of life and integrates a theological perspective. Applying established social theories can widen and enrich the considerations that go into case development, analysis, and conclusions. Mid-level theory most closely aligned with the purpose of this study; consequently, the Bolman and Deal model was utilized. Their model used four frames: structural, political, human resource, and symbolic for analysis. Each of these four frames become a "lens" providing insight into the decision making process.

The case method preserves a situation so that the researcher and, subsequently, others can test multiple theories and interpretations. Yin (1994) built on that argument to justify the case method:

The distinctive need for case studies arises out of the desire to understand complex social phenomena. In brief, the case study allows an investigation to retain the holistic and meaningful characteristics of real life events—such as individual life cycles, organisational and managerial processes, neighbourhood change, international relations and the maturation of industries (Yin, 1994, p. 14).

The case was developed with reference to theoretical models to create awareness of the complexities of social phenomena mentioned by Yin. The initial case was developed using the Mazmanian and Sabatier (1981) model. This approach

produced evidence of the predictable conflicts arising through the implementation process. If we had stopped and summarised the case findings solely in terms of this model important organisational dynamics would have been missed. The case data was re-examined in terms of each of the four frames developed by Bolman and Deal (1991). As each of their frames was applied, additional organisational dynamics were discovered and a deeper description of the case emerged.

The primary sources of data for this study were public documents. In addition, four interviews were conducted with AECD and university officials who were involved with the KPI project. A preliminary version of the case report was completed after observation of the AECD KPI project team. After receiving feedback on the case, a second round of data collection was conducted. Mazmanian and Sabatier's model was used to predict expected outcomes and this served to draw attention to unexpected actual outcomes. Additional interviews were also conducted at this stage to confirm our interpretation of the documents and that the document list was appropriate. The final copy of the case went through several redrafts to ensure that the chronological and organisational factors were dependably presented. The full case grew into a lengthy document and is available for research purposes from the author. What follows is a summary of the resulting case study.

### STORY LINE

The size of the accumulated debt of the Government of Alberta was not widely understood in 1992, perhaps because the debt developed quickly and during a time when the economy looked fairly prosperous. Alberta had enjoyed low taxation and balanced budgets for most of the 80's. A large unexpected drop in oil prices led to deficits, which rapidly increased to \$2,120 billion in 1991/92 and \$3,855 billion in 1992/93 (Perry, 1997). Ralph Klein started his term as premier in 1993. Alberta's 1992/93 deficit was 25% larger than Ontario's deficit in relation to gross domestic product and 40% higher than the national average (Perry, 1997). This deficit situation was far worse than in any of the Maritime Provinces, generally regarded as the poorest provinces in Canada. All the economic turmoil led to an in-

tense public interest in Alberta's fiscal situation (Taft, 1997).

Ralph Klein's predecessor Don Getty started building the backbone of an accountability policy in 1992. The government gathered together groups of Albertans to solicit their ideas. The discussions helped increase public awareness of accountability issues, even though the participating groups were carefully engineered (Lisac, 1995). A summary of the discussions was published as the *Simpson Report* in 1992, and Ralph Klein built on this initial work.

The Simpson Report established an important initial tenet regarding government accountability by reporting that Albertans wanted government to manage the policy process. Rather than deliver services directly, government would establish clear expectations for service agencies and then publicly monitor their operations. This process contrasts sharply with the expectation of direct management by government. The influences of books such as *Reinventing Government* (Osborne & Gaebler, 1993) were evident in the Simpson Report. Government was becoming more entrepreneurial through the separation of service delivery from legislative responsibility (Brook, 1989). This philosophy, which is referred to as "new public management," was quickly adopted by the Alberta Cabinet (Evans, 1997) along with mechanisms to show that the government was holding its agencies accountable.

Don Getty retired late in 1992 and leadership of the Province transferred to Ralph Klein. Klein called an election in 1993 to establish his own mandate. Before calling the election he announced two separate initiatives to define the accountability policy that formed the basis for subsequent policy implementation by his administration. The Premier's Office developed and released a new economic strategy, called *Seizing Opportunity* (Alberta Premier's Office, 1993). The plan reinforced the new role of government and established measurement standards. Beginning in March of 1993, the Provincial Treasurer reinforced this approach with a series of consultations that he referred to as "budget roundtables". Out of these discussions, the Treasurer developed the report *A Better Way: A Plan for Securing Alberta's Future*, which was released just after the election (Alberta Treasurer, 1994a).



The report was hailed as the first business plan for the government, and it included specific goals and measures for each Department, including AECD. Many of the plans were vague and came with a promise to develop more detail during 1994/95. They did, however, show responsiveness to the intense public dialogue about Alberta's deficit situation.

Following the 1993 election, four separate initiatives established the accountability policy at the government level. First, Treasury took an active role in shaping Departmental plans by requiring three-year business plans from each Department, and also by tightly establishing the criteria for those business plans. Second, Alberta's Auditor General (AG) added his support through new audit initiatives (Auditor General, 1994). The AG announced an emphasis on comprehensive auditing, which included a careful assessment of the goal-setting process and progress toward goals (CCAF, 1993). The third step was establishment of an annual report card to provide specific information about progress toward the stated goals of each Department (Alberta Provincial Treasurer, 1994a). The fourth and final step was to develop an Accountability Act to elevate responsibility for measurable goals and to report progress into a legal requirement (Alberta Legislature, 1996). The Act also extended the reporting requirements to every institution receiving public funds, including universities.

AECD anticipated the Government's policy direction and published its own policy interpretation, *Accountability Expectations of the Public Post-Secondary Institution Sector* in October 1993. This document indicated AECD would pursue accountability by creating a framework for adult learning and by increasing responsiveness, access, and affordability. These goals were reflected in the Department's first business plan. Following the issuance of the 1994 to 1996 business plan as part of *A Better Way*, AECD went about developing its vision for adult learning. A limited set of public consultations were made because of the tight time boundaries set by the business planning process. An AECD policy document was released later in 1994 entitled *New Directions for Adult Learning*. This work clarified the broad accountability goals of AECD:

accessibility, responsiveness, affordability, and research excellence.

According to AECD, accountability is achieved when the government and post-secondary institutions take responsibility "for the way in which resources are allocated and for demonstrating to the public what results are being achieved" (AECD, 1993, p. 2). For each of the accountability goals set out for AECD in the 1994 to 1996 business plan, specific measures were proposed to justify the resource allocations. It was also clear that these measures would be used to demonstrate the Department's accountability to the public: This was meant to demonstrate to Albertans that the post-secondary system was prepared to examine the way in which it was operating, had the capacity to innovate and respond to those it served, and delivered quality services in an efficient manner (AECD, 1993, p. 1).

Within the Department, new initiatives arose to ensure that every post-secondary institution helped AECD to achieve the accountability goals. First, AECD established an Access Fund to support competitive proposals to deal with problem areas. Second, AECD established an office to develop a system-wide set of KPIs to monitor the higher education system and institutional performance. Third, a group was established by AECD to implement performance funding. Each of these initiatives was to be developed in conjunction with the affected stakeholders. However, the consultative process was bounded by deadlines imposed by Treasury. It was not clear whether this indicated a low value placed on consultation with post-secondary institutions, or whether the deadlines were to ensure the process was completed in a timely manner.

The origins of the KPI project within AECD can be traced to 1992 when the Department issued a discussion paper to a Universities Co-ordinating Council (UCC) entitled *Performance Indicators and Accountability Measures*. This document pre-dates its 1993 accountability policy paper. While the paper was discussed, very little progress was made until after the publication of the Department's October 1994 policy paper, *New Directions for Adult Learning*, in Alberta. A four-stage development process was set up, starting with discussions that resulted in a set of measurement goals. An important aspect of the

goal-setting stage was an agreement to focus on system outcomes. Stage two involved evaluating KPIs for each of the measurement goals. This process started in 1994. The Internet facilitated an intense discussion between everyone involved. Development was largely directed by committees established by the Universities Co-ordinating Council and that allowed Department officials to act as facilitators rather than leaders. General agreement between the institutions and AECD was reached by February 1995 and was announced in *Institutional Accountability in Alberta's Post-Secondary system: A Progress Report*. Stage two ended with the publication of the first KPI reporting manuals in the fall of 1995.

Stages three and four did not go as smoothly as the first two stages. Stage three was supposed to be a pilot study to work out any problems in the data and the process. Unfortunately, many calculation problems emerged that pointed to inconsistent or incomplete data definitions. Institutions also had trouble coping with reporting requests from separate branches within AECD. As a result, the information reporting and exchange project, the benchmarking project, and the KPI project were all co-ordinated to reduce the overlap. The reporting manuals were redone in May 1996 and a second pilot was conducted on the 1994/95 data. The purposed of stage four was to share the KPI information and to design a KPI report to be used for the 1996/97 data, but the UCC asked for more time to study the measures. Such a delay was not possible because of the commitments the Department had made to the Treasury Board to institute a degree of performance funding. There was some conflict over this and so AECD assumed leadership from the UCC by undertaking direct negotiations with institutions.

As a result of negotiation, the key performance data sets were developed. Nineteen data sets addressed topics such as: access, completion rates, student persistence, cost per graduate, employment rates, graduate satisfaction, and fiscal management. In addition to these general indicators there were six indicators that addressed the research mandate of the universities. The major criticism directed at the data sets was that they attempted to reduce the higher education system to a set of quantitative indicators. In response

to this criticism AECD officials decided to use only seven indicators from the data sets as a basis for developing a performance envelope. The seven indicators were: learner satisfaction index, employability indicator, adult literacy indicator, research excellence indicator, accessibility indicator, cost per graduate indicator, and the cost per student indicator.

The focus of the KPI project, during stage four, moved to the application of the KPI data. Emphasis shifted to designing a mechanism for the performance envelope. Considerable discussion went into establishing benchmarks for the seven selected indicators and how much money would be allotted to the performance envelope. Very little additional time was given to the development of new KPIs at this stage.

Only \$25 million was placed in the performance envelope according to the Department's 2000-01 Annual Report. This was a small amount considering 26 institutions had participated and that amount represented about 3% of their total base grants from AECD. There were also a number of measurement issues that had been set aside in early stages so that timely agreement could be reached. This marked a shift away from the early thrust of government to focus on performance and to reward specific performance that supported system-wide goals.

A high level review of the funding outcomes was conducted by a committee of members of the legislative assembly (MLA). As a result of the MLA funding review (Alberta Learning, 2000) in February 2001 one-time funding awards were made to several institutions in recognition of historic issues related to equity. College presidents increasingly observed that the amount of the performance award was relatively minor and barely sufficient to cover the cost associated with data collection and submission (Corbett-Lorenzo, 2001). The KPI project ended in 2003 with a return to historic resource allocation methods. At the end of the study a new KPI advisory board was being set up to guide the ongoing development of the project with no meaningful evidence that the role of KPI driven performance funding will increase. While the KPI project expired, it may yet provide conceptual insights that will have lasting benefit.

CONCEPTUAL CONSIDERATIONS

The policy context of this study is important because of the interrelationship between policy formulation and policy implementation (Pal, 1997). Prominent policy writers consistently suggest that policy systems arise out of three elements: policy stakeholders, policy environment, and public policy (Dunn, 1981; Dye, 1978; Pal, 1997). Changes in the political environment are modifying the way policy analysis is approached (Osborne & Gaebler, 1993). According to Pal (1997), three important changes are occurring. First, government is expected to provide the governance mechanism, but not to actually run things. Linked to this movement is a second trend toward smaller government. Finally, there is a post-modern attack on the rational tradition of policy analysis. However, the changes in the political environment have not changed the basic need for policy analysis. All three of the aforementioned changes are resulting in an increased use of independent agencies to carry out policy. As the number of organisations in the policy implementation chain increases, so does the importance of communication to link the organisations together.

Policy establishes a contract, which links together the organisational communities that will interpret and then implement the intended policy. The broad purpose of each organisation in the policy chain arises from their established patterns of interaction and policy development. Bourdieu (1993) discusses the deep-rooted symbolic capital that develops around the way we organise social activity. He describes the intense reactions that follow when someone tries to betray the symbolism underlying established relationships. Schein (1985) identified this same phenomenon as a psychological contract. Even modern scholars, such as Perrow (1986), who support the scientific management approach, recognise the importance of consistent human relations and political contexts in management processes. These mechanisms act like “glue” to help protect an organisation from fleeting fads and to give managers a way to thwart any policy that is perceived to be ill-conceived. The same glue makes it difficult to bring an organisation’s behaviour into line with a new policy direction. As a consequence, the popular management lit-

erature is full of techniques on how to implement transformational change. Therefore, implementation cannot be taken for granted.

Accountability is more than a policy adopted by the Government of Alberta. Consideration of the broader social context of accountability places Alberta’s policy and related initiatives in a more meaningful perspective. The interdependent nature of society creates many complex agency relationships. Individuals, groups, companies, and governments are “accountable” to each other. The inherent dependences tend to fluctuate with circumstance. An important reason then for the lack of precision is the controversy that erupts when stakeholders are asked to agree on specific responsibilities (Dennison, 1998). Given the variety of stakeholders in the post-secondary system, consideration of relevant post-secondary accountability literature was important.

Accountability is the process through which two parties communicate about how they have carried out their responsibilities toward each other (Lerner, Goldberg, & Tetlock, 1998). Annual reports and financial statements are vehicles through which management is held accountable for the stewardship of shareholder capital. The Government Accounting Standards Board (GASB) has asserted the public sector will demonstrate accountability by:

“being obliged to explain one’s actions, to justify what has been done... accountability requires governments to answer to the citizenry—to justify the raising of public resources and the purposes for which they are used (GASB, 1987, p. 21).”

The Government of Alberta was more specific in its definition of accountability following the 1993 election. According to the Auditor General:

“Accountability is an obligation to answer for the execution of one’s assigned responsibilities....The basic ingredients of successful accountability relationships are as follows: set measurable goals and responsibilities, plan what needs to be done to achieve goals, do the work and monitor progress, report the results, evaluate results and provide feedback

(Alberta Auditor General, 1994, p. 1).”

These definitions illustrate the general components of the communication that are required to demonstrate accountability.

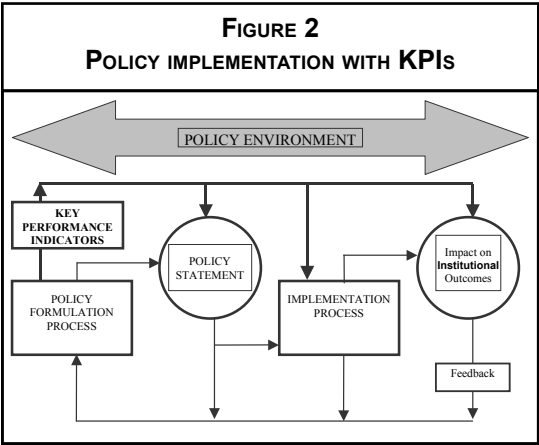
Agency theory is particularly relevant to this case because of the long chain of implementation. Agency theory explores the relationship between a principal and an agent acting on behalf of the principal. AECD is an agent of the government while the educational institutions are agents of AECD. Lerner and Tetlock (1999) investigated accountability systems in terms of the characteristics of the principal. They learned that if the audience’s views—in our case the Government—are known, creativity will be stifled. The agent has no choice but to match or restructure tasks to demonstrate compliance through whatever measures are used. All the power in this relationship shifts to the principal. If the principal’s views are not known, then the accountability interest shifts to the agent. In this case, accountability reports are used as defensive weapon against criticism by clearly defining the goals. The agent feels free to try creative approaches because the actions are justified by the accountability criteria the agent has presented to the principal.

Lerner and Tetlock concluded that the use of specific performance measures—which by their nature serve to clarify the audience’s views—will have a strong impact on the way the agent approaches the accountability process. The agent will adjust to the accountability environment as the demands for information and reactions to responses accumulate. KPIs provided by or imposed by the government are specific indications of expected performance. Agents will be expected to make rational responses about the actions they will take and information they will collect in the context of their specific circumstances. Specific narrow KPIs provide specific incentives for the agent.

A conceptual framework regarding the use of KPIs as a policy implementation technique was developed from the findings and conclusions arising from this study. This conceptual framework shows that KPIs have a significant influence on the implementation of an accountability policy. Even though there were a number of organisations in the implementation chain, the

KPIs had a direct and, therefore, faster impact on all levels of the implementation chain. This made the whole system more responsive to government policy. KPIs behaved much like Adam’s invisible hand that guides economic decision making. As a result, feedback mechanisms are less important sources of management information. Bolman and Deal’s (1991) model pointed to the effect that KPIs have on organisational dynamics. How KPIs are regarded will depend on the organisational paradigm the affected managers are using. This case demonstrated that KPIs had both positive and negative impacts on the implementation of the accountability process.

The conceptual framework shows that the use of KPIs is a significant and effective implementation tool. KPIs have accelerated the implementation cycle; however, increased speed poses some dangers. The slow passage of policy down the implementation chain made it possible to detect and adjust policies in response to negative outcomes before they passed to every agent. If KPIs are used in the implementation process, greater care must be taken in the policy formulation stage. When KPIs are used, policy makers can expect policy formulation and implementation to become more of a simultaneous process. In other words, we show that KPIs have a direct impact on each stage of the implementation process. As a result the conceptual framework also shows the reduced significance of feedback regarding institutional outcomes in the policy cycle. To show these changes, the lines representing the feedback process have been made smaller relative to the other processes.



A key feature of the conceptual diagram is the non-linear functions of the policy implementation process. The conceptual diagram shows the dominant impact KPIs had on all aspects of the implementation process. KPIs simultaneously impact all aspects of the policy implementation process. The existing non-linear aspects of policy implementation are increased by the use of KPIs. For example, the feedback from institutions affected the number and type of KPIs that were ultimately used by AECD. This is reflected in the double feedback loops shown framework and highlights the dominant impact of KPIs on all aspects of the policy implementation process. While the dominant impact of KPIs is a strength that can be utilised by administrators, the unmediated speed also accelerates the damage done by poorly conceived KPIs.

### FINDINGS AND CONSIDERATIONS

Measurement has become a symbol of good management. This study explored the use of KPIs by AECD as they worked to implement a Government of Alberta's accountability policy. More specifically, this study focused on the KPI project within AECD. The AECD-KPI project provided an excellent opportunity capture a case study that would facilitate exploration of KPI usage. The political pressure for accountability is unlikely to diminish. As a result, we can expect the calls for policy makers and administrators to quantify their performance will continue.

Examples of satisfying measurement are hard to find, and the KPI project of the Alberta Government has also ended without fulfilling initial expectations of specific measurement. The attraction and appeal of quantification was not diminished by such failures. Charles Miller is the Chair of the U.S.A. Federal Commission on Higher Education (Field, 2006). He is best known for structuring the No Child Left Behind program. The Commission will soon report on the need to make universities in the U.S.A. more accountable through performance measurement. Already our collective memory of the many performance funding initiatives undertaken in the early 90s, which largely failed to meet expectations, have faded.

Now, more than ten years after the initial KPI driven performance funding initiatives faded the process is starting over. *Inside Higher Education* has featured stories about political interest in "performance funding 2.0." Those groups advocating for performance funding simplify the failure of earlier attempts at performance funding to a strong university lobby that wanted the safety of guaranteed income. As Minister of Education, Julia Gillard, now Australia's Prime Minister is championing a performance funding scheme that is similar to Alberta's (Australia, 2009). Tennessee provides a good example in the U.S.A. of a state facing financial pressure similar to that experienced by Alberta in 1992. They are emphasizing in performance funding to accelerate policy adjustments in their public universities and colleges (Tennessee, 2010). These are a few of many examples of a new interest in performance funding.

Accountability models establish how administrators justify their actions or decisions. Performance funding puts those decisions in an objective format. Well before the advent of modern social science, administrators devoted considerable attention to the problem of implementation. For example, Machiavelli (1983) saw this problem as a key to his governmental successes and failures. In more recent times, Dougherty (2011) notes very same issue in a report entitled "The Politics of Performance Funding in Eight States: Origin, Demise, and Change." Achieving a sense of accountability is a recurring administrative theme and problem. So the underlying the purpose of this study was to consider what is gained and lost by using KPIs to increase accountability. They accelerate policy implementation which is good, but they can also coerce administrators into actions that are contrary to the broad policy intentions.

KPIs expand everyone's understanding and awareness of policy because they are so specific. Administrators can respond to KPIs with specific forward-thinking initiatives to creatively address the policy focus communicated through the KPIs. My conceptual diagram shows how this characteristic accelerates the implementation of policy. The danger lies in how vulnerable KPIs are to data manipulation. Favourable changes in the performance measure are sometimes achiev-

able without the behaviour changes that were intended. In such a world, KPIs might make it easier to pervert the goals of accountability systems! Policy makers and administrators must specifically consider ways mediate this possibility. So KPIs must be used with caution since they can be a source of coercion and of leadership.

Defining measures that captured the intended long-term policy objectives was difficult in Alberta. Many dedicated and skilled administrators struggled with this problem throughout the time frame covered by this study. Designing measures that would capture the agreed upon aspects of quality education was extremely difficult, and the actions that were desirable in order to achieve long-term results were almost impossible to assess over the short term. The real caution is grounded in the response of the post-secondary institutions. For only \$25 million dollars, the entire post secondary system in Alberta became far more responsive to the direct political agendas of the Government. There is a paradox in this—very few funds were at stake but a lot of attention was given to the KPIs as visible performance measurements.

There is every reason to believe that quantifying performance will remain an attractive management concept. This case contributes to our understanding concerning how KPIs accelerate policy implementation. KPIs will also tempt and quite possibly encourage administrators to engage in behaviours that should make policy makers uncomfortable. Using KPIs has become more than an additional source of information that administrators could provide to support the work of decision makers. The performance data from the KPI project is available for further research. We are still early in the process of understanding the social processes around KPI usage. In the meantime politicians and administrators should proceed with great care whenever this powerful policy tool is deployed. It is still a "folly to hope for A while rewarding B (Kerr, 1975)." Reflecting on cases covering the entire cycle of policy implementation with KPIs will hopefully lead to better decision-making.

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## STUDENT RATINGS OF INSTRUCTION FROM PERSPECTIVES OF HIGHER EDUCATION ADMINISTRATORS

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### ABSTRACT

*In addition to instructors, administrators are typically recognized as the other major users of student ratings. Although issues on the subject of student ratings from instructors' perspectives have been extensively researched, there are fewer studies on student ratings from the perspectives of administrators. Hence, this study explored the types of ratings information that administrators considered useful, their reactions to student ratings and their recommendations for more effective use of student ratings. The population comprised 191 Deans, Deputy Deans, and Department Heads from 15 faculties of a major Malaysian research university; 110 of them were surveyed, with a response rate of 80%. The responses were subjected to descriptive statistics, principal component analysis, one-way ANOVA, and independent t-test. The results showed that five types of rating information (viz. learning enhancement, preparation and classroom management, interpersonal skills, assessment and grading, and overall judgment of instructor personality/performance) were considered useful for administrative purposes with regard to teaching. Based on the findings of the study, recommendations were made to improve the validity of student ratings. Administrators shared the views that alternative methods of ratings should supplement the existing ones, and that faculties/departments should not limit themselves to the common set of rating items.*

INTRODUCTION

Student Ratings of Instruction have become the most popular procedure for evaluating teaching in universities (Pounder, 2007; Smith, 2007). Furthermore, student ratings provide valuable information for administrators in their annual reviews of academic staff (Cineas, 2008; Richardson, 2005). According to Abrami (2001), student ratings are valid measures for making decisions on the effectiveness of academic staff.

While student ratings are used by instructors to gauge their own work performance, higher education administrators are dependent on such ratings to make personnel decisions in annual reviews, tenure, promotions, and reappointments (e.g. Murray, 2005, Nasser & Fresko, 2002). In most Malaysian universities, student ratings are used as a matter of routine, and often the ratings are taken into consideration by administrators in the annual reviews of academic staff. As a step toward teaching improvement, in 1992, the University Putra Malaysia (UPM) designed a student rating instrument to evaluate teaching performance of academic staff. The validity of this instrument was verified by an appointed committee, headed by the Dean of the Faculty of Educational Studies. The UPM’s rating instrument contains 22 items. At the end of every semester, it is filled out by all students (undergraduates and postgraduates alike) from all fifteen faculties at UPM. The quantitative data are usually analyzed by the deputy dean’s office in each faculty; then the information is submitted to the respective departments. A copy of the analysis is kept in the file at the office of the Deputy Dean of Academic, which is used as a source of evidence in annual reviews and personnel decisions.

The review of literature shows that little research attention has been devoted to the perspectives of the different groups involved in the student rating process (Schmelkin, Spencer & Gellman, 1997). Although issues on the subject of student ratings from instructors’ perspectives have been extensively researched, there are not many studies dealing with student ratings from administrators’ perspectives. Furthermore, the extent to which student ratings have been accepted by the user groups is still less clear (Schmelkin et al., 1997). Hence, Theall and Franklin (2000) recommend further research to address the vari-

ous users of student ratings, noting that the use of ratings results varies according to the purpose for which the ratings are carried out. This paper explores the utility of ratings information as perceived by administrators within the context of a major research university, examines significant differences in utility of ratings information based on administrators’ characteristics, and identifies administrators’ reactions and recommendations.

METHOD

Population and Sampling

The present study was conducted at a public Malaysian research university, namely Universiti Putra Malaysia (UPM), which had an enrolment of 17,884 undergraduate students and 8,279 postgraduate students at the time of the study. The population of this study consisted of 191 administrators from 15 faculties at UPM, including deans, deputy deans, and department heads who had more than 6 months experience in administrative work.

Principal Component Analysis (PCA) was the main statistical analysis used in this study. The acceptable size for performing factor analysis would have a ratio of five participants to one variable (Hair, Anderson, Tatham, and Black, 1998). Accordingly, the acceptable sample size in this study was 110 administrators. The samples drawn from each faculty were calculated based on the stratified proportionate random sampling. Subsequently, members of each faculty were randomly selected within the faculty using a table of random numbers.

Design and Instrumentation

In this study, a self-developed questionnaire was used. It comprised 35 items which were grouped into three sets of variables. The first set (4 items) addressed the administrators’ demographic characteristics, the second set addressed the 22 items which found in the current UPM’s rating instrument, and the third set (9 items) addressed administrators’ reactions toward SRI as well as their recommendations for more effective use of student ratings. The nine items of third set were inspired and generated by research literature (i.e.

Murray, 2005; Algozzine, et al., 2004; Abrami, 2001; Schmelkin et al., 1997).

The levels of content and construct validity were established by a panel of experts (who had strong background in evaluation of teaching using student ratings and had professional expertise in validations and questionnaire development). Moreover, a trial run was conducted to ensure its validity; fifty administrators who were not involved in the actual data collection participated in the pilot study. To further verify the strengths of the results, the reliability of the instrument was estimated with the measures of internal consistency including Cronbach’s alpha, inter item correlations, and item to total correlations. The results showed that the instrument was reliable.

RESULTS

Administrators’ Demographic Characteristics

Administrators’ demographic characteristics yielded information about their gender, administrative rank, administrative experience, and their experience in the use of student ratings for evalu-

ation of teaching performance (see Table 1). The demographic information of the respondents showed that the majority of administrators were male (70.5%; n= 62) and 29.5% (n= 26) were female. Of these respondents 10.23% (n= 9) were deans, 29.54% (n= 26) were deputy deans, and 60.23% (n= 53) were department heads. The respondents’ experiences in administrative works ranged from less than 3 years to as long as more than 12 years with a mean of about 7 years. As can be seen in Table 1, 17% (n= 15) of the respondents had experience in administrative works for at least 12 years, 9.1% (n= 8) of them had 10 to 12 years of experience, 10.2% (n= 9) had 7 to 9 years of experience, 23.9% (n= 21) had 4 to 6 years, and 39.8% (n= 35) had 3 or fewer years of administrative experience.

Findings showed that 11.4% (n= 10) of the respondents had experience in doing evaluation using student ratings for at least 12 years, 4.5% (n= 4) had 10 to 12 years evaluation experience, 3.4% (n= 3) had 7 to 9 years evaluation experience, 29.5% (n= 26) had 4 to 6 years evaluation experience, and 51.1% (n= 45) had 3 or fewer years experience in the use of student ratings for evaluation of teaching.

TABLE 1 ADMINISTRATORS’ DEMOGRAPHIC CHARACTERISTICS					
Variable	Category	Frequency	Percent	Mean	SD
Gender					
	Female	26	29.5		
	Male	62	70.5		
Administrative Rank					
	Dean	9	10.2		
	Deputy Dean	26	29.5		
	Head Departments	53	60.2		
Administrative Experience				6.85	6.22
	≤ 3	35	39.8		
	4-6	21	23.9		
	7-9	9	10.2		
	10-12	8	9.1		
	≥ 12	15	17.0		
Evaluation Experience				4.88	4.35
	≤ 3	45	51.1		
	4-6	26	29.5		
	7-9	3	3.4		
	10-12	4	4.5		
	≥ 12	10	11.4		

Utility of Ratings Information for Administrative Purposes

To explore the types of ratings information useful for administrative purposes, a principal component analysis with a Varimax rotation was performed on the response data obtained from the second set of variables (22 items). The critical assumptions in factor analysis were considered for this set of variables. Accordingly, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin (KMO) were used to quantify the appropriateness of factor analysis for the second data set. The Bartlett's test indicated a significance value and the KMO value was .86. Finally, based on the methods of latent root criterion and Scree plot, five components with eigenvalues greater than 1.0 were extracted. Each component reflected one type of ratings information (see Table 2). Tabachnick and Fidell (2001) cited .32 as a good rule of thumb for the minimum loading of an item if components possess 4 or more variables. Hence, the items loadings were significant and meaningful for interpretive purposes.

The first component (Items 4 to 12) reflected a type of ratings information which focused on instructors' efforts in student learning Enhancement (LE). Included items focused on the information regarding the role of instructional delivery and organized presentation in enhancing student's interests, in stimulating student's thought, and in facilitating learning process. The second component (Items 1 to 3) reflected a type of ratings information pertaining to instructor's practices about Preparation and classroom Management (PM). The third component (Items 17 to 20) addressed a type of ratings information regarding the instructors' practices about Interpersonal Skills (IS). Interpersonal Skills addressed information on instructors' professionalism such as demonstrating concern and responsibility, having respect for student, and maintaining a climate of mutual courtesy. The fourth component (Items 13 to 16) addressed instructors' practices in Assessment and Grading (AG) such as providing feedback on graded work, reflecting course content on tests, and scoring practices. The fifth component (Items 21 & 22) included the issues pertaining to Overall judgment (O) about instructor's personality and teaching performance. The Cronbach's alpha for the components of LE,

PM, IS, AG, and O was .92, .84, .85, .82, and .81 respectively (Table 2). The inter item correlations mean and item to total correlations were considered as further support for the internal consistencies of the components .

The component mean was produced by averaging the means of individual items in each component and was considered as the base for interpreting the utility of ratings information. Table 2 revealed that the ratings information which focused on instructors' efforts in learning enhancement (LE) was identified by the administrators as the most useful type of information, followed by ratings information on the component of overall (O), Interpersonal Skills (IS), Preparation and classroom Management (PM), and finally, Assessment and Grading (AG) which received the lowest component mean. Although some types of ratings information were recognized by administrators as more useful than others, all types of ratings information were regarded as useful.

The independent t-test analysis and one-way ANOVA were conducted to assess significant differences between perceived utility of ratings information and demographic characteristics of administrators constituting the dependent and the independent variables respectively. The results of these analyses showed that there were no significant differences in administrators' views of the utility of ratings information based on their demographic characteristics. In other words, no significant different with similar high means indicated that administrators agreed on the utility of the ratings information immaterial of gender difference between them, administrative position held, length of administrative experience, and length of time evaluating subordinate using student ratings.

Administrator's Recommendations

Administrators' recommendations (Items 1 to 5) were presented by their levels of agreement with the items in Table 3. These items revealed administrators' acknowledgement of some weaknesses in the current ratings process and presented their recommendations for a more effective use of student ratings.

For instance, 45.5% of administrators strongly agreed, and another 46.6% agreed (total of

TABLE 2  
UTILITY OF RATINGS INFORMATION FOR ADMINISTRATIVE PURPOSES

Item	Mean	Component*				
		LE	PM	IS	AG	O
1-Teaching plan is clearly explained.	2.90		.73			
2- Instructor is always prepared for each teaching session.	2.75		.58			
3- Learning activities are managed effectively.	2.88		.68			
4- Student easily understood teaching delivery.	2.97	.49				
5- Important aspects are emphasized in the teaching.	2.80	.63				
6- Lesson contents are summarized.	2.71	.38				
7- Delivery method stimulates student's thought.	2.84	.75				
8- Delivery method enhances student's interest in the subject.	2.77	.66				
9- Examples are helpful for students in their learning process.	2.90	.78				
10- Teaching materials are helpful in learning process.	2.81	.72				
11- Students are encouraged to ask question.	3.00	.48				
12- Students are exposed to current issues.	3.11	.57				
13- Assessments are implemented as planned.	2.78				.57	
14- Tests/assignments given conformed to the course content.	2.82				.39	
15- Feedback is given on assignment.	2.79				.66	
16- Assessment marks are announced within the stipulated period.	2.69				.74	
17- The instructor shows concerns and demonstrates responsibility.	2.92			.68		
18- Student is being respected.	2.77			.84		
19- The instructor portrays a good image.	2.81			.84		
20- The instructor's delivery is convincing.	2.93			.41		
21-Overall, the teaching of this course is effective.	3.17					.79
22- Overall, this instructor is the best instructor.	2.57					.87
Component mean		2.88	2.84	2.86	2.77	2.87
Cronbach's alpha		.92	.84	.85	.82	.81
Inter-item correlations mean		.56	.65	.59	.54	.70
*Component: LE= Learning Enhancement, PM= Preparation and classroom Management, IS=Interpersonal Skills, AG= Assessment and Grading, O= Overall						

92.1%; n=81) that other methods should be used to supplement ratings information e.g. peer reviews, teaching portfolios (Item 3). There was also strong consensus (40.9% strongly agreed, 58% agreed; total of 98.9%; n=87) that faculties and departments should not limit themselves to the common set of items as currently practiced (Item 4).

In other recommendations, 34.1% of administrators strongly agreed and 61.4% agreed (total of 95.5%; n=84) that conducting studies to examine the influence of student ratings on instructional improvement was necessary (Item 1). Regarding the necessity to conduct studies to demonstrate how instructors were making use of student rat-

ings to improve their teaching, 17.0% and 69.3% (total of 86.3%; n=75) strongly agreed or agreed respectively (Item 2). Moreover, a total of 76.1% (n=67) of administrators concurred that instructors who had teaching problems should use the services of instructional consultants (Item 5).

Administrators' Reactions toward Student Ratings

This section was aimed at uncovering the extent to which student ratings were seriously accepted and used by administrators at UPM. As can be seen from Table 3, over half of the administra-

tors (total of 69.4 %, n=61) strongly disagreed or disagreed with the item 6 that teaching performance should not be evaluated by students. Also, more than three quarters of administrators (total of 76.1 %, n=67) strongly disagreed or disagreed with the item 7 that they don't take student ratings seriously, and the majority of them (total of 79.6 %, n= 70) strongly disagreed or disagreed with the issue that they have not used the ratings information for their administrative purposes (Item 8). Also, over three quarters of respondents (78.4%, n= 69) agreed that student ratings provide useful feedback for administrative purposes (Item 9).

DISCUSSION

The finding of this study revealed that five types of ratings information were useful for administrative purposes. These five types correspond with dimensions of teaching effectiveness found in research studies (i.e Arreola, 2000; Seldin, 1999; Braskmap and Ory, 1994; Centra, 1993;

Marsh, 1991; Abrami and d'Apollonia, 1990). Also, the ratings information which focused on instructor's efforts in learning enhancement was considered by administrators as the most useful type of ratings information. Included items concerned the role of instructional delivery and organized presentation in enhancing student's interests, in stimulating student's thought, and in facilitating learning process. Hence, it can be concluded that effective student learning is one of the more important concerns of the administrators at UPM.

Although some types of ratings information were perceived by administrators as more useful than others, all types of information were regarded as useful. This finding revealed that administrators consider the utility of student ratings as multi-dimensional information. Currently, administrators receive the result of student ratings in a list of individual items without any classification by dimensions. A mean and a standard deviation are stated in front of every individual item. Indeed,

distinguished scholars such as Mckeachie (1997) and Marsh and Roche (1997) believe that teaching is multi-dimensional, thus it should be measured by a multi-dimensional ratings instrument rather than by questions that seek an overall response to the course or the instructor in general. An implication of this finding for future practice is that administrators should receive the result of student ratings in a multi-dimensional feedback form, rather than in a list of the individual items. This will provide more meaningful feedback for administrators.

This study obtained professional recommendations from the administrators for an effective use of student ratings. The administrators who participated in this research had sufficient experience in higher education administrative work as well as in evaluation of teaching using student ratings. As such, they were well qualified to explore the utility of ratings information, and were also in a position to make recommendations for the effective use of student ratings. Their recommendations would, therefore, have important implications for future evaluation of instructors, bringing the university closer to its main goal of instructional improvement.

The majority of the administrators (92.1 %, n= 81) who participated in this study recommended that other methods of teaching evaluation be used to supplement ratings information at UPM. Their recommendations were consistent with the body of literature in this area (e.g. Murray, 2005; Algozzine et al., 2004; Cashin, 1995). For instance, Cashin (1995) in his article concludes that student ratings can be useful when used in combination with other measures of teaching effectiveness. Algozzine et al. (2004) also suggest that other data sources should be included to make decisions about teaching effectiveness. There is, therefore, a need to use other measures for the future evaluation of teaching at UPM, such as peer observation and teaching portfolios, to supplement ratings information.

In addition, the majority of administrators agreed that for a more meaningful feedback on instructional improvement, different faculties/ departments should not use the same single set of items as is presently the case. Their views concurred with those of Franklin (2001) and Cashin (1990), who suggested that for instructional

improvement, student ratings form should not contain a standardized set of items for all the classes. Hence, the university should design and use different sets of items to address differences in course objectives and teaching methods in the various faculties, rather than use a common or standard set of items for all faculties.

The majority of administrators were in agreement that the instructors who had teaching problems should use instructional consultant services. As is currently practiced at UPM, instructors who receive low scores in student ratings are recommended by administrators to attend classes/workshops on teaching methods. Although this might be useful for beginning instructors, experienced instructors might benefit more from individualized consultations to help them improve their teaching performance. Indeed, student ratings will have a greater effect on instructional improvement when feedback information is coupled with appropriate consultation (Marsh, 2007; Lang and Kersting, 2007). Hence, to boost the quality of instruction, opportunities should be provided for less effective instructors to receive consultant services.

CONCLUSION

In conclusion, our results demonstrated that higher education administrators were of the opinion that student ratings provided useful feedback for administrative purposes. Nevertheless, the influence of student ratings on administrative practices is still an issue that needs to be explored in greater depth. Questions pertaining to the nature of administrative practices which are actually influenced by student ratings, and the expected effect of student ratings on administrative practices from administrators' perspectives need to be addressed in future research. This study also revealed that the majority of administrators agreed that conducting studies to explore the influence of student ratings on instructional improvement is necessary. In other words, administrators need to know whether the use of student ratings would lead to an improvement in quality of teaching. The lack of concrete evidence on the effect of student ratings on instructional improvement leaves a gap in the justification of the use of student ratings at UPM.

TABLE 3 ADMINISTRATORS' RECOMMENDATIONS AND REACTIONS							
Item		Mean	SD	Percentage of Agreement			
				SA	A	D	SD
1	Conducting studies to examine influence of student ratings on instructional improvement are necessary at UPM.	3.28	.58	34.1	61.4	3.4	1.1
2	Conducting studies to demonstrate how instructors are using student ratings to improve their teaching performance are necessary at UPM.	3.03	.55	17.0	69.3	13.6	0.0
3	To supplement student ratings at UPM, other methods should be used.	3.36	.66	45.5	46.6	6.8	1.1
4	Faculties/departments should not limit themselves to the common set of items as currently practiced.	3.39	.51	40.9	58.0	1.1	0.0
5	Instructors with teaching problems should be recommended for using instructional consultant services.	2.86	.74	15.9	60.2	18.2	5.7
6	Teaching performance should not be evaluated by students.	2.76	.71	4.5	26.1	58.0	11.4
7	I don't take student ratings seriously.	2.94	.77	4.5	19.3	53.4	22.7
8	By this time, I have not used the ratings information for my administrative purposes.	2.98	.70	2.3	18.2	58.0	21.6
9	Student ratings provide useful feedback for administrative purposes.	2.92	.69	17.0	61.4	18.2	3.4
Scale: SA= Strongly Agree, A= Agree, D= Disagree, SD= Strongly Disagree							

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## **GUNS ON CAMPUS: THE DEVELOPING TREND IN STATE LEGISLATION**

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### **ABSTRACT**

*Prior to the shootings on the campus of Virginia Tech in 2007, the vast majority of college and university campuses banned weapons on their grounds. After Virginia Tech, others also sought to ban guns, but were met with resistance from guns rights advocates, and those efforts to ban guns failed. Two recent decisions of the U.S. Supreme Court apply the Second Amendment's right to bear arms to individual citizens (rather than those who are part of state militias) for protection or other legal uses. The Supreme Court ruled that guns could be regulated, but to ban them would be unconstitutional. However, one of those decisions noted that schools and government buildings are "sensitive places," where a ban on weapons might be constitutional. Guns rights advocates currently oppose any effort to ban weapons from campuses. During this legislative year, bills were introduced into the legislative bodies of 16 states with the goal of authorizing guns on campus, or proactively preventing colleges and universities from banning guns on campus. A review of these proposals, and a report on their status is discussed. Other steps which might be taken by institutions of higher learning to prevent injuries and deaths because of guns are also discussed.*

### **INTRODUCTION**

Prior to the shootings at Virginia Polytechnic Institute (Virginia Tech) in April, 2007, the vast majority of colleges and universities had banned weapons on their campuses, with little opposition. In 2007, following the shootings at Virginia Tech, many more institutions sought to ban weapons from their campuses, but those efforts were met with resistance by guns-rights advocates, and failed. (Quizon, 2011) The National Rifle Association (NRA), which had previously opposed guns in schools, seemingly changed its position. An increasingly active gun-rights constituency, including student groups such as Students for Concealed Carry on Campus, sought to challenge gun regulation in the courts, and to propose legislation favorable to gun ownership, access and use across a wide range of activities. Two of those cases went to the United States Supreme Court, and changed the legal landscape for everyone.

### **COLUMBINE HIGH SCHOOL & VIRGINIA TECH UNIVERSITY**

In 1999, almost eight years to the day prior to the shootings at Virginia Tech, there were the shootings at Columbine High School in Columbine, Colorado. Twelve students and one teacher were shot and killed, and 21 others were wounded by gunfire. It was the worst shooting in history at a U.S. high school. Shortly after the Columbine High School attack in 1999, National Rifle Association (NRA) Executive Vice President Wayne LaPierre gave a speech which addressed the idea of permitting guns in schools:

First, we believe in absolutely gun-free, zero-tolerance, totally safe schools. That means no guns in America's schools, period with the rare exception of law enforcement officers or trained security personnel. We believe America's schools should be as safe as America's

airports. You can't talk about, much less take, bombs and guns onto airplanes. Such behavior in our schools should be prosecuted just as certainly as such behavior in our airports is prosecuted. (Staff, *Tulsa World News*, 2008)

The prevailing belief was that educational institutions would be safer without guns than with them.

Several studies support this conclusion. In 1999, the U.S. Department of Education, comparing the homicide statistics on college campuses with that of the general population, found that the overall homicide rate at postsecondary education institutions was 0.07 per 100,000 students, while the criminal homicide rate in the United States as a whole was 5.7 per 100,000 persons. Moreover, when campus homicides (0.07 per 100,000) were compared with homicides in the general population involving college-age persons (14.1 per 100,000), the relative safety of campuses was demonstrated. (U.S. Department of Education, 1999).

Other studies show that colleges are not the only venue in which the availability of guns raises the crime rate. Professors Cook & Ludwig, in a study of gun ownership in households stated:

We find that in areas where more households have guns, the overall homicide rate goes up. What we are inferring from that is that the costs from increased gun thefts and unregulated gun sales outweigh whatever benefits there are from owning a gun to use against criminals. (Sieben, 2011)

In 2007, 33 students and professors were shot by one student at Virginia Tech. Public shock and sadness spurred debate, a call to arms, and legislation. In 2008, 14 states proposed guns on campus legislation. (Quizon, 2011) In every year since, similar legislation has been introduced.

## TWO U.S. SUPREME COURT DECISIONS

Two recent U.S. Supreme Court decisions have interpreted the rights granted by the Second Amendment to the U.S. Constitution. The Second Amendment, in its entirety, states:

A well-regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed. U.S. Const., amend. II.

Prior to the *Heller* decision, the discussion regarding the meaning of the Second Amendment concerned whether the right to keep and bear arms belonged to each individual, or whether the right was related to and dependent upon participation in a state militia. (Blocher, 2009). Two Supreme Court cases decided that question. The first was *District of Columbia v. Heller*, 554 US 570 (2008), in which a District of Columbia Special Police Officer sued to challenge the gun regulations of the District of Columbia, which prohibited him from having a loaded weapon in his home. He challenged the D.C. law on the grounds that the Second Amendment gave him the individual right to keep and bear arms. The U.S. Supreme Court agreed. The Court ruled that the right to keep and bear arms belonged to the individual, and did not require that the individual be a member of a state militia. Reasonable regulation was permitted, the Court said, but not a total ban. However, in its decision in *Heller*, the Supreme Court noted that exceptions existed, and that a ban might be constitutional for "sensitive places such as schools & government buildings." *District of Columbia v. Heller*, 554 US 570, 624 (2008). The language of the ruling meant that the extent of permitted regulation and the exact meaning of the school and government building exception would be shaped by legislation and tested in the courts for decades to come.

The *Heller* decision had ruled that the Second Amendment prohibited a handgun ban in a federal territory, the District of Columbia. But did the Second Amendment apply to the states? The second case answered that question. At the time of the *Heller* decision, laws banning handguns existed in the City of Chicago and the Village of Oak Park, among many others. But, encouraged by the *Heller* decision, gun owners in Chicago and Oak Park sued those cities, contending that the Second Amendment applied to the states, and therefore, the cities' gun laws were unconstitutional. In *McDonald v. City of Chicago*, 561 US \_\_\_\_ (2010), the U.S. Supreme Court agreed, and the laws banning handguns in Chicago and

Oak Park were stricken. Similar laws in other cities and states became unconstitutional with the ruling.

Guns-rights advocates then turned their efforts to legislating the right to carry guns on campuses, and to pre-empting the right of educational institutions to ban guns from their campuses. During 2009, about 9 states considered such proposals. (Quizon, 2011) In 2010, again, 9 states introduced such legislation. But as we go to press, 16 states have proposed such laws (sometimes multiple versions) in 2011.

## GUN LAWS ACROSS THE UNITED STATES

Gun laws in the United States are determined first of all by the United States Constitution. As we have seen, two recent US Supreme Court decisions have construed the Constitution to grant to residents an individual right to keep and bear arms.

In addition, forty-four states have similar provisions in their state constitutions. The only exceptions are California, Iowa, Maryland, Minnesota, New Jersey and New York. However, the statutes of New York contain a provision virtually identical to the Second Amendment of the U.S. Constitution. (Volokh, 2006).

As long as their statutory laws do not conflict with either federal law or their state constitutions, each state has the right to regulate guns within its borders, and each may have laws different from those of its sister states. Each state may determine the circumstances under which a person has the right to carry (RTC) a weapon, either openly or concealed.

Thirty-seven states have what are deemed "shall" issue laws for the concealed carry of weapons (CCW), and some have "may" issue laws. A color-coded map designating which states follow which type of law is available on the website of the National Rifle Association Institute for Legislative Action. (NRA 2010).

If an applicant applies for a license to carry a concealed weapon in a "shall" issue state, and the applicant meets the requirements set out in the law, then the governing authority must issue the license. In a "may" issue state, the authority has

some discretion regarding whether or not to issue a license to carry a concealed weapon. But right to carry license requirements are related to other issues, such as reciprocity between states, and confidentiality of gun ownership records. These issues can present problems for campus administration officials.

## The Right to Carry Guns on Campus

Twenty-two states ban carrying a concealed weapon on campus, while 25 states permit each campus to make the decision whether or not to allow weapons on campus grounds, in parking lots, or in campus buildings and sporting venues. Only the state of Utah, by state law, mandates the right to carry concealed weapons on the state's public campuses. In Utah's ten state institutions, campus administration officials are forbidden from banning guns on their facilities. (National Conference of State Legislators, 2011)

The 22 states that ban carrying a concealed weapon on campus are: Arkansas, California, Florida, Georgia, Louisiana, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, Tennessee, Texas, and Wyoming. During 2011, legislation was introduced in 9 of these states to grant the right to carry weapons on campus.

The 25 states that grant to each campus the right to decide whether or not to permit guns on campus are: Alabama, Alaska, Arizona, Colorado, Connecticut, Delaware, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, South Dakota, Vermont, Virginia, Washington, and West Virginia. As we go to press in 2011, during the 2010-2011 legislative year, laws were introduced in 5 of those states either to prohibit educational institutions from banning guns, or to require them to permit concealed carry in some form.

## Related Issues

Among the issues surrounding the question of permitting guns on campus are these: If guns are to be permitted on campus, should they be

banned from classrooms? Should they be banned from the grounds generally, or permitted to be carried in vehicles in the parking lot? If they are permitted in vehicles, should the guns be unloaded or trigger-locked? If guns are permitted on campus, should they be carried openly, or may they be carried concealed?

What if a gun owner has a license to carry a concealed weapon from his home state, and travels to another state? Has his possession of a gun put him in violation of the law of that state? Or does the state have reciprocity with other states, and if so, under what conditions? A color-coded map demonstrating reciprocity laws is available on the website of the National Rifle Association Institute for Legislative Action. (NRA 2010). For colleges and universities who generally have students coming from several states – and countries – each with its own gun licensing regulations, the matter can be problematic.

A further dimension to the problem is the issue of confidentiality of the records of gun ownership. Gun advocates maintain a right to privacy, and oppose the release of the names of gun owners. Twenty-seven states have a confidentiality law regarding the records of ownership of weapons. A color-coded map showing which states have confidentiality laws is available on the website of the National Rifle Association Institute for Legislative Action. (NRA 2010). A university may have on its campus students from other states or countries who have a license to carry a concealed weapon. In such a circumstance, it might be prudent to know who those students are. But if confidentiality of gun ownership is maintained, there is no way for campus administration officials to know who its student gun owners may be.

### CONTRADICTIONARY CONVICTIONS

What is really driving the current legislative and judicial disputes are the contradictory convictions that each group holds:

Campus Administration officials, faculty and campus law enforcement generally oppose guns on campus, believing they would make campus **unsafe**.

Guns rights advocates maintain that if

people were allowed to carry guns on campus, they would be **safer**.

An experiment conducted by ABC's 20/20 television program in April, 2009, part of its year-long study of guns, tested these assumptions. A group of college-aged students with varying degrees of experience were trained by police in the use of firearms, and each given a gun which they were told would be needed later. (The guns were equipped with harmless bullets containing paint.) The students then attended a class, ostensibly about protective headgear. As they were sitting in class, a gunman entered, shot the instructor, and then started shooting at students. Many students froze. Half could not retrieve the handgun in time, and none of the students, even the one with hundreds of hours of experience with handguns, could shoot the attacker. Many were themselves hit. All were stunned to learn that in a panic situation, the body's self-defense mechanisms made it more difficult for them to react in time to save themselves or others. Police interviewed on the show explained that it takes constant training to overcome the body's normal physical reaction to extreme stress. Officers train extensively to learn to overcome the body's responses, and must train continually, or risk falling back into a normal physical response which would impair their ability to react quickly to danger. (ABC News Video, 2009)

The NRA attacked the 20/20 report as biased and called it a "hatchet job." (NRA, 2009). Many other groups advocating the concealed carry of weapons also refuted the legitimacy of the report and experiment, and pointed out what they deemed to be flaws in the report and in the experiment. (Rieck, 2009; Schreiber, 2009). In addition, gun advocates maintain that if right to carry laws are passed, crime goes down. It is true that the crime rate has been trending downward for several years (Haq, 2010), but a definitive cause or causes has not been established. (Jonsen, 2009).

### A SENSITIVE PLACE...

In 2011, George Mason University (GMU) in Fairfax, Virginia, was the defendant in first known case to find that its campus was a "sensitive place." GMU's policies prohibited carrying

a firearm in GMU's academic buildings, administrative offices, student residences and dining facilities, or while attending sporting, entertainment and educational events. A gun owner who was not a student, faculty or staff member, but who used the libraries and other facilities at GMU sued, arguing that the prohibition against carrying a weapon in campus buildings and other campus facilities was effectively a total ban of handguns, and so unconstitutional. But the Virginia Supreme Court disagreed. The court found no total ban, since guns could still be carried in open campus areas, and ruled that the campus of GMU was a "sensitive place" within the meaning of the U.S. Supreme Court decisions in *Heller* and *McDonald*. (Chronicle of Higher Education, 2011).

### CURRENT & FUTURE LEGISLATION

Each year since 2008, legislation has been introduced into several states to expand the right to carry concealed weapons on campuses, and to prohibit institutions of higher education from banning guns on their campuses. Incrementally, laws have expanded the right to carry with each legislative year.

During 2011, 28 bills in 16 states were introduced (as we go to press). In some states, multiple bills with different provisions were proposed. In Arizona, a campus carry bill was overwhelmingly approved by the legislature, but vetoed by the Governor. In Texas, a campus carry bill with overwhelming support in both the House and Senate was disqualified because it was attached to another bill dealing with fiscal matters, and the Texas Constitution requires that each piece of legislation address a single subject. (Chronicle of Higher Education, 2011). Of the remaining 26 bills, 7 bills died or were defeated, one was withdrawn, and 18 remained in committee at the end of the legislative year, likely be considered in the next legislative year.

The National Rifle Association Institute for Legislative Action, the lobbying arm of the NRA, has made clear its intention to continue to fight for gun rights through legislation, and other organizations support those efforts. (Cox, 2011). Their wide-ranging mission includes "political action" and "judicial action" affecting legislators

and court disputes. (NRAILA, 2011). It is to be expected that such legislative, political and judicial efforts will continue indefinitely. Campus administration officials must be aware of these efforts, and decide how they will address them.

### SECURITY, ACTION, REACTION

No matter what the gun laws are or may be in a particular state, each campus must make the campus as secure as possible, both by taking action to avoid a crisis, and by its reaction to a developing crisis. The first consideration is the federal law known as the Clery Act, (U.S. Dept of Ed, 2011), which requires generally that educational institutions send "immediate notification" to those on campus when a danger is present. Most campuses have purchased or developed technology to send notice to students, faculty and others on campus or at home by means of phone calls or emails, or both. Experts advise having more than one means of notification. (Rae, 2011).

Regarding email notification, students do not check email as often as texts, so that text messages are more likely to be noticed sooner than email messages. Text message services, however, rely on the university's network which can become overloaded when messages are sent to everyone at once, delaying notice of danger.

A new technology by Raven Alert is being considered by several institutions. (Rae, 2011) It is a key fob alert system by RavenAlert which is capable of receiving both emails and text messages that do not depend on the campus network. In a recent test, everyone received a notice within 11 seconds of sending.

But issues relating to this technology are first, the cost of the key fobs, and second, whether they would actually be accessible when needed. Should students be required to buy the key fobs, or should the university? What if a student loses the key fob? Who should pay to replace it? Second, while many students keep their cell phones by their bedside, and would receive a call or text if the phone sounded, would they keep the key fob by their bedsides? These issues remain to be determined.

Prevention

It is sometimes possible to identify and intervene with students who are unstable. Most colleges and universities have counseling centers with a well-trained staff. But faculty are generally not trained to identify students at risk, and do not have at their disposal the means to intervene or refer according to any established protocol. Such training could help avoid tragedy.

It is not only students, however, that may become unstable, but faculty and staff, as well. On February 12, 2010, Amy Bishop, an Assistant Professor at the University of Alabama in Huntsville was denied tenure. She returned to campus with a gun, and shot dead three of her colleagues. After the fact, some reported that she was known to react with violence to those she believed had wronged her. And yet, no one was able to take action to prevent what happened. (Dewan, Saul & Zezima, 2010). Department Heads and other supervisors also need to be trained to identify the signs of instability, and given resources to intervene and refer the troubled instructor or student.

A CHALLENGING FUTURE

The issue of the right to carry concealed weapons on campus will continue to be proposed. Campus administrators would be well-served to determine what their response to such proposals should be, and take steps toward that goal. Above all, preparation for any hostile action on campus is necessary.

ADDENDUM  
December 9, 2011

As we go to press, there has been another shooting at Virginia Tech, in which a police officer and another man believed to be the shooter have both died. The emergency alert system worked quickly and well, and no one else was injured.

And in Idaho, a ban on guns in on-campus housing was upheld by an Idaho state Judge following a challenge, on constitutional grounds, by a second year law student at the university. Under Idaho's law, guns are banned on campus, but students are allowed to store their guns at a police substation on the Moscow, Idaho campus.

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## **AACSB STANDARDS: ASSESSMENT OF A FINANCE PROGRAM**

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### **ABSTRACT**

*The Association to Advance Collegiate Schools of Business (AACSB) standards for continuous program improvement require the development of a program assessment process. In collaboration with students and employers of graduates, the faculty developed six learning goals for the graduates of our College which support both the College and campus mission statements. One of our goals is for graduates to demonstrate competence in their respective majors. In this paper, we describe the development and current status of our process for assessing the competence of undergraduate students majoring in finance. Additionally, we discuss changes in pedagogy that have resulted from the assessment of our graduates.*

### **INTRODUCTION**

The accreditation standards of the Association to Advance Collegiate Schools of Business (AACSB) International are designed to result in the continuous improvement of the business program. Collaboration among students, employers of graduates, administrators, and faculty across all business disciplines is required to maximize the benefits and success of the process. At The University of Tennessee at Martin, all of the stakeholders named have contributed and participated in the College of Business and Global Affairs assessment program.

The faculty developed six learning goals for the graduates of our College. The goals support both the College and campus mission statements. One of our goals is for graduates to demonstrate competence in their respective majors. In this paper,

we describe the development and current status of our process for assessing the competence of undergraduate students majoring in finance. Additionally, we discuss changes in pedagogy that have resulted from our assessment of our graduates.

### **LITERATURE REVIEW**

The AACSB standards adopted in 2003 focus on continuous program improvement and assurance of learning, and schools of business are accountable for student learning. Since the adoption of the current standards, accredited business programs and business programs seeking accreditation have responded by fleshing out the standards with actual practices.

Black and Duhon (2003) discuss the effective use of the Educational Testing Service's Major Field



Test in Business for assessment of business programs. Additionally, methods for using assessment results to improve student performance are offered.

Ammons and Mills (2005) describe a process for assessing the ability of students to integrate their academic knowledge from across the business disciplines. Zhu and McFarland (2005) present a conceptual model that includes both program assessment and use of assessment results for the continuous improvement of business programs. Their model includes two necessary elements: (1) degree program learning goals and (2) measures of learning accomplishments.

Papers by Martell (2007) and Pringle and Michel (2007) provide survey results of current practices as business programs develop assessment processes to meet the assurance of learning standards. Martell finds that undergraduate programs have achieved more progress than MBA programs. Pringle and Michel's results reveal the 'work in progress' nature of assessment program development. More recently, Gardiner, Corbitt, and Adams (2010) provide specific guidance on how to go about meeting the requirements.

The literature describing assessment processes used within specific business disciplines or majors is fairly limited. Nicholson, Barnett, and Dasher (2005) conducted a survey to identify the methods of assessment used by marketing programs. Of the 137 responses, 72 percent (or 99 respondents) indicated an assessment beyond the evaluation of student performance within courses occurred in marketing programs. However, 65 percent of the respondents indicate assessment data is collected from students only. Sampson and Betters-Read (2008) provide comprehensive models for review and assessment of marketing programs.

The assessment of student performance in a specific accounting course is described by Daigle, Hayes, and Hughes (2007). Multiple direct and indirect measures are used to determine student proficiency in an introductory Accounting Information Systems course.

A discussion of the assessment of outcomes has not appeared in the financial education literature. The principal contribution of our paper is the presentation of a discussion of the process our

finance faculty has followed. The process we have applied may be useful in guiding other finance faculties in designing their assessment programs.

## PURPOSE

This paper describes the evolution of the process in place to assess the finance program at The University of Tennessee at Martin (UTM). Additionally, we will discuss our efforts to 'close the loop' which were triggered by our analysis of assessment outcomes. Finally, we will share plans for improving and completing the process in the future.

## FINANCE PROGRAM ASSESSMENT DEVELOPMENT

The faculty of the College of Business and Global Affairs at UTM worked throughout 2006 and identified the following six BSBA expected outcomes for graduates.

1. Demonstrate an understanding of the global aspects of business.
2. Demonstrate an understanding of the ethical aspects of business.
3. Demonstrate competence in appropriate technology in business.
4. Demonstrate effective verbal and written communication skills.
5. Demonstrate an understanding of the business core.
6. Demonstrate competence in their major.

Procedures for assessing outcomes one through five were developed by the College Assessment Committee with approval by the College faculty. The Assessment Committee requested that faculty members within each discipline design the processes for assessing the 'competence in the major' outcome for each of the six majors (accounting, economics, finance, information systems, management, and marketing).

All faculty disciplines decided to assess the competence of their majors through exit exams administered to seniors during the semester of graduation. All faculty disciplines were unable

to identify appropriate external standardized exams for this purpose; therefore, exit exams were developed internally by the faculty in the discipline for each of the six majors. The finance faculty determined that the exit exam for finance majors should include the topic coverage of the four finance courses in the major (Intermediate Managerial Finance, Investment Analysis, International Finance, Financial Markets and Institutions). One faculty member volunteered to write the exam. He has five years of professional experience with the Chartered Financial Analyst Institute and was involved in CFA exam development. Resources used to develop the finance exit exam included course descriptions, syllabi, and textbook test banks for the four required finance courses. The exam consists of 50 multiple choice questions (see Appendix), and each question was tagged to a specific required finance course with a fairly equal distribution of questions to each of the four courses. Approximately one third of the questions require calculations in order to arrive at the correct response. Finance faculty members did not review the exam at this time. It was first administered during the spring 2007 semester.

Finance faculty met during the spring 2008 semester to discuss the results for spring 2007, summer 2007, and fall 2007. For spring 2007, 17 students took the exam and averaged 46 percent. For summer 2007, four students took the exam and averaged 56 percent. For fall 2007, 27 students took the exam and averaged 49 percent. Finance faculty resisted the impulse to revise the exit exam at this time without further information. Faculty learned students were not aware they were allowed to use their financial calculators. Effective spring 2008, students were instructed to bring their financial calculators. Also, a formula page was included with the exam.

The exit exam administration procedure for all business majors was also revised at this time. Prior to fall 2008, each major exit exam was scheduled independently on a week-day during the second half of the semester. All graduating seniors were required to take the exam. Invariably, some students always had legitimate conflicts with the date and time. Effective fall 2008, all seniors in business take the exit exam for their majors as part of the capstone course, Business Policy. This course is required for all business majors,

and only graduating seniors are allowed to enroll. The course credit hours were increased from 3 to 4 hours to accommodate the added testing component and other assessment activities. Prior to fall 2008, there were no consequences as a result of the student's exit exam results. Effective fall 2008, the student earns bonus points for the Business Policy course if his or her score was above the median for the discipline. The bonus points are awarded on a graduated scale -- more points for higher scores.

During the fall 2008 semester, the finance faculty members again analyzed the exam results. Overall, scores did not improve when students were instructed to use financial calculators and formula pages were provided. Results for each administration were provided by question and by required course. Additionally, cumulative results by question and course were also provided. All test questions missed by more than half of all students who had taken the exam were identified. Gaps were discovered in topic coverage in the four required finance courses. For example, an in-depth discussion of dividends was not covered in any of the four required courses. Additionally, some questions were incorrectly tagged to courses that did not cover the material addressed by the questions.

## CLOSING THE LOOP

Through a series of meetings throughout 2008-09, finance faculty members defined the finance major's body of knowledge, a complete list of topics the required finance courses in the finance major should cover. Next, the topics were assigned to one or more of the four required courses to insure no gaps in topic coverage. Finally, two levels of topic coverage were defined -- Familiar and Proficient. If the goal is to familiarize students with a particular topic, the coverage will be general and introductory. Topic coverage for proficiency will require more class time and will be more detailed and in-depth. For example, two of the topic areas included in the body of knowledge are:

1. Divisional or Project Costs of Capital and
2. Capital Asset Pricing Model.

Both topics are covered in our Intermediate Managerial Finance course. The goal is for stu-

dents majoring in finance to be familiar with the concept of Divisional or Project Costs of Capital, but proficiency is desired with the Capital Asset Pricing Model.

During 2009-10, the course descriptions and syllabi for the four required courses were revised to reflect the changes in the topic coverage. The university catalog will reflect the new course descriptions effective fall 2010.

### COMPLETING THE PROCESS

The average composite score for all students who have taken the exam since spring 2007 is 47 percent. Effective fall 2010, the required finance courses will reflect the revised course descriptions and topic coverage. It is hoped future exam results will improve. Additionally, the finance faculty will review the exit exam questions during the 2010-2011 academic year to determine if revisions are needed. First, we will insure that each exam question addresses a topic actually covered in at least one required course. Second, we will insure that the majority of exit exam questions address topics the finance faculty members have indicated the student should be proficient in. Additionally, the wording of questions will be changed for clarity as needed. Finally, questions will be correctly tagged to required courses, and the questions will be distributed equally across the four required courses.

At the beginning of this process in 2006, there was skepticism regarding 'assessment' and 'continuous improvement'. Some felt these were the hoops one must jump through to achieve AACSB accreditation. The members of UTM's finance faculty have not changed since 2006, but our attitudes regarding 'assessment' and 'continuous improvement' have. At this point in the process, all finance faculty members agree the complete review and program overhaul has been an eye-opening and beneficial undertaking, both for our students and for us.

### CONCLUSION

The finance major at UTM is a more cohesive program today as a result of the assessment efforts which began in 2006. Our assessment process consisted of the following steps:

1. developed exit exam,
2. administered exit exam over several semesters,
3. analyzed exam results,
4. defined the 'body of knowledge' or topic coverage for the major,
5. matched topics to required finance courses, and
6. revised finance course descriptions and syllabi.

During the 2010-11 academic year, the finance exit exam questions will be revised to complete this assessment cycle.

The good news is, we did the right things. The bad news is, the job is not finished. As the term 'continuous improvement' implies, the job will never be finished. In order to offer a finance program that is current, there will be an ongoing need to evaluate the body of knowledge to determine if and when changes in topic coverage are merited. In order to do so, routine input from graduates, employers of graduates, and graduate programs regarding appropriate topic coverage in the finance major will be needed. When changes are made in the body of knowledge, course descriptions and syllabi will require revision to close the loop.

Exam results will be analyzed periodically. In addition to a review of overall exam results, specific question results will also be reviewed to identify topics students continue to struggle with. Instructors of the courses that cover these topics may use this information to revise methods of presenting the material.

'Continuous improvement' does not apply to just the finance program. It should also apply to the finance program assessment process. The finance faculty members must also seek to improve the methods for assessing the program. For example, collecting information from graduates, employers of graduates, and graduate programs regarding topic coverage had been done on an informal, ad hoc basis. Although this has yielded good information, a more formalized process should be developed and implemented to improve the assessment process.

An area in the finance program assessment process that has not yet been finalized is the exit exam benchmark. What result indicates program success? Other disciplines have identified an average exit exam score as a benchmark. For example, a faculty discipline might choose 70 percent as the benchmark score. Cohort average scores higher than the benchmark score of 70 percent represent success. The finance faculty has discussed establishing two benchmarks. First, an exit exam score benchmark would be determined. Additionally, a benchmark percentage of the student cohort meeting or exceeding the exit exam score benchmark would serve as a second metric of program success.

Possible future program changes we are considering as a consequence of our program assessment and strategic plan is to refine the choice of accounting courses required in our major. Currently, finance majors must take 3 hours beyond accounting principles and choose a course from a short list of courses (intermediate financial accounting, managerial accounting, and personal taxation). We are considering requiring our majors to take intermediate accounting because of the feedback from our business advisors and past performance in accounting segment of the exit exam. The motivation has been to strengthen the accounting background of our majors to make them more competitive in the job market. We are also considering requiring an upper division contracts course (taught under business law) to give our majors exposure to contracts, agency law, and basic legal concepts that the accounting majors now receive. As part of the current strategic planning process being undertaken by the accounting faculty, we will consider requiring finance majors to take an introductory course in accounting information systems that will emphasize database programs (Access) and spreadsheet applications (Excel). We are also in the process of evaluating the addition of an Excel applications course to our program and some form of a capstone course for our majors. These actions will move our finance program into closer alignment with the accounting program and strengthen the accounting and spreadsheet preparation that employers have come to require. As a results of the work the finance faculty members have done, we have united the program assessment process and the longer-term strategic planning process our Col-

lege has undertaken as part of AACSB accreditation.

Finally, it is also worth noting that the Tennessee Higher Education Commission has recently announced plans to overhaul its funding formula. Currently, funding for institutions of higher education in Tennessee is input based or enrollment driven. Future funding would be determined through an output-based model, and appropriate 'output' measures must be identified. Graduation rates and retentions rates have been suggested, but academic program exit exam results might also be included as appropriate outcome measures.

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APPENDIX  
FINANCE MAJOR EXIT EXAM  
FALL 2010

1.	Three years ago, Martin Manufacturing issued at face value a 10-year, \$1,000 par value bond with a 6 percent annual coupon. If the yield on the bond has increased by two percentage points since the bond was issued, the total value of the bond today is closest to:	
	A.	\$894.37
	B.	\$895.87
	C.	\$864.10
	D.	\$865.79
2.	All else equal, an investor most likely will lower the interest rate risk of her portfolio if she selects bonds with maturities and coupon rates, respectively, that are:	
		Maturity                      Coupon rate
	A.	Shorter                      Lower
	B.	Shorter                      Higher
	C.	Longer                      Lower
	D.	Longer                      Higher
3.	A corporate bond that is not backed by a specific pledge of property is most likely a:	
	A.	Debenture
	B.	Junior bond
	C.	Senior bond
	D.	Bearer bond
4.	A bond’s interest rate risk premium is least likely to include a(n):	
	A.	Inflation premium
	B.	Maturity premium
	C.	Liquidity premium
	D.	Default risk premium
5.	A company has just paid an annual dividend of \$2.00 per share. The company’s required return on equity is 11 percent and earnings are expected to grow at a three percent rate indefinitely. According to the dividend growth model, the value of the company’s shares is closest to:	
	A.	\$18.18
	B.	\$18.73
	C.	\$25.00
	D.	\$25.75
6.	The required return on a common stock is most likely the sum of the dividend yield and the :	
	A.	Return on assets.
	B.	Yield to maturity.
	C.	Capital gains yield.
	D.	Bond equivalent yield.
7.	The common stock feature most likely to promote minority participation in corporate governance is:	
	A.	Proxy voting.
	B.	Preemptive rights.
	C.	Cumulative voting.
	D.	Limited shareholder liability.

8.	An analyst gathered the following information about a proposed five-year capital project:	
	Initial investment = \$160,000	
	Net cash flow, year 1 = \$20,000	
	Net cash flow, year 2 = \$80,000	
	Net cash flow, years 3-4 = \$60,000	
	Net cash flow, year 5 = \$40,000	
	Discount rate = 12%	
	The profitability index and internal rate of return (IRR) for this project are closest to:	
	Profitability Index	IRR
A.	0.94	9.09%
B.	0.94	17.83%
C.	1.16	9.09%
D.	1.16	17.83%
9.	An analyst gathered the following information about McDowell Corp.	
	McDowell Corp.--- Income Statement	
	Sales	\$300,000
	Variable costs	180,000
	Fixed costs	40,000
	Depreciation	60,000
	EBIT	\$20,000
	Taxes (40%)	8,000
	Net Income	\$12,000
	McDowell's accounting break-even and degree of operating leverage (DOL), respectively, are closest to:	
	Accounting break-even	DOL
A.	\$100,000	3
B.	\$100,000	6
C.	\$250,000	3
D.	\$250,000	6
10.	A financial manager that examines the impact on a capital budgeting project's net present value by varying each of several variables in the analysis while holding all others constant is most likely employing:	
	A.	Scenario analysis.
	B.	Breakeven analysis.
	C.	Sensitivity analysis.
	D.	Simulation analysis.
11.	Increasing the number of stocks in an equity portfolio will most likely reduce the portfolio's:	
	A.	Diversifiable risk only.
	B.	Nondiversifiable risk only.
	C.	Both diversifiable and nondiversifiable risk.
	D.	Neither diversifiable nor nondiversifiable risk.

12.	An analyst gathered the following information about an equity portfolio:				
	security	Percentage of portfolio	Expected return	Beta	
	Stock A	20%	14%	1.0	
	Stock B	40%	10%	0.6	
	Stock C	10%	26%	2.2	
	Stock D	30%	19%	1.5	
	The equity portfolio's expected return and beta, respectively, are closest to:				
		Expected Return	Beta		
	A.	15.1%	1.11		
	B.	15.1%	1.325		
	C.	17.25%	1.11		
	D.	17.25%	1.325		
13.	Regarding the security market line ( SML), the type of risk that is being rewarded and the risk measure being used, respectively, are more likely:				
		Type of risk	Risk measure		
	A.	Systematic	Beta		
	B.	Systematic	Standard deviation		
	C.	Asset- specific	Beta		
	D.	Asset- specific	Standard deviation		
14.	An option that gives the owner the right to buy an asset only on the expiration date is an:				
	A.	American call.			
	B.	American put.			
	C.	European call.			
	D.	European put.			
15.	The price of a call option is negatively related to the:				
	A.	Risk-free rate.			
	B.	Time to expiration.			
	C.	Exercise price of option.			
	D.	Price of the underlying asset.			
16.	When corporate taxes and bankruptcy costs are considered, adding debt to the capital structure of an all-equity firm most likely will cause the firm's weighted average cost of capital to:				
	A.	Remain unchanged.			
	B.	Decrease indefinitely.			
	C.	Initially increase, but eventually decrease.			
	D.	Initially decrease, but eventually increase.			
17.	If the U.S. economy weakens, what action will the Federal Reserve most likely take with the respect to the money supply and interest rates?				
		Money supply	Interest rates		
	A.	Increase	Increase		
	B.	Increase	Decrease		
	C.	Decrease	Increase		
	D.	Decrease	Decrease		

18.	The Fisher effect is best described as:	
	A.	Expected inflation rate equals the nominal interest rate plus the real rate of interest.
	B.	Nominal interest rate equals the expected inflation rate plus the real rate of interest.
	C.	Nominal interest rate equals the expected inflation rate minus the real rate of interest.
	D.	Real rate of interest equals the expected inflation rate minus the nominal interest rate.
19.	Investors' preference for very marketable short-term securities best describes which theory of the term structure of the interest rates?	
	A.	Pure expectation theory.
	B.	Liquidity premium theory.
	C.	Integrated markets theory.
	D.	Segmented markets theory.
20.	Assume that today the annualized rates for one-and two- year securities are 8 percent and 12 percent, respectively. If investors are indifferent among security maturities, the expected one-year forward rate one year from today is closest to:	
	A.	3.70%
	B.	4.00%
	C.	16.15%
	D.	20.96%
21.	To increase the money supply, what would be most appropriate action for the Federal Reserve to take with respect to the reserve requirement and the discount rate?	
		Reserve re- quirementDiscount rate
	A.	IncreaseIncrease
	B.	IncreaseDecrease
	C.	DecreaseIncrease
	D.	DecreaseDecrease
22.	The Phillips curve suggests a tradeoff between:	
	A.	GDP and inflation.
	B.	GDP and interest rates.
	C.	Inflation and interest rates.
	D.	Unemployment and inflation.
23.	The interest rate on overnight loans between depository institutions is the:	
	A.	Repo rate.
	B.	Prime rate.
	C.	Discount rate.
	D.	Federal funds rate.
24.	When a financial institution issues mortgage pass-through securities, the most likely effect on the institution's interest rate risk and service fee revenue, respectively is:	
		Interest rate riskService fee revenue
	A.	IncreaseIncrease
	B.	IncreaseDecrease
	C.	DecreaseIncrease
	D.	DecreaseDecrease

25.	An individual purchased a \$250,000 home with a 10% down payment and financed the balance using a 30 year amortizing mortgage with monthly payments at a fixed annual rate of 6.25%. The monthly payment and the principal balance remaining after the 24th payment, respectively, are closest to:	
		Monthly paymentBalance after 24 payments
	A.	1,385\$219,557
	B.	1,385\$243,953
	C.	1,539\$219,557
	D.	1,539\$243,953
26.	Federally insured mortgages guarantee:	
	A.	Loan repayment to the lending financial institution.
	B.	The maximum payment on an adjustable rate mortgage.
	C.	A selling price for the mortgage in the secondary market.
	D.	That the interest rate will not increase during the life of the loan.
28.	Which of the following will offer the most appropriate hedge for a bank that experiences a mis-match in the maturities of its assets and liabilities?	
	A.	Stock index futures.
	B.	Commodity futures.
	C.	Interest rate futures.
	D.	Foreign exchange futures.
28.	An analyst gathered the following information about Ozark Corp. and the market:	
		Current stock price= \$44
		Recent annual dividend payment= \$2
		Growth rate in earnings= 5%
		Risk free interest rate= 4%
	Ozark Corp.'s dividend yield is closest to:	
	A.	4.55%
	B.	5.77%
	C.	9.55%
	D.	9.77%
29.	The most commonly used proxy for the risk-free rate in the Capital Asset Pricing Model is the :	
	A.	Prime rate.
	B.	Discount rate.
	C.	Fed funds rate.
	D.	Treasury bond rate.
30.	An investor purchases a 90-day, \$10,000 Treasury Bill for \$9,880. The discount yield and the investment (bond equivalent) yield, respectively, are closest to:	
		Discount yieldInvestment yield
	A.	4.80%4.86%
	B.	4.80%4.93%
	C.	4.87%4.86%
	D.	4.87%4.93%
31.	Which of the following is least likely classified as a money market security?	
	A.	Corporate bond.
	B.	Commercial paper
	C.	Bankers acceptance
	D.	Repurchase agreement

32.	A revenue bond is most likely an example of:	
	A.	Corporate security.
	B.	Municipal security.
	C.	Federal government security.
	D.	Government agency security.
33.	Which type of Investment Company is most likely to continue to sell shares to the public following the initial sale that starts the fund?	
	A.	Mutual fund.
	B.	Unit investment trust.
	C.	Real estate investment trust.
	D.	Closed-end investment company
34.	A type of investment fund that invests in a diversified portfolio of financial assets and whose shares are traded on the stock market is best described as a(n):	
	A.	Index fund.
	B.	Mutual fund.
	C.	Exchange-traded fund.
	D.	Growth and income fund.
35.	An order to buy or sell at the best price at the time the order reaches the trading floor is most likely a(n):	
	A.	Limit order.
	B.	Market order.
	C.	Stop loss order.
	D.	Good-till-cancelled (GTC) order.
36.	Assume that the initial margin requirement is 60% and that an investor buys 100 shares of Wal-Mart at \$45 by borrowing the maximum allowed from his broker. If the maintenance margin requirement is 30%, then the closing price below which the investor will receive a margin call is closest to:	
	A.	\$13.50
	B.	\$25.70
	C.	\$30.00
	D.	\$38.50
37.	All else equal, companies with higher price earnings (P/E) ratios most likely have required returns and/or growth rates, respectively, they are	
		Required returns      Growth rates
	A.	Higher      Higher
	B.	Higher      Lower
	C.	Lower      Higher
	D.	Lower      Lower
38.	All else equals, a company with a high level of financial risk is most likely to have a high:	
	A.	Debt to equity ratio.
	B.	Operating cash flow.
	C.	Times interest earned ratio.
	D.	Level of fixed production cost.

39.	Assuming bond yields are unchanged, as a discount bond approaches maturity, the bond's price and current yield are most likely to:				
		Price	Current yield		
	A.	Increase	Increase		
	B.	Increase	Decrease		
	C.	Decrease	Increase		
	D.	Decrease	Decrease		
40.	The form of the efficient markets hypothesis (EMH) that posits that market prices reflect all publicly available information is most likely the:				
	A.	Weak form.			
	B.	Strong form.			
	C.	Semiweak form.			
	D.	Semistrong form.			
41.	The duration of a bond is positively related to the:				
	A.	Coupon rate.			
	B.	Time to maturity.			
	C.	Yield to maturity.			
	D.	Frequency of coupon payments.			
42.	An analyst gathered the following expected return data for Waynesboro Inc.				
			Bear Market	Normal Market	Bull Market
		Probability	0.2	0.5	0.3
		Expected return	-10%	8%	18%
	The expected return and standard deviation of return, respectively, for Waynesboro Inc. are closest to:				
		Expected return	Standard deviation of returns		
	A.	7.4%	9.7%		
	B.	7.4%	20.4%		
	C.	11.4%	9.7%		
	D.	11.4%	20.4%		
43.	An analyst gathered the following information about the U.S. and Country Z:				
		Real risk-free return in both countries is 4%			
		Expected annual inflation in the U.S. is 3%			
		Expected annual inflation in Country Z is 7%			
		Country Z's currency is the peso (P) and the current exchange is rare is P2.30/U.S.\$			
	How will the U.S. dollar's value most likely change versus the peso, and what will the equilibrium exchange rate one year from now be closest to:				
		U.S. dollar will:	Exchange rate		
	A.	Appreciate	P2.21/U.S.\$		
	B.	Appreciate	P2.39/U.S.\$		
	C.	Depreciate	P2.21/U.S.\$		
	D.	Depreciate	P2.39/U.S.\$		



44.	An analyst gathered the following direct exchange rate quotations:		
	China—\$0.1290/Yuan   UK—\$1.9502/pound   Switzerland—\$0.8101/Swiss franc		
	The cross rates of Swiss francs per British pound and Chinese Yuan per Swiss franc, respectively, are closest to:		
	Francs/pound	Yuan/franc	
A.	1.5799	0.1592	
B.	1.5799	6.2798	
C.	2.4074	0.1592	
D.	2.4074	6.2798	
45.	Which section of a balance of payments report most likely includes purchases and sales of fixed assets?		
A.	Capital account.		
B.	Current account.		
C.	Financial account.		
D.	Reserves and related items.		
46.	The “law of one price” best describes which of the following?		
A.	Interest rate parity		
B.	Exchange rate parity		
C.	Purchasing power parity		
D.	Relative purchasing power parity		
47.	Which of the following is least likely a reason for a company to invest abroad? The foreign country offers a:		
A.	Source of resources.		
B.	Potential market for the product.		
C.	Lower cost per unit of production.		
D.	Less certain political environment.		
48.	The method for translating financial statements that uses historical exchange rates for equity accounts and spot exchange rates for all other accounts is the:		
A.	Temporal method.		
B.	Current rate method.		
C.	Historical rate method.		
D.	Monetary balance method.		
49.	An international bond underwritten by an international bank syndicate and sold to investors in countries other than the one in whose money unit it is denominated is less likely a:		
A.	Eurobond.		
B.	Foreign bond.		
C.	Yankee bond.		
D.	Samurai bond.		
50.	U.S.-based Mega Corp needs to borrow \$100 million (a one-year loan) to support the start up of a new project. The company was quoted and interest rate of 14 percent (before taxes) by a U.S. bank. A bank in Germany quoted a rate of 8 percent (before taxes) on a loan denominated in Euros. The spot exchange rate is \$1.3139/euro and the one-year forward rate is \$1.3541/euro. Mega Corp’s marginal tax rate is 40 percent. The after-tax cost of financing for the least expensive alternative is closest to:		
A.	4.95%		
B.	6.78%		
C.	8.01%		
D.	8.40%		

## SHOULD PERSONALITY PLAY A ROLE IN ACADEMIC ADMISSIONS?

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### ABSTRACT

*Increasing numbers of applicants are causing university administrators to consider other evaluation tools than those traditionally used for admission. This study uses hierarchical regression to evaluate personality dimension contributions on academic performance in a business school. Results indicate strong support for conscientiousness and openness to experience impacting academic performance. Additionally, personality is shown to have incremental validity over traditional measures in predicting academic performance. Finally, personality dimension differences between African-Americans and Caucasians are examined to verify personality dimensions are unbiased according to race. Only extroversion was found to be different. Implications for personality assessment in academic admissions are discussed.*

### INTRODUCTION

Admission requirements for universities should be designed to accept those students who have a reasonable chance for successful completion of a degree. However, the current methods used for determining admittance have come into question. The traditional standardized test requirements (e.g., ACT, SAT) have been criticized as fairly poor predictors of academic performance (Hoffman, 2001) and the tests themselves have been criticized as disadvantaging minorities, especially Hispanics and African-Americans (Carcieri, 2001). Statistics show steadily increasing enrollments (Rooney, 2002) with the proportion of high school students entering college immediately after graduation gradually climbing from 31.7 percent to 41.2 percent over the last 25 years (Stern & Briggs, 2001). With such a high demand for entrance into universities and limited resources/places for students, several questions arise, "How should administrators decide which

students will be accepted or denied?" and more importantly, "Are these methods the most predictive of academic performance?"

Current methods of admission primarily look at high school grade point averages and ACT/SAT scores as admission criteria. However, other individual factors may be indicative of academic performance. Personality is one such factor. While the effect of personality on academic performance has been examined in the past (Astin, 1964; Ryback, 1968; Stroup, 1970), the limited nature of samples used suggests the need for further examination. The purpose of this study, therefore, is to investigate one potential tool, personality, to determine whether it has incremental validity over and above the traditional selection measures for predicting the academic performance of business students.

## BACKGROUND

At the undergraduate level, admission practices vary greatly. Many community colleges have open-door policies, which only require a high school diploma or a GED for enrollment (Mumpower, Nath, & Stewart, 2002). However, most four-year institutions have historically relied on the Scholastic Aptitude Test (SAT) or the American College Testing Program (ACT), high school GPA's, or a combination of the two to determine admittance (King, 1998; Wolfe & Johnson, 1995). The traditional methods of admitting students have been criticized for inconsistent validity (Stern & Briggs, 2001). The questionable ability of the SAT (Willingham, Lewis, Morgan, & Ramist, 1990) to predict student success has led the University of California to remove, beginning in 2012, their requirement for all applicants to take two SAT subject tests (Chea, 2009). Stern and Briggs (2001) also point out that high school GPA is not a good predictor of undergraduate success partly because of the wide differences in grading standards between schools.

With growing awareness by the public concerning the relatively low validity of past admission requirements (Abedi, 1991), universities are turning to other sources to evaluate prospective students (e.g., teacher ratings, essays, and interviews) (Stern & Briggs, 2001). The use of these other sources provides administrators additional information to consider, but each source introduces additional subjectivity to the admission process and can be difficult to interpret. For example, while employee interviews have been used to predict job performance, the exact constructs considered in the interview itself are often unclear (Huffcutt, Conway, Roth, & Stone, 2001). Given these issues/problems, better, objective methods of predicting student performance seem necessary. Personality tests may be one that helps improve prediction (Jones & Borges, 2000; Wolfe & Johnson, 1995).

## PERSONALITY

Personality, according to Hogan, "refers both to a person's social reputation and to his or her inner nature: The first is public and verifiable; the second is private and must be inferred (1990, 875)." An individual's personality is based on

varying traits and researchers have categorized these traits into five dimensions (Digman, 1990). The Big Five or the five-factor model (FFM) has dominated the literature for the past few years and includes the following five dimensions; conscientiousness, neuroticism, extroversion, openness to experience, and agreeableness. Conscientiousness entails being dependable, achievement oriented, and organized. Neuroticism is reflected by an individual's emotional behavior (moody versus stable, doubtful versus confident, etc.). Extroversion portrays the level of social interaction and assertiveness one has with others. Openness to experience is the level to which one is imaginative, willing to learn, and inquisitive. Agreeableness shows itself through consideration for others, gentility, and compliance (Hogan, 1990; Boudreau, Boswell, Judge, & Bretz, 2001).

Using personality as a selection/screening tool regained popularity through the 1990's in business organizations (Barrick & Mount, 1991; Hurtz & Donovan, 2000). Once viewed as an inadequate method of selection (Guion & Gottier, 1965; Schmitt, Gooding, Noe, & Kirsch, 1984), personality measures have since developed into a viable tool for selection purposes (Hogan & Ones, 1997; Mount & Barrick, 1995; Tett, Jackson, & Rothstein, 1991). Most notably, certain aspects of personality have been found to significantly predict job performance, particularly conscientiousness (Barrick & Zimmerman, 2009; Behling, 1998; Mount & Barrick, 1995).

While personality may be a valid predictor of job performance in the workplace, the question remains, "Does personality contribute to academic performance?" Research studies in the 1960's and 1970's examined the link between personality and academic performance primarily using the California Psychological Inventory (CPI) and the Minnesota Multiphasic Personality Inventory (MMPI) and demonstrated some predictive ability (Astin, 1964; Maudal, Butcher, & Mauger, 1974; Ryback, 1968; Stroup, 1970). More recent studies have utilized the Millon Clinical Multiaxial Inventory (MCMI-II), Jackson Personality Measure (JPI), and various five-factor models involving personality as a predictor of academic performance in undergraduate programs (Goff & Ackerman, 1992; King, 1998;

Wolfe & Johnson, 1995) with samples primarily consisting of psychology students.

While these prior studies have shown promising results, the limited nature of the samples prompt questions about generalizability to other academic disciplines. Based on discipline requirements, certain personality dimensions may prove to be more or less related to academic performance (Goff & Ackerman, 1992). This study extends research in a number of ways: (1) using business students to expand beyond current samples, (2) looking at discipline-related links between personality and academic performance, and (3) looking at prediction of performance while considering potential adverse impact for minorities.

## HYPOTHESES

As suggested previously, certain dimensions of personality could be more applicable to specific disciplines of study. This point can be illustrated by looking at the job performance literature in which extroversion was significantly related to job performance in only those jobs involving sales and the management of people (Hurtz & Donovan, 2000; Mount & Barrick, 1995). By identifying which dimensions contribute to academic success in specific disciplines of study, researchers can potentially provide another admission tool for administrators to select applicants. Primarily, two specific disciplines have been studied with regard to academic success, medical and psychology. Within those two disciplines, personality, specifically, conscientiousness has been found to significantly impact academic performance (Ferguson, James, & Madeley, 2002; Ferguson, Sanders, O'Hehir, & James, 2000; Jones & Borges, 2000; Hoschl & Kozeny, 1997). Thus, as one extension, this study will investigate the effects of the five factors of personality on academic performance within a business school environment.

Conscientiousness entails being dependable, achievement oriented, and organized (Colquitt & Simmering, 1998). Conscientiousness has been found to significantly contribute to job performance (Barrick & Zimmerman, 2009; Behling, 1998; Hurtz & Donovan, 2000; Mount & Barrick, 1995; Salgado, 1997). By extension, a person high on conscientiousness might generally do well in school performance. For example,

conscientiousness will drive a person to ensure assignments are completed on time and in the format instructed (Goff & Ackerman, 1992). A conscientious person will arrive on time and be prepared for class. Further, conscientiousness individuals are motivated to learn (Colquitt & Simmering, 1998). Finally, a conscientious person will allocate the proper amount of time for each class (i.e., for assignments, papers, studying for exams) because they are self-disciplined (McCrae & Costa, 1987).

H1: High levels of conscientiousness in business school students will be positively related to academic performance.

Neuroticism reflects an individual's emotional behavior. A person high on neuroticism generally has difficulty dealing with the demands of everyday life. Individuals with high neuroticism are often plagued with feelings of stress, anxiety, and depression (Judge & Ilies, 2002). As such, a person high on neuroticism might have trouble dealing with the day-to-day activities as a student. The stress inherent in the proper completion of regular homework assignments, written paper assignments, and exams could have a negative impact on an individual's ability to perform academically. Individuals high on neuroticism will also experience doubts about their abilities (Maudal, Butcher, & Mauger, 1974). The wide variety of courses (accounting, marketing, management, finance) required in the typical business program compounds the level of doubt an individual can experience. While this doubt could be allayed to a certain degree by discussing assignments and getting constant feedback from instructors, this does not happen automatically. Moreover, a study by King (1998) indicated that individuals with antisocial and passive-aggressive tendencies, components related to neuroticism, had low levels of academic performance. Therefore, students who score high on neuroticism may have a difficult time succeeding in a business school.

H2: High levels of neuroticism in business school students will be negatively related to academic performance.

Extroversion, the level of social interaction and assertiveness one has with others (Barrick & Mount, 1996), should be an important indica-

tor of academic performance in business studies. Extroversion has been found to significantly contribute to job performance in sales and management positions (Mount & Barrick, 1995), positions which emphasize the skills taught in business schools. Moreover, because a major emphasis of business studies revolves around the concept of teamwork and networking, an individual high on extroversion could prove beneficial in performing in business schools (Ferguson et al., 2000). Additionally, a student with a high level of extroversion should be more inclined to actively participate in classroom discussions (Rothstein, Paunonen, Rush, & King, 1994), and to request help when needed from not only instructors, but classmates as well. This could promote active learning and better performance.

H3: High levels of extroversion in business school students will be positively related to academic performance.

Openness to experience is the level to which one is imaginative, willing to learn, and inquisitive about new ideas (Barrick & Mount, 1996). A person high on openness to experience should be able to effectively navigate the different business courses they are required to take. As students face many different types of business courses (e.g., human resources, economics, operations, accounting), the willingness to experience and be inquisitive concerning the curriculum presented to them becomes important (King, 1998). Different courses require different kinds of thinking and an individual capable of accepting those differences will tend to participate more (Rothstein et al., 1994). Such increased participation will translate into higher grades in many business courses. Finally, as all instructors do not present material in the same manner, openness on the part of the individual to accept different presentation styles will lead to more efficient learning.

However, business school classes require (as many do) a structured routine and a significant amount of “busy work” (e.g., regular journal entries in accounting, regular quizzes in other classes, paying attention during mundane discussions). In other words, many of the activities required for class performance do not involve new learning or imagination. Thus, it is possible that openness to experience could inhibit performance in some business school classes that require routine and

structured learning. To allow for this possibility, we propose a two-tailed hypothesis.

H4: High levels of openness to experience in business school students will be significantly related to academic performance.

Agreeableness shows itself through consideration for others, gentility, and compliance (Barrick & Mount, 1996). A person high on agreeableness should have little trouble making friends and acquaintances. Thus, individuals high on agreeableness should be able to build a rapport with instructors and classmates. The ability to get along with others will also reduce some of the conflict, which occurs in many of the group projects that the business curriculum requires. However, agreeableness may also prove to be disadvantageous to individuals. An individual may inadvertently overload him/herself with portions of group work in an attempt to be considerate or compliant to other group members (Jones & Borges, 2000) even if the individual is not capable of completing the workload. This could lead to a “domino effect” on the individual’s performance in other classes. Thus, the effect of agreeableness on business school performance is ambiguous; therefore, we propose a two-tailed hypothesis.

H5: High levels of agreeableness in business school students will be significantly related to academic performance.

Incremental validity is an important consideration in the context of job or academic selection because the new variables should contribute beyond what is already explained by prior variables (Nunnally & Bernstein, 1994). Personality has been found to provide incremental validity with relation to medical training performance using the Tridimensional Personality Questionnaire (Cloninger, 1987), a five-factor model (Goldberg, 1992), and the JPI (Jackson, 1976), the Multidimensional Personality Questionnaire (MPQ), and a five-factor model (John, 1990) respectively of first year medical students (Ferguson et al., 2000), third year medical students (Hoschl & Kozeny, 1997) and undergraduate psychology students (Wolfe & Johnson, 1995). As personality has contributed incrementally to performance prediction in medical and psychology students, it

is reasonable to expect similar results for business students.

H6: Personality will have incremental validity above and beyond that explained by HSGPA and ACT scores on academic performance in business schools.

METHOD

Sample

The participants were 353 undergraduate business students at a university in the southern United States. Of the 353 students, 50 were removed from the analysis due to incomplete data leaving 303 subjects for analysis. Sixty-three percent of the sample was male (191 males, 112 females). Eighty-three percent of the sample consisted of white/Caucasians and seventeen percent were African American. Students were informed about the study by their instructors and told that participation was voluntary. Students were given extra credit for their participation in the study and the data was collected during a regularly scheduled class period (approximately one hour).

Predictors

Five dimensions of personality were measured using the NEO-FFI (Costa and McCrae, 1989) Short Form consisting of 60 questions using a 7-point Likert-type scale ranging from “Not

True” to “Very True.” Internal reliabilities were: Neuroticism ( $\alpha = .81$ ), Extroversion ( $\alpha = .67$ ), Openness ( $\alpha = .69$ ), Agreeableness ( $\alpha = .70$ ), Conscientiousness ( $\alpha = .71$ ). Other independent variables included were self-reported high school grade point average (HSGPA) and ACT scores obtained from school records.

Criterion

Academic performance was measured by cumulative undergraduate grade point average (UGPA) obtained from school records.

Control Variables

Age, gender, and race were included in the analysis to serve as control variables.

RESULTS

Descriptive statistics and correlations for the variables are shown in Table 1. Correlations support hypotheses 1, 2, and 3. Hypothesis 4 was not supported since the correlation between openness to experience and UGPA was non-significant. Hypothesis 5 was supported as agreeableness was positively correlated with UGPA.

Hierarchical ordinary least squares (OLS) regression was conducted to further test the hypotheses and examine incremental validity. In the first step, age, gender, and race were entered to serve as a baseline model. In the second step, HSGPA

TABLE 1												
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF ALL VARIABLES												
Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1. UGPA	2.82	0.64										
2. Age	20.6	2.74	-.08*									
3. Gender	0.37	0.48	.14**	-.19**								
4. Race	1.67	0.74	.30**	-.09*	-.16**							
5. HSGPA	3.21	0.55	.52**	-.11*	.19**	.20**						
6. ACT	21.29	4.05	.51**	-.20**	-.01	.35**	.52**					
7. Conscientiousness	-0.02	0.98	.27**	.08*	.13**	-.04	.12**	-.03				
8. Neuroticism	0.03	1.01	-.09*	-.15**	.19**	-.03	-.02	-.06	-.20**			
9. Extroversion	0.05	0.98	.08*	-.02	.08*	.25**	.04	.05	.23**	-.12**		
10. Openness	-0.05	0.99	.04	.02	-.04	.09*	.16**	.32**	.10*	-.05	.14**	
11. Agreeableness	-0.03	1.03	.10*	-.08*	.32**	.08*	.10*	.03	.06	-.05	.13**	.00
**p < .01; * p < .05; N = 303												

and ACT scores were entered. As with previous research, ACT scores and HSGPA were significant predictors of UGPA and the regression model explained 37% of the variance in UGPA (see Table 2). In the third step, the five dimensions of personality were entered (neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness). Hypothesis 1 was strongly supported with conscientiousness correlating significantly with UGPA ( $r = .27, p < .01$ ) and contributing significantly to the regression model ( $\beta = .26, p < .01$ ). Hypothesis 2, 3, and 5 were not supported by this analysis. Hypothesis 4 was supported but in the opposite direction from the correlation analysis ( $\beta = -.16, p < .01$ ).

Hypothesis 6 was supported. The regression model after the second step explained 44% of the variance in UGPA (see Table 2), indicating a significant contribution of the personality dimensions to academic performance, with conscientiousness and openness to experience significant at the  $p < .05$  level. The change in R-squared with the inclusion of personality variables in the model was significant (change in R-squared = .08,  $p < .01$ ). This indicates that personality, and the two significant dimensions in particular, have incremental validity beyond commonly used predictors (HSGA and ACT scores).

Additional Analysis

Additional analyses were performed to check whether or not differences existed between African-Americans and whites/Caucasians with regard to ACT scores, high school GPA, and personality dimensions. Using an analysis of variance (ANOVA), significant mean differences were found between African-Americans and Whites/Caucasians on ACT scores and high school GPAs with African-Americans reporting significantly lower scores for both, consistent with past research (Bowen & Bok, 1998). Only one component of personality was found to be significantly different, extroversion (see Table 3). African-Americans tended to be less extroverted than Whites/Caucasians. Thus, personality dimensions, in general, do not seem to differentiate between African-Americans and Whites/Caucasians.

DISCUSSION

The purpose of this study was to investigate the effects of the five dimensions of personality on academic performance in a business school environment. Conscientiousness was found to significantly contribute to academic performance. This is not surprising. Conscientiousness has often

TABLE 2 HIERARCHICAL REGRESSION ANALYSIS PREDICTING UGPA						
Variables	Step 1 Control Variables		Step 2 Traditional Variables		Step 3 Personality Variables	
	Beta (Std.)	t	Beta (Std.)	t	Beta (Std.)	t
Age	-.02	-.34	.05	1.03	.03	.72
Gender	.19**	3.33	.12*	2.37	.09	1.79
Race	.33**	5.94	.15**	3.02	.16**	3.27
HSGPA			.32**	5.79	.28**	5.29
ACT			.31**	5.43	.38**	6.74
Conscientiousness					.26**	5.49
Neuroticism					-.03	-.73
Extroversion					-.04	-.91
Openness					-.16**	-3.35
Agreeableness					.01	.15
R-Squared (adjusted)	.117**		.371**		.441**	
Change in R-Squared	N/A		.255**		.078**	
** p < .01; * p < .05.						

TABLE 3 ANALYSIS OF VARIANCE BETWEEN AFRICAN-AMERICANS AND WHITES/CAUCASIANS			
Variables	Mean		
	African-American	White/ Caucasian	F-Value
ACT	18.23	21.99	41.66**
HSGPA	2.96	3.27	14.21**
Conscientiousness	0.07	-0.04	.51
Neuroticism	0.10	.02	.29
Extroversion	-.51	.16	20.59**
Openness	-.24	-.01	2.24
Agreeableness	-.21	.01	1.95
** p < .01; * p < .05.			

emerged as a predictor of job performance and academic performance in earlier studies (Barrick & Mount, 1991; Goff & Ackerman, 1992; Rothstein, et al., 1994). Openness to experience was found to significantly contribute to academic performance. However, openness to experience was negatively related to academic performance rather than positively related as hypothesized. This may be due to the exposure many students have to the newfound freedom involved with university life. Instead of concentrating primarily on their studies, students juggle school along with a myriad of other new experiences (e.g., new hobbies, clubs, social events, campus government, drinking, drugs). This could explain how openness may be related to poor academic performance, controlling for other dimensions. However, when other dimensions and demographics were not controlled (i.e., correlation), openness to experience had a small, positive correlation with UGPA. Thus, the effect of openness on academic performance remains unclear.

Neuroticism, extroversion and agreeableness did not contribute significantly to academic performance in business schools in the regression, although correlation results were supportive. This may be due to factors outside the classroom. People high on extroversion may spend too much time socializing and staying out late with friends instead of concentrating on their studies offsetting potential benefits. People high on agreeableness may have been taken advantage of by classmates. They may have accepted responsibility for too much group work in order to help group members or loaned out study materials to other students, thus reducing their ability to study.

The results provide strong support for the predictive and incremental validity of conscientiousness on academic performance over that provided in traditional models. Interestingly, the magnitude of the regression coefficients of conscientiousness, HSGPA, and ACT are somewhat similar. Taken together, these findings suggest that conscientiousness may have significant validity and usefulness.

Findings also suggest that using personality may increase the ability to predict academic success in business schools over and above HSGPA and standardized tests by 7.8 percent. Moreover, adding components like conscientiousness may reduce the adverse impact of selection systems including standardized tests and HSGPA, which do have adverse impact for African-Americans and Hispanics (Bowen & Bok, 1998; Mumpower, Nath, & Stewart, 2002). Thus, with the use of these traditional tools firmly established almost universally, diversity goals in college admissions are becoming harder to realize. For universities in some states, this is compounded by legislation which outlaws race preferences in college admissions, specifically, California, Michigan, Florida, Washington, Arizona, and Nebraska (Chavez, 2011). With these conditions in place, personality, particularly conscientiousness, may be an admissions tool that improves validity while facilitating diversity goals, unlike standardized test scores.

Implementing personality testing into the admission process would require prospective students to endure participating in another test. However, unlike standardized tests (ACT/ SAT), the costs associated with personality tests

are relatively low in both time constraints and money. Some organizations, such as Eateries Inc. (Berta, 2002), Randolph-Brooks Federal Credit Union, and Outback Steakhouse (Gale, 2002), have used personality tests to screen new employees. Potential employees typically are provided a personality test during the interview stage at no cost. Several universities already employ personality testing of some form, including Devry (32 question Personality Profile Test), the University of Virginia School of Medicine (130 question Medical Specialty Aptitude Test), and Missouri University Health Care (Silvey, 2010).

### STUDY LIMITATIONS

The study is not without limitations. The study was cross-sectional in nature. A better method may be a longitudinal study in which entering freshman are given the NEO-FFI and tracked until graduation. However, this limitation should not have a significant impact since the Big Five personality dimensions should be stable over time (Costa & McCrae, 1994).

Scale reliabilities were fairly low (Nunnally & Bernstein, 1994) for the Big Five, which may have reduced power and inhibited finding effects for more of the dimensions. This may have also obscured the relative magnitude of personality effects versus HSGPA and ACT scores. Nevertheless, these are established scales, which have traditionally exhibited reliability and two significant effects were found.

As with any concurrent design, there may have been attenuation in ACT scores and HSGPA because these were used to select current students. Thus, the effects of these predictors may have been understated in comparison with personality dimensions, where no such attenuation is expected.

Finally, this was a single sample study. Thus, generalizability would require that these findings be replicated. This replication should be done before admissions policies are changed to incorporate personality measures.

### CONCLUSION

The results of this study suggests the consideration of using personality as an additional ad-

mission requirement for universities will enable administrators to choose better prospective students. However, before administrators include personality testing, further research must be performed. The current study only involved business students. Cross-disciplinary studies should be performed to determine what personality dimensions are preferable according to discipline. The current study also only considered whether personality dimensions differed between African-Americans and Caucasians. Future studies should examine whether the personality dimensions of Asians, Latinos, and other minority groups differ from Caucasians.

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# WHO'S READING YOUR WALL? THE RELATIONSHIPS AMONG USER CHARACTERISTICS, USAGE AND ATTITUDES REGARDING OFFICIAL ACADEMIC FACEBOOK SITES

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## ABSTRACT

*As social networking websites continue to rise in popularity, their role as a communications tool for academic institutions raises intriguing questions. This is especially true of Facebook, which was originally begun as an exclusively college-based social network. Facebook potentially represents an opportunity to cost-effectively communicate with students, faculty and other members of the college community. The goals of this study were to provide descriptive statistics that might aid in better understanding if students currently do or do not visit academic Facebook pages and why they visit those pages, what is most likely to cause them to visit academic Facebook pages, and how universities might best utilize this tool as a means of communication.*

*The implications of that data could be extremely useful, especially in regards to resource allocation and future university communications.*

## INTRODUCTION

Almost since the late 1980's when the Advanced Research Projects Agency Network (ARPA-NET) and the National Science Foundation Network (NSFNET) adopted consistent protocols, the event that marks the beginning of the Internet, the Internet has been recognized as a powerful tool (Mackie-Mason, 1994). In that time the Internet has taken on many roles. From e-mail and bulletin boards to online banking and webinars, the possible applications of

the Internet for communication, collaboration, education and commerce are nearly limitless—the key word being “nearly.” In fact, one of the greatest limitations seems to be the willingness of individuals to actually utilize these resources. This fact is commented upon by many studies of the utilization habits, or lack thereof, of online banking and other e-commerce customers. Even Facebook, with its steadily growing international membership, may be underutilized. Although boasting far more members than the previous leader, MySpace, and benefiting from ever in-

creasing visibility, some individuals appear to resist employing Facebook. While users readily post on individual bulletin boards or “walls” and in effect converse in public for all to see, there is still reluctance to being overexposed or vulnerable, either due to a technical glitch or the ill-will of others.

The background and personal characteristics of the users may in fact play a significant role in a user's attitude and usage of Facebook for academic purposes. Age, gender, income level, education, years of Internet usage and other demographic variables all could potentially play a role in this issue.

Academia has begun to confront the issue of social media utilization. This trend can be seen in the steadily growing number of academic conferences and seminars, some of which promoted via accrediting bodies such as the Association to Advance Collegiate Schools of Business (AACSB), where social media is a significant focus. Just as Facebook and other social media outlets could arguably claim to have changed the game for marketing and commercial communications, many are wondering about the implications within the academic community.

Thus, the goals of this study are to provide descriptive statistics that might aid in better understanding if students currently do or do not visit academic Facebook pages and why they visit those pages, what is most likely to cause them to visit academic Facebook pages, and how universities might best utilize this tool as a means of communication.

## BACKGROUND

### Academia & Facebook

Begun at Harvard in 2004 as an online version of the annual Harvard Facebook, a publication with the faces, names, hometowns and intended majors of incoming freshmen, Facebook has evolved into much more (Hoovers Report, 2009). In 2007, Facebook began to allow outside applications, such as slide shows and games. Now open to everyone, users of all ages and demographic backgrounds, Facebook has become a significant company with more than 236 mil-

lion unique visitors, an estimated \$210 million in sales in 2008 and an exclusive relationship with Microsoft as its provider of advertising (Grover & Ante, 2009).

In many cases, in addition to the main university presence on Facebook, its smaller segments also can cultivate a following. For example, take the case of East Tennessee State University (ETSU), a respected regional, public, mid-sized university. In addition to the official Facebook page, there are more than 60 Facebook pages for various organizations, departments and programs related to this specific university, as well as nearly 500 Facebook group pages.

The academic community and online social networking community presents some areas of intersection and concern for universities. Academic libraries are one clear area of intersection between academia and social networks. In their March 2007 article for *Information Technology and Libraries*, *Checking Out Facebook.com: The Impact of a Digital Trend on Academic Libraries*, librarians, Laurie Chanigo and Paula Barnett-Ellis, surveyed 126 academic librarians on their awareness and attitudes towards what they christened, “the Facebook Phenomenon.” The study found that while some librarians were enthusiastic about ways to employ Facebook to promote awareness of their libraries, most consider Facebook to be “outside the purview of professional librarianship” (Chanigo and Barnett-Ellis, 2007, p. 23). An even less favorable article, “Facebook as a Social Search Engine and the Implications for Libraries in the Twenty-First Century,” found Facebook wanting in this capacity (Scale, 2008, p.553). The finding stated,

“Facebook as a people search engine, yields irrelevant results in response to search queries for unknown persons or groups. Facebook may also fail to provide timely and relevant results when attempting to get information from persons with whom the user has a weak relationship.”

The findings also indicate the limitations of users functioning as quasi-librarians as it relates to the quality of information retrieval (Scale, 2008).

Some areas of concern for universities were discussed in the *Intellectual Property and Technology Law Journal* article, “Schools and Social Media: First Amendment Issues Arising from Social Media,” various legal issues are examined and the implications discussed (Broek, Puiszis and Brown, 2009). Issues of freedom of speech, Internet safety, harassment and student bullying, as well as the confiscation of handheld devices, such as web-capable phones are each reviewed. By and large, most suggest that the school has a right to intervene to maintain the orderly functioning of classes.

Not all journal articles on the overlap of social networking and social media are so foreboding. Maria Tess Shier's article, “*The Way Technology Changes How We Do What We Do*,” paints pictures of both opportunities and concerns. While acknowledging the possibility of plagiarism, file sharing of copyrighted material and other inappropriate uses of Internet resources, she goes on to point out the benefits of Facebook to community building, saying,

“As a student's definition of community moves beyond geographic and physical limitations, Facebook.com provides one way for students to find others with common interests, feel as though they are a part of a large community, and also find out about others in their class.” (Shier, 2005, p. 83).

In fact, as of 2005, Shier points out that more than 600 colleges were participating in the Facebook network (2005). The article goes on to state,

“For professors and administrators, Facebook.com can be a way of connecting with students—especially important at institutions where student teacher contact can be limited... Professors or administrators who post a profile on Facebook.com find that it can be a good way for students to get to know them beyond the academic setting, seeing what hobbies or interests the student may share with the professor, which may encourage the feeling of a professor being approachable” (2005, p. 84).

### Online User Attitudes and Characteristics

True to the old axiom, one can lead a horse to water, but one can't make it drink, many online users appreciate the possible advantages and convenience afforded by the Internet, including social media outlets like Facebook, yet balk at fully utilizing these resources. From hesitant bank customers to squeamish shoppers, there have been multiple studies collecting information about these communities and their usage, attitudes, behaviors, concerns and demographic characteristics. These obstacles to usage carry a very real price tag for both the companies, institutions and other entities that expend precious resources attempting to communicate and interact via online options. Also users are likely to be charged extra or otherwise penalized as a direct result of their resistance to online options.

Documented differences of acceptance based on demographic factors offer potential insights. The implications of these insights when applied to students and university community members and their acceptance of university administrators and faculty members using Facebook for official purposes offer a rich area of investigation for this and future studies. For example, in the case of general consumers, a number of factors seem to separate avid e-shoppers from more cautious consumers. For example according to (Kwak, Fox & Zinkhan, 2001), demographic information directly ties to purchase rates indicating that a positive attitude to technology has a direct positive correlation to a consumers' willingness to purchase. Also, a high income level, a high level of education and being a male all increase the likelihood of online purchase. Surprisingly, age was not found to have a significant correlation to the decision to purchase online (Kwak, et al., 2001). Thus, these findings serve to call more attention to investigating demographics and their role in determining who will and will not utilize online resources, such as Facebook.

Perhaps even more surprising, a web user's attitude to web advertising was found not to be related to overall Internet purchasing and not to be as important in explaining web purchasing as Internet involvement (Kwak, et al., 2001). By this standard, an active blogger or social networking participant who despises Internet advertising and electronic commerce in general is still more

likely to make a web purchase than an Internet user who may appreciate the ad but feels less comfortable with the Internet in general, involvement being the key determining characteristic. In another study, *E-Shopping Lovers and Fearful Conservatives: a Market Segment Analysis*, potential online customers were divided into six segments: socializers, e-shopping lovers, e-value leaders, fearful conservatives, averters and tech muddlers (Allred, Smith Swinyard, 2006). The first three actively shopped online, and the second three did not (Allred et al, 2006). While all took part in online activities, each was characterized by certain viewpoints. The study found that the majority of online shoppers were younger, wealthier, better educated, bigger retail spenders offline as well and more "Internet savvy" than online non-shoppers. Also, socializers, who actually prefer to shop in person, but do so online when necessary and e-value leaders, who are bargain focused, are particularly valuable since they are influencers of the buying behaviors of others.

In the case of online non-shoppers, the main concern of the category known as 'averters' wants to see and judge what they buy before they buy it. Unlike, fearful conservatives, who were afraid of using their credit card online, and tech muddlers, who felt they lacked the technical competency, averters are easily converted by influencers. In many ways mirroring the previous study, but focused specifically on the attitude of those who resist Internet banking, *Consumer Resistance to Internet Banking: Postponers, Opponents and Resisters*, from the *International Journal of Bank Marketing* found that those who resist utilizing their banks' Internet resources generally fell into three categories: postponers, opponents and rejectors. (Laukkanen, Sinkkonen and Laukkanen, 2008). While all three expressed fearful attitudes about using online banking, postponers and opponents, both just had not gotten around to it, with the key difference being postponers hoped to sign up sometime in the next year and opponent forecasting more than a year in the future. Rejectors on the other hand were just dead set against the whole concept (Laukkanen et al, 2008).

With such reluctance among many to utilize online resources in general, even the much commented upon area of social networking, there are real questions as to the return on time and mon-

ey invested in such pursuits. As shown in these studies, issues of age, gender, income level, online buying habits, education and even number of years spent on the Internet, all have had varying impacts on the willingness of individuals to use online resources to a greater or lesser degree. Thus, knowing who and how many within the academic community possess a positive attitude towards the academic application of Facebook is vital if future resources are to be invested for maximum effect.

## METHOD

To answer the research question proposed above an electronic survey of students in a mid-sized regional state university in the southeastern United States was performed. Questions regarding academic Facebook sites were specifically used to create a consistent frame of reference among the survey group. Basically, due to the variety of page designs available on some social networking sites, the relative uniformity of Facebook's pages provides a consistency that serves as a control. The electronic survey was developed and administered via student e-mail addresses. Each student is given a university e-mail address upon enrollment. Thus, 9,529 students were sent an e-mail prompting them to take the electronic survey. The response rate was 7.3% with 689 responses; however, the usable response rate was 6.6% with 624 responses after some surveys were removed due to being only partially completed or respondents were not members of Facebook. Although the response rate was lower than expected, the diversity of the sample was good and reflected students from all levels and areas of campus. Upon completion of the survey respondents were given the opportunity to follow a link to a different website to enter their name in a drawing for one of two one-hundred dollar credits at the university book store.

## SURVEY

To qualify the surveys each respondent was asked if they were a member of Facebook. Survey responses indicating that respondents were not members of Facebook were removed since the Facebook is the social media of focus in the present study. The survey administered consisted of

demographic information including the age, gender, current university status (Freshman...Graduate, etc.), highest level of education obtained, and annual income. Respondents were then asked several questions; what is their frequency of visiting the universities Facebook page, reasons why they visited the universities Facebook page, what is most likely to cause them to visit the universities Facebook page in the future, is Facebook an inappropriate media for universities to communicate with students, how often students visited Facebook in comparison with e-mail, and the frequency in which they visited the university career services page.

## RESULTS

### Demographics

Since very little previous literature focusing on the use of university Facebook pages could be found resulting in no basic understanding of student usage, the survey was descriptive in nature to provide such foundational information. Thus, the survey results indicated that the majority of respondents were female students (68.2%) of traditional college student age (61% between ages 18 and 25). In addition, the status of these students were distributed in descending order as follows; Seniors (32.3%), Graduates (22.4%), Sophomores (20.4%), Juniors (17.3%), Not Currently Enrolled (5.7%), and Freshman (2.0%). Annual incomes were commensurate with a traditional college student with 72.2% reporting incomes of 18k per year or less.

### Usage and Attitudes

One primary goal of this study was to better understand why students currently do or do not visit the university Facebook page. Thus, we first asked respondents the frequency in which they visited the university's Facebook page. The results indicated that 66.8% of respondents never visit the university's Facebook page, while 33.2% of respondents answered that they visited the university's Facebook page at least once a month. Next, respondents were asked why they currently are visiting or would visit the university's Facebook page. The following are reasons respondents indicated that they are visiting or would

visit the university's Facebook page in descending order; Career and employment information (20.3%), alumni/student body networking (19.7%), academic research (18.8%), sports information (18.5%), and networking with other colleges within the university (12.2%). Although very few respondents answered anything for 'other', the most frequent response given for 'other' was to find student club or organization information.

To further understand why students would not visit the university's Facebook page, we asked respondents if Facebook was an inappropriate means of communicating with students. 31.2% of respondents believe that Facebook is an inappropriate means for the university to communicate with students, while 42.1% believe that it is an appropriate means of communicating. 26.7% of respondents indicated they were not sure of the appropriateness of using Facebook to communicate.

Respondents were then asked about how often they visited Facebook as a means for communication in comparison with their campus e-mail. Respondents visiting Facebook more than campus e-mail is 24.6% of our sample, while 38.7% of respondents indicated that they visit Facebook about as often as their campus e-mail. 36.6% of respondents said that they visit Facebook less often than their campus e-mail.

We asked students what would cause them to visit university Facebook pages. Responses indicated listed in descending order are; postings by other fans, friends, or members (39.9%), postings by individual college (rather than university) administrators or faculty (39.8%), media rich files (16.2%), links to Facebook applications (10.4%), and nothing (would not visit) (8.3%). The most frequent response for 'other' is class oriented mandatory information.

## DISCUSSION

The first objective of this study was to better ascertain if students currently do or do not visit academic Facebook pages and if they visit those pages, why they visit those pages. The results of this study indicate that students primarily do not visit University Facebook pages since only 208 students of the 624 who responded reported that

TABLE 1 RESPONSE CHARACTERISTICS		
Characteristic	N	%
Gender		
Male	212	31.8
Female	454	68.2
Age		
18 to 25	406	61.0
26 to 35	132	19.8
36 to 45	70	10.5
46 to 55	47	7.1
56 to 65	7	1.1
66 or older	4	0.6
Current University Status		
Freshman	13	2.0
Sophomore	136	20.4
Junior	115	17.3
Senior	215	32.3
Graduate	149	22.4
Not Currently Enrolled	38	5.7
Income (annual)		
Less Than 18K	481	72.2
18K to 30k	74	11.1
30k to 50k	61	9.2
50k to 75k	31	4.7
75k to 100k	15	2.3
More Than 100k	4	0.6
Frequency of Visiting University's Facebook Page		
Never	445	66.8
Once a Month	160	24.0
More Than Once a Week	49	7.4
More Than Once a Day	12	1.8

they visit these pages. To further delineate if and why students visit academic Facebook pages, we asked respondents if they thought Facebook was an inappropriate means of communicating with students. Approximately 58% of respondents are either unsure or believe that Facebook is an inappropriate means of communicating with students, which further explains why many students do not visit academic Facebook sites. In addition, when respondents were asked what would most likely cause them to visit these sites, 8.3%

(Table 1 continued)		
Reason For Visiting University's Facebook Page		
Sports Information	123	18.5
Career/Employment Information	135	20.3
Alumni/Student Body Networking	131	19.7
Networking with Other Colleges	81	12.2
Academic Research	125	18.8
What is Most Likely to Cause You to Visit the University's Facebook Page		
Postings by College Administrators or Faculty	265	39.8
Postings by Other Fans, Friends, or Members	266	39.9
Media Rich Files (Videos)	108	16.2
Links to Facebook Applications	69	10.4
Nothing (would not visit)	55	8.3
Facebook is an Inappropriate Place for Universities to Communicate		
Strongly Agree	84	12.6
Agree	124	18.6
Neutral	178	26.7
Disagree	209	31.4
Strongly Disagree	71	10.7
I Visit Facebook as Often as Campus Email		
More Often Than Email	164	24.6
About as Often as Email	258	38.7
Less Often Than Email	244	36.6

responded that nothing would get them to visit the sites. As a result, the data collected in this study would suggest that universities need to be very judicious in their use of resources directed at developing academic social media sites for purposes of communicating with students since the majority of students do not have a positive view of university social media sites.

Another objective of this study was to ascertain some information on how students who visited academic Facebook sites used those sites. Those

who do visit academic Facebook pages do so as a source of news regarding campus activities. For example, of the 208 students who reported that they do visit the Facebook pages hosted by the University, just over 50% indicated that they visit those pages for career and or sports information and or to stay up to date about news in a particular college. Only 19.7% indicated that they used these pages as a social networking site and only 18.8% visited the pages for research purposes. Thus, this would seem to signify students primarily view academic Facebook pages as a means of one-way communication where they can simply find news about the University.

When students were asked what would most likely cause them to visit academic Facebook sites, approximately 40% indicated that postings by university administrators or faculty would cause them to visit while the same percentage also indicated that postings by individuals outside the university would cause them to visit these sites. Although this is evidently a limitation to our study because we did not collect more detailed information about why these two groups would cause students to visit academic sites, taken in the context of the rest of the study some explanations may be inferred. First, if one considers that most respondents do not visit these sites and most have a neutral to negative view on the use of Facebook by universities, those who reported that they would visit as a result of postings by administrators or faculty may do so because those postings may be regarding something centered on the students' classes which they may feel obligated to view. This may be further supported by the evidence which indicates that many students use these sites to learn about university news. For those students who indicated that they would visit academic Facebook sites as a result of postings by those outside of the university may do so as a form of networking. This relative enthusiasm for pages with regular posting may be due to the perception that such postings indicate the presence of timely and relevant information. Whether posted from sources within or external to the university community, active and regular posting may serve to both attract attention and create an air of credibility.

These findings may be colored by the two limitations of how the online survey was adminis-

tered. First, the survey itself was voluntary with a reasonable incentive, the chance to win a gift certificate to the university bookstore. If a different incentive was used or participation was somehow mandatory a larger community may have presented itself and offered insights. Second, the survey itself was administered on a site designed for traditional laptop and desktop computers. As a result those members of the university community who favor handheld devices may in fact be under represented. Yet, even with these limitations, the facts themselves reveal some rich areas of inquiry waiting for exploration as well as clear implications for current administrators. Some of these, offer a very different perspective than might be expected based upon other sources.

CONCLUSION

Given the data that was collected in the present study, we offer the following suggestions for university administrators charged with developing or maintaining an academic social media site. First, it would appear that currently a majority of students have a neutral to negative attitude towards academic Facebook sites. Thus, careful attention should be paid to the amount of resources, especially time, that is committed to developing or maintaining university social media sites. Until a majority of students have a positive attitude towards the use of social media sites by universities, it may not make sense to devote much resource to these sites.

The second suggestion is to use social media not for what it was originally developed for, which is, staying in touch with others, but as a means of one-way communication. Most students who visit university social media sites do so to keep caught up on news on campus. Therefore, universities might be wise to begin to reduce the resources traditionally used for print media and begin transitioning that same information to social media sites. This would most likely lower costs and free up valuable resources for many parts of the university.

An additional suggestion for those charged with developing or maintaining social media sites on campus would be to not get over zealous regarding its use. According to our data, just over 75% of respondents indicated that they visit Facebook

about as much as or less often than their campus e-mail, which is contrary to speculations by many in academia that e-mail is an outdated means of communication for most current students. This is particularly important when one considers that 61% of our respondents are 25yrs of age or younger. Thus, it would appear that social media has not quite eclipsed e-mail as a major means of communication by current students and may not do so for many years. Therefore, university administrators should not abandon this form of communication in lieu of social media.

The final suggestion for using social media in universities is to survey students. Although the present study helped to answer some specific questions of concern at a particular university to help better use the resources devoted to social media sites, it is a good start but further surveys are needed for true customization of these sites. We feel confident that our suggestions are valid for most other universities; however, a simple survey of current students would help to further customize any university's social media sites to its student body.

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Prior to this year, the Academic Business World International Conference included a significant track in Learning and Administration. Because of increased interest in that Track, we have promoted Learning and Administration to a Conference in its own right. For the full call for papers and more information go to <http://ABWIC.org> and <http://ICLAHE.org>

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