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LETTER FROM THE EDITORS

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Michael Shurden
and
Nancy Niles
Editors

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LINKING INFORMATION LITERACY, EXPERIENTIAL LEARNING, AND STUDENT CHARACTERISTICS: PEDAGOGICAL POSSIBILITIES IN BUSINESS EDUCATION

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ABSTRACT

This study expands on previous research and provides preliminary results on student perception of the value of using experiential learning exercises as pedagogical tools to enhance information literacy in business education. It contributes to our understanding of the student-point-of-view regarding learning outcomes achieved through the use of such pedagogical strategy. In addition, it contributes to our extant knowledge concerning measuring the effectiveness of information literacy in teaching-learning endeavors and if the perceived usefulness of such pedagogical techniques results in higher student learning, engagement, and satisfaction. Findings indicate an increase in many factors that enhances information literacy and student learning. The main results of our study relate to areas of student awareness and ability to check the validity information sources, ensuring that the information indeed relates to the research questions being examined, and ascertaining the reputation of the source of information. Additionally, using an experiential learning exercise improved the ability of the students to engage in pedagogical endeavors. This paper concludes by underscoring the implications of our study on attainment of learning outcomes achieved through the use of innovative pedagogical techniques from an institutional point-of-view, employer expectations, and faculty expectation from teaching-learning endeavors.

INTRODUCTION

The goal of teachers and scholars engaged in any institution of higher education is to train future business leaders and managers who are capable of making decisions based on knowledge which is learned and developed in our classrooms. To learn how to make enlightened decisions one must actually gain experience in decision-making. Experiential exercises that demand rigorous engagement and involvement on the part of students are found to be an invaluable pedagogical tool in underscoring and achieving learning objectives related to decision making in a dynamic "real-life" environment. While no definitive generalizable findings can be

provided for all experiential learning exercises, research reported by dozens of scholars over a period spanning several decades (Dewey, 1938; Lewin, 1951; Piaget, 1952; Kolb, 1984; Kolb and Kolb, 2005; Alic, 2008) suggests that experiential learning, in general, does exhibit external validity and educational value.

Reporting on information literacy, The Washington Post (2008) quotes findings from a National Endowment for the Arts report that indicates that there has been a 14% decline in readership among 13 year olds, just about 33% of them report reading on a daily basis. U.S. Bureau of Labor Statistics study reported on time spent reading for personal interest that showed individuals age 75 and over averaged 1.0 hour of reading per weekend day. Conversely, individuals ages 15 to 19 read for an average of 5 minutes per weekend day. The average attention span hovers around 9 minutes! Based on the document, The Alexandria Proclamation of 2005, which labels information literacy as a basic human right in the digital world that empowers humans to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals, UNESCO has recently taken first steps in measuring and tracking indicators of Information literacy at a global level (UNESCO, 2005).

This research builds on past research in the area of experiential learning and provides preliminary results on student perception of the value of using experiential learning exercises in business courses to promote information literacy. It contributes to our understanding of the student-point-of-view regarding learning outcomes achieved through the use of such exercises in gaining information literacy to meet the learning goals of a business course. In addition, it contributes to our extant knowledge concerning measuring the effectiveness of experiential exercises in teaching-learning endeavors involving information literacy. Empirical data from a student sample is analyzed and findings are presented. This paper concludes by underscoring the implications of our study on attainment of learning outcomes achieved through the use of such pedagogical strategies upon student learning, employer expectations, and faculty expectation from teaching-learning endeavors.

A REVIEW OF RESEARCH

Experiential Learning

Past studies (e.g., O'Brien and Deans, 1995) have underscored the concerns raised by potential employers of undergraduate students that relate to inordinate emphases on theoretical concepts at the expense of a practical application of knowledge and skills. Employers (and graduate programs) are interested in students that possess analytical, problem-solving, and decision-making abilities that are founded on sound information gathering and evaluative skills. The effectiveness of experiential exercises in teaching-learning endeavors has been studied over the past several decades. Some of the commonly cited advantages (Kolb, 1984; Kolb and Kolb, 2005; Alic, 2008) of using experiential learning exercises as pedagogical devices are:

They sharpen student skills at setting strategic plans and goals.
They aid in teaching and learning analytical techniques.
They help students work with, and through, others in a team.
They provide timely, meaningful, and quick feedback facilitating reinforcement of concepts.
They help students "experience" rather than merely read and talk about concepts.
They encourage active learning and participation.
They lend excitement to the learning experience.

Simply put, experiential exercises are perceived as educational <u>and</u> engaging, a rare combination indeed! The contemporary cohort of students walking into our classrooms brings very short attention spans and an increased need for stimulation in order to generate involvement and critical thinking. The popular press reports that more than 80% of children between the ages of 2-7 watch TV unsupervised. 70% of day care centers report some use of TV during the day. The average American child ages 2-11 watch 20 hours of TV a week and spends 4-5 hours a week playing video games. These children of today are the college students of tomorrow. Given the deficit in attention and involvement that such habits generate, a teacher faces an uphill battle to garner and maintain student interest in learning. Experiential exercises provide a pedagogical tool that is uniquely suited for our restive audience and may result in enhancing the overall learning outcomes in our courses.

Information Literacy

Wikipedia reports there are 3,461,068 articles on Wikipedia's English-language site and certainly this number is growing even as you ponder this statistic, while the more restrictive and authoritative Encyclopedia Britannica Online shows 120,000 articles. The Pew Internet & American Life study shows that 36% of the American population regularly uses Wikipedia. An example from Badke (2008) comparing Britannica and Wikipedia reads: "If I want an article on "folksonomy," I can't find it in Encyclopedia Britannica, whereas Wikipedia will instantly tell me that it is "a user-generated taxonomy used to categorize and retrieve web content … using open-ended labels called tags." The edge Wikipedia holds over the print competitor is currency. The ability to immediately post information regarding the Chilean miners rescue with charts, statistics and pictures keeps them ahead of the competition. The large numbers of teens who go online increase every year. Pew reported that 93% of teens ages 12-17 go online, as do 93% of young adults ages 18-29. One quarter (74%) of all adults ages 18 and older go online. (Pew, 2009)

A recent New York Times article states that (Mindlin, 2008) those with a lack of on-line access actually tend to use libraries even lesser (61% with access as opposed to 39% without on-line access), a paradox indeed. In 2005 the Educational Testing Service (ETS) designed a test called Information & Communication Technology Literacy Assessment, aimed at measuring student ability "to use digital technology, communication tools and, networks appropriately to

solve information problems in order to function in an information society." The first of this test was taken by close to 10,000 students from over 36 campuses. A sample question quoted by Poppy (2005) reads as follows:

1. You have been assigned a paper on Thomas Jefferson's presidency. What is likely to be the most reliable source of information?
   a) "Hero No More: The Lies of Thomas Jefferson," www.anarchyintheus.org
   b) "President Thomas Jefferson named after elementary school," www.theonion.com
   c) Jefferson Digital Archive, http://etext.virginia.edu/jefferson/
   d) "The Presidency of Thomas Jefferson: Continuity and Upheaval," www.termpapers4sale.com/

This test was further revised and improved over time and is often referred to as the iSkills test. The feedback provided to students and educational institutions include, overall Information Communications Technology (ICT) literacy score, a percentile score (as measured against a peer group taking the test), and an individualized score.

In 2006 close to 6,400 students from sixty-three institutions participated in the core and advanced level iSkills tests. Test-takers included approximately 100 high-school students, over 700 community college students, and 4,585 four-year college and university students. Some institutions selected participants from students enrolled in a particular course, others used a random sample, and some encouraged voluntary participation by providing gifts and incentives. Although the results of this test should be interpreted with caution as their generalizability is very limited, they are indicative of interesting trends.

Katz (2007) states that on both the core and advanced level students achieved only about half of the possible points on the tests. Data suggest that most students are oblivious to the need of tailoring their information to meet the stated goals of their audience. Students tend to be careless in checking "fair use" policies of sources unless stated in very obvious terms. On the positive side, students reported that .edu and .gov sites are less likely to contain biased material than .com sites. And when presented with an unclear assignment 70 percent of test-takers selected the best question to help clarify the assignment.

During a task in which students evaluated a set of Web sites (from Katz, 2007):

Only 52 percent judged the objectivity of the sites correctly;
sixty-five percent judged the authority correctly;
seventy-two percent judged the timeliness correctly; and
overall, only 49 percent of test-takers uniquely identified the one Web site that met all criteria.

When selecting a research statement for a class assignment:

Only 44 percent identified a statement that captured the demands of the assignment;
forty-eight percent picked a reasonable but too broad statement; and
eight percent picked statements that did not address the assignment.

When asked to narrow an overly broad search:

> Only 35 percent selected the correct revision; and
> thirty-five percent selected a revision that only marginally narrowed the search results.

Other results suggest that these students' ICT literacy needs further development:

> In a Web search task, only 40 percent entered multiple search terms to narrow the results;
> when constructing a presentation slide designed to persuade, 12 percent used only those points directly related to the argument;
> only a few test-takers accurately adapted existing material for a new audience; and
> when searching a large database, only 50 percent of test-takers used a strategy that minimized irrelevant results.

The development of this standardized test uses the Evidence-Centered Design (Mislevy Steinberg, and Almond, 2003) paradigm, a paradigm of assessments that attempts to focus on the learning artifacts and evidence of proficiencies as the basis for constructing assessment tasks. Through the Evidence Centered Design process, ETS staff (psychometricians/ cognitive psychologists/ and test developers) and subject-matter experts (librarians and faculty) came up with simulation based tasks designed around "authentic scenarios." Katz et al. (2004) and Brasley (2006) provide a detailed account of this design and development process, illustrating the critical role played by librarians and other faculty from higher education.

In a recent study, Bosco et al (2010) examined the effectiveness of pedagogical practices used to teach business ethics. The goal of such pedagogy was to study best practices in developing and enhancing ethical and moral judgment paradigms of students. Significant differences were found for moral reasoning and moral competence scores when compared by method used for ethics instruction. A holistic instructional mode that used teachers and librarians in imparting pedagogy was deemed essential in achieving learning outcomes in ethical education.

A study from Project Information Literacy (PIL) found that participants reported almost twice as many frustrations, overall, with conducting course-related research compared with everyday life research. 60% of the frustrations students reported for course-related research had to do with an inability with finding desired materials. 63% reported frustration involving locating research materials. Students felt "challenged, confused, and frustrated by the research process, despite the convenience, relative ease, and ubiquity of the Internet." The report also revealed that students believe librarians can put things in context in addition to quickly getting to the needed information.

It is often assumed that Gen X and Y might have a high level of technology literacy and are more adept at adopting new technology (Oblinger and Oblinger, 2005). However, studies like Rothman (2004) and Breivik (2005) report that sufficient evidence exist to challenge these assumptions. The inherent problem with a standardized test is that it is static in nature. The

student participant is expected to react to a staccato barrage of scenarios in multiple choice format. GMA (Graduate Management Admissions Council) reports that average essay scores in GMAT fell to 4.4 (out of 6) in 2010 from 4.7 in 2007. According to a GMAC spokesman (Middleton 2011), the drop in test scores may also be due to a preponderance of international applicants taking standardized tests and exams. Middleton reports that General Mills Inc., which hires about 50 MBAs a year, "business-school graduates are data-savvy but don't always communicate marketing research effectively." Further, Booz Allen and Hamilton, a consulting firm, noted that they do not allow business school graduates to actually prepare proposals until they are further trained, the common complaint being that sentences are written in "text" formats, often incomplete and incoherent. These are all topnotch companies that hire the best of our graduates.

True literacy and learning can be gauged through an experiential exercise that demands involvement, engagement, application, and reinforcement through repetition. With this in mind, we developed an evaluative survey that was used as the pre and post-test measurement tool.

METHODOLOGY AND EVALUATIVE TOOL

It was conceived that the desired learning outcomes from the use of an experiential exercise would broadly lead to enhancing critical thinking skills in building the ability to see opposing viewpoints. Through information obtained students would build evaluative skills that lead to critical evaluation of the source and validity of information obtained, currency of information, and ensuring that the information obtained was comprehensive. Further, we expected that students would gain an understating of the value of cross-checking and authenticating the quality and factual validity of their information. Use of an embedded experiential exercise was expected to lead to enhanced information literacy through an increase in the level of interest and involvement in the course. In addition to the survey below, classificatory information on student characteristics and on-line versus traditional research habits and practices were recorded for each respondent. Based on the aforementioned literature, the following hypotheses were postulated:

> *H1:* *Use of experiential exercise will significantly improve student ability and desire to ascertain the validity of the information being reviewed.*

> *H2:* *Use of experiential exercise will significantly improve student ability to ascertain the quality of the information being reviewed.*

> *H3:* *Student gender will have a significant impact on information assessment.*

H4:   Student year in school will have a significant impact on information assessment.

On a scale from 1, "Never", to 7, "always", please circle the number that best describes your on-line research practice in the following statements.								
While conducting research on-line…	Never			Some times			Always	
1. I check the source of the information ------------------------	1	2	3	4	5	6	7	
2. I check the identity of information provider -----------------	1	2	3	4	5	6	7	
3. I check the domain of my source -----------------------------	1	2	3	4	5	6	7	
4. I ensure that the information relates to my research ------	1	2	3	4	5	6	7	
5. I ensure that the information is applicable to my research-	1	2	3	4	5	6	7	
6. I evaluate the reputation of the source of information -----	1	2	3	4	5	6	7	
7. I verify the claims of the source --------------------------------	1	2	3	4	5	6	7	
8. I ensure the objectivity of the source --------------------------	1	2	3	4	5	6	7	
9. I seek confirmation of facts from other sources. -------------	1	2	3	4	5	6	7	
10. I seek opposing viewpoints --------------------------------------	1	2	3	4	5	6	7	
11. I ensure that the information is comprehensive --------------	1	2	3	4	5	6	7	
12. I ensure that the information is irrefutable --------------------	1	2	3	4	5	6	7	
13. I ensure that the information is current ------------------------	1	2	3	4	5	6	7	
14. I ensure the aim of the information source -------------------	1	2	3	4	5	6	7	
15. I ensure that the audience of the source is clearly identified	1	2	3	4	5	6	7	
16. I am an excellent researcher ------------------------------------	1	2	3	4	5	6	7	
17. I am able to conduct quality research --------------------------	1	2	3	4	5	6	7	
18. I believe that on-line sources are as good as print sources --	1	2	3	4	5	6	7	
19. I believe on-line sources are better than print sources --------	1	2	3	4	5	6	7	
20. I have extensive experience conducting on-line research ---	1	2	3	4	5	6	7	

The empirical data for this research was collected in a required upper level course for marketing and management majors at a private college in Northeastern United States. Data was collected from ten sections of class, over five semesters, which spanned two and a half years. A total effective sample of 219 students was obtained with a mix of Juniors and Seniors across both genders. The sample profile reflected the overall characteristics of the student population at the institution.

Students were advised of a special class meeting in the library, rather than the regular classroom. Faculty and Librarian collaboration is crucial when working toward an experiential learning experience for students in the library. Providing students with library instruction that involves more than listening to a lecture is a key to engaging them. At the very start of this joint session, the survey was administered to measure the current abilities of the students, prior to their receiving any instructions or information.

Next, the librarian led a 15-20 minute lecture type discussion in which approximately ten sources were introduced. Handouts were not provided prior to the class and students were told a group assignment was due for the next class. This encouraged them to be more engaged in the discussion therefore they asked questions, took notes about sources and generally paid close attention during the lecture. Current evaluation criteria students used when selecting sources and some general criteria were covered (example importance of current data/most current data available, quality of the data source, obtaining a variety of information and then cross checking to evaluate legitimacy). The concept of thinking critically about sources and exploring other sources beyond those introduced during the lecture were discussed. The sources covered in the lecture provided the basic information necessary to complete the assignment. Immediately after the lecture the assignments were distributed and the groups selected a question to explore with the goal of providing a brief presentation of their findings at the next class meeting. Students were encouraged to use the rest of the class time to start their assignment and work on it using the professor and librarian as resources.

Most students did not have questions right away. However, after a while students needed help navigating databases, locating sources and getting feedback about new sources they found during searches. They were encouraged to ask the librarian and/or professor and not rely on other students to clarify resources for the assignment. This provided a safety net for the groups and individual students to test different questions prior to picking one for their assignment.
The length of the lecture was ideal. It provided enough time to give a snap shot of valuable sources which allowed these upper level undergraduate students to investigate the sources in-depth on their own instead of being told exactly how to search. Resources like CountryWatch and CIA World Factbook were covered briefly, while others like CDC (Centers for Disease Control and Prevention) were mentioned and students located them on their own. One goal was to provide a small number of sources that answered each question. Several students did use sources beyond the ten covered in the lecture so that goal was met.

The concept of learning something via lecture and then immediately using it reinforces knowledge and creates an active learning environment. The hands-on nature of this exercise and real world aspects appeared to increase the level of interest and involvement of students. The timeliness of the assignment also led students to be more interactive with both the librarian and the professor. The survey captured information about each student's perceived knowledge about on-line versus traditional research habits. The exercise performed in concert with the professor and librarian certainly increased the level of interest and involvement in the course and library environment.

The post-survey measures of student learning were collected via the very same survey at the end of the semester. Assignments, exercises, and exams were designed with significant interactions with information sources integrated and embedded throughout the semester.

ANALYSES AND DISCUSSION OF EVALUATIVE DIMENSIONS

Overall Summary

The following summary charts present data and findings for each year and then total for both years. For all charts the first column corresponds to the 20 questions that we asked in our evaluative tool designed specifically for this study (see the table in earlier section). In our study there existed a natural pairing of pre and post test survey values. Since different pairs are independent we can then apply a paired t-Test with our null hypothesis that the average difference between the pre and post results for each question is zero. Also, we created 95% confidence intervals for the true average difference for each question. We have included rows for Pre and Post Average (the actual average for the question from the data) in the tables. In the Post column we have marked with an asterisks if the hypotheses of pre and post test being statistically different was rejected at a (0.05) significance level for the corresponding question. Plus, we have marked any values in the Post column with two asterisks if the hypothesis was rejected at a (0.01) significance level.

Table 1: Averages for All Questions						
	2007	2007	2008	2008	07 - 08	07 - 08
Questions	Pre	Post	Pre	Post	Pre	Post
1. I check the source of the information	5.208	5.688*	5.217	5.594	5.214	5.632**
2. I check the identity of information provider	4.646	5.229**	4.594	5.290**	4.615	5.265**
3. I check the domain of my source	4.979	5.646**	4.632	5.250**	4.776	5.414**
4. I ensure that the information relates to my research	6.500	6.604	6.529	6.522	6.517	6.556
5. I ensure that the information is applicable to my research	6.500	6.596	6.500	6.456	6.500	6.513
6. I evaluate the reputation of the source of information	4.979	5.500**	5.014	5.441**	5.000	5.466**
7. I verify the claims of the source	4.723	5.021	4.522	5.088**	4.603	5.061**
8. I ensure the objectivity of the source	4.854	5.104	4.691	5.232**	4.759	5.179**
9. I seek confirmation of facts from other sources	5.354	5.542	5.333	5.652	5.342	5.607*
10. I seek opposing viewpoints	4.896	5.042	4.812	5.188	4.846	5.128
11. I ensure that the information is comprehensive	5.688	5.917	5.884	5.928	5.803	5.923
12. I ensure that the information is irrefutable	4.896	5.375**	4.691	5.235**	4.776	5.293**
13. I ensure that the information is current	5.875	6.167	5.765	6.000*	5.810	6.069*
14. I ensure the aim of the information source	5.417	5.479	5.059	5.493**	5.207	5.487*
15. I ensure that the audience of the source is clearly identified	5.042	5.438*	4.742	5.188*	4.868	5.291**
16. I am an excellent researcher	5.021	5.404*	4.609	5.116**	4.778	5.233**
17. I am able to conduct quality research	5.438	5.745*	5.246	5.652**	5.325	5.690**
18. I believe that on-line sources are as good as print sources	5.304	5.625*	4.912	5.333*	5.070	5.453**
19. I believe on-line sources are better than print sources	4.340	5.043**	3.955	4.464**	4.114	4.698**
20. I have extensive experience conducting on-line research	5.333	5.583	5.014	5.739**	5.145	5.675**

Clearly, Question 4 and 5 had very little change in the average difference as shown by the fact that "0" is included in the confidence interval and that we failed to reject the null hypothesis that the true average difference is zero. That does not say enough, the more important fact is that the pre and post averages were above 6.4 for both questions. One may conclude that students really understand the importance of checking the domain of the information source and ensure that the information actually relates to the research.

In questions 2, 3, 6, 12, and 19 we see the greatest differences in the pre and post test averages. This is where the greatest improvement was seen in the awareness of the student and so we suspect our embedded experiential exercise enabled this growth. It is interesting to see that question 19 is included in this section of greatest improvement. It has been said time and time again that the students of this generation live in the virtual world and so one would expect that they would naturally believe on-line sources are better than print sources. This is a good result coupled with our result from question 4 and 5. It seems to show students do pay attention to the website and not just believe everything that they read on-line without first verifying the source.

Questions 9, 10, and 11 have "0" in their respect confidence intervals and again we failed to reject the null hypothesis of equality. The main point to make here is that the pre and post test averages were already above 4.8 with most above 5.3 for each question so improvement possibly was made but it was not substantial enough (keep in mind that on a scale of 7 a 4.8 average is already relatively high).

Impact of Gender

Below is a chart with similar features as before, but it is broken down by male and female participants. We thought that gender may play a role in the study so we wanted to discuss this now. We only looked at the complete totals from 2007 through 2008 to ensure we had counts above 50 to make our data relevant. It may be worthwhile with advance statistical techniques to see with the smaller data sets if there is a change from one year to another.

Table 2: Comparison - Male Versus Female				
	Female	Female	Male	Male
Question	Pre	Post	Pre	Post
1. I check the source of the information	5.419	5.823*	4.982	5.418*
2. I check the identity of information provider	4.532	5.355**	4.709	5.164*
3. I check the domain of my source	4.787	5.410**	4.764	5.418**
4. I ensure that the information relates to my research	6.525	6.677*	6.509	6.418
5. I ensure that the information is applicable to my research	6.525	6.590	6.473	6.426
6. I evaluate the reputation of the source of information	5.048	5.459**	4.945	5.473**
7. I verify the claims of the source	4.672	4.951	4.527	5.185**

Table 2: Comparison - Male Versus Female				
	Female	Female	Male	Male
Question	Pre	Post	Pre	Post
8. I ensure the objectivity of the source	4.820	5.129	4.691	5.236**
9. I seek confirmation of facts from other sources	5.452	5.726	5.218	5.473
10. I seek opposing viewpoints	4.645	5.129*	5.073	5.127
11. I ensure that the information is comprehensive	5.855	6.000	5.745	5.836
12. I ensure that the information is irrefutable	4.770	5.344**	4.782	5.236**
13. I ensure that the information is current	5.984	6.180	5.618	5.945
14. I ensure the aim of the information source	5.258	5.419	5.148	5.564*
15. I ensure that the audience of the source is clearly identified	4.983	5.258	4.741	5.327**
16. I am an excellent researcher	4.758	5.097*	4.800	5.389**
17. I am able to conduct quality research	5.226	5.613*	5.436	5.778**
18. I believe that on-line sources are as good as print sources	5.000	5.242	5.145	5.691**
19. I believe on-line sources are better than print sources	4.200	4.852**	4.019	4.527*
20. I have extensive experience conducting on-line research	4.952	5.774**	5.364	5.564

We should start by mentioning that the pre and post survey averages for both groups were above the value of 4 with question 19 being the lowest for both male and female participants. Question 19, once again was about the belief that on-line sources are better than print. The fact that both males and females had two tails t-Tests that rejected the null hypothesis seems to support that our embedded experiential exercise helped establish a better belief in proper on-line research and its value.

We see that the female respondents report considerable growth in eleven questions and that males demonstrated improvement in thirteen questions. Further, growth is seen in the rejection of the two tailed hypothesis test for specific questions. Additionally, the confidence intervals did not contain "0" which leads us to believe our experiential exercise once again enhanced information literacy and learning. Now, does this really mean that the program worked better for males or did the female counterparts have higher averages and so growth was not as evident, a good question for future research.

The interesting result here might be the fact that the value of "1" is included in 4 of the female confidence intervals and in only 2 of the male confidence intervals. We would like to point out that having a confidence interval that includes the value of "1" lends to the possibility of having a pre to post test growth of 1 scale unit on our chart. To us this shows a significant improvement in attitudes for these particular questions. One more thing to point out is that the questions that involve the "1" do not overlap in opinion from male to female. This point illustrates the possible difference between male and female thought processes, which is interesting due to the possible difference in thinking between males and females.

Finally, we would like to underscore the responses regarding how much experience students have in conducting on-line research (question 20). The male pre and post averages were both above 5.3 but the female average was 4.95 and saw growth to 5.77. We would like to point

out that for this question females did reject the null hypothesis but the males did not. So, we see that possibly males are better at on-line research, but after our program females have improved while males remain on level ground. This could imply that the female participants paid more attention to the program and learned more. The question then is why would males be better on-line researchers then females, this is an issue that would warrant further investigation in future studies.

Impact of School Year

In the chart below we are looking at the final statistics for the question of what possible impact did level of school year play on our program. We used all the data from 2007-2008 as one group to ensure that we had at least 50 data values for each group, that is, Juniors and Seniors.

Table 3: Comparison - Junior Versus Senior				
	Junior	Junior	Senior	Senior
Questions	Pre	Post	Pre	Post
1. I check the source of the information	5.317	5.600	5.220	5.720*
2. I check the identity of information provider	4.800	5.250**	4.440	5.320**
3. I check the domain of my source	4.950	5.492**	4.633	5.320**
4. I ensure that the information relates to my research	6.610	6.617	6.460	6.540
5. I ensure that the information is applicable to my research	6.517	6.550	6.510	6.521
6. I evaluate the reputation of the source of information	5.167	5.475*	4.880	5.480**
7. I verify the claims of the source	4.763	5.217*	4.460	4.875
8. I ensure the objectivity of the source	4.864	5.200	4.640	5.160*
9. I seek confirmation of facts from other sources	5.450	5.683	5.220	5.560
10. I seek opposing viewpoints	4.883	5.200	4.660	5.080
11. I ensure that the information is comprehensive	5.850	5.850	5.740	6.040*
12. I ensure that the information is irrefutable	4.881	5.167	4.660	5.469**
13. I ensure that the information is current	5.966	6.033	5.660	6.140**
14. I ensure the aim of the information source	5.169	5.383	5.220	5.620*
15. I ensure that the audience of the source is clearly identified	4.746	5.333**	4.958	5.340
16. I am an excellent researcher	4.717	5.350**	4.800	5.143*
17. I am able to conduct quality research	5.367	5.667*	5.220	5.755**
18. I believe that on-line sources are as good as print sources	5.328	5.600	4.776	5.260**
19. I believe on-line sources are better than print sources	4.356	4.932**	3.750	4.380**
20. I have extensive experience conducting on-line research	5.100	5.650**	5.060	5.700**

In response to question 19, the average for the Juniors was 4.3 before and 4.9 post, while the Seniors had an average of 3.7 pre and 4.3 post. Both groups had their lowest respective averages for this question and both groups had a confidence interval that contained the value of "1". The idea that print sources are better than on-line sources seems to be drilled into students,

at least for these levels of students. Our study seemed to change their philosophy and enabled the students to become aware that sometimes on-line sources are just as good if not better than print sources. It would be great to obtain data that included all four years of college students in the sample and see if there is a trend towards more internet use in research and its acceptance as one progresses in college. We would expect as the years pass this would be true.

The number of rejected hypothesis tests for Juniors was 9 questions and for the Seniors it was 14. That would tend to state that Juniors are better at computers and on-line research then their fellow Seniors. This would lend weight to our hypothesis that as time progresses the students should be using the internet more for research and be better at it. Another fact from our study that lends credence to our hypothesis that students may be better at on-line research would be that the Juniors had only one confidence interval that contained the value of "1" but the Seniors had five confidence intervals containing the same value.

PEDAGOGICAL IMPLICATIONS AND CONCLUSIONS

Experiential exercises that demand involvement, engagement, application, and reinforcement through repetition are one of the best ways to teach information literacy through pedagogy. Experiential exercises allow students to have the freedom to make choices while maintaining a safety net. These experiences reinforce knowledge, while teaching and encouraging students to use critical thinking skills to solve problems.

For the librarian the short discussion session afforded time for only a few sources to be elaborated on or mentioned; yet it was interactive and demonstrated several useful sources available from the library website and Internet. Students were more engaged during the discussion because of the immediacy of their need for information to complete the assignment. This experiential learning exercise placed students into a real life work environment scenario where they needed to locate information and present it within a short period of time. Students were not limited to the sources mentioned in the discussion and several additional sources were discovered by the students. Some of this was intentional and forced students to examine sources beyond those covered in the lecture. This reinforced the importance of the sources shared while giving the students a chance to find pertinent information from other sources and evaluate them. Students worked in groups of 3-5, some searched as a group while others searched individually and then regrouped to discuss their findings. Teaching how to evaluate sources and then applying that knowledge was the key to the students' success. Judgment and critical thinking skills are an essential part of information literacy, additionally applying those skills when evaluating potential sources led to the successful completion of the assignment. Finding the most current information from a reliable source and then comparing it to other sources was not something many of the students had thought about in the past. Several students asked questions while searching for sources. Specially regarding evaluating potential sources for accuracy and determining the

source of information provider and currency of sources. Interaction with the professor and librarian after the discussion helped to reinforce the concepts.

Table 1 shows significant gains in the students' ability to evaluate websites and sources of information. The greatest improvements were seen in identifying the information provider, examining the domain of source, reputation of the source of information, and determining if the information is irrefutable. As would be expected many students believe that online sources are better than print sources and that they have extensive experience conducting on-line research. The comfort level with on-line resources versus print is due in part to the convenience factor and students' prior knowledge and acceptance of materials in this format. "About 92 percent of Americans aged 18-29 … use the internet" (Eskelsen, 2009; Pew, 2007). An area that could be improved upon involved seeking opposing viewpoints and ensuring the aim of the information source. While reviewing the sources with students evaluating the aim of the information source for example CIA World Factbook was discussed. In working with clients outside the United States might there be negative connotations if a report was based solely on information from this source. While it provides valuable information verifying or cross checking that information is an important part of research. Ensuring the objectivity of the source improved. Perhaps a specific assignment could address this area either within this course or in others.

Academically the timing of this assignment was important since these upper level students were already knowledgeable about finding on-line sources. Based on the pre test in Table 1 most felt that they already knew a great deal about searching and evaluating sources. During the presentations groups were asked about the sources they choose and how they determined those were the best ones. This interaction allowed for further reinforcement of the evaluative aspects of this experiential learning assignment. When multiple groups choose the same question it was interesting to see the differences in sources used and presentation techniques. This open session increased the comfort level of students and they freely shared ideas about how they located their sources both good and not so good. The discussions further reinforced the evaluative skills vital to information literacy.

One of the most important things that the results indicate is that students who in the past used the first sources they found now report a better understanding of how to search and evaluate sources. This is an essential skill in the ever increasing on-line world students find themselves living and working after graduation. Becker (2009) states that while students have basic computer search skills they are not appropriate for academic and real-world success. A central goal of information literacy is not only to teach students how to use an interface, but to enable them learn to evaluate and research on their own to become self-managed learners. The Association for College and Research Libraries (ACRL) states: "The information literate student examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias." This is a skill that employers expect and will be important throughout their lives.

Considering the limitations of a small sample size, it appears that our results are

encouraging enough for us to further pursue this line of research. We intend to do so, particularly with a larger sample size, which hopefully will lend credence to our theory that student concepts, skills and understanding are enhanced by embedding experiential exercises in pedagogy to enhance information literacy. Further, the present study suffers from a lack of generalizability across various classes and disciplines. Future research would benefit from including a more varied sample of student respondents to be examined in a larger sample.

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A REFLECTIVE NOTE ON EVALUATION METHODS IN MANAGEMENT DISTANCE LEARNING COURSES

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ABSTRACT

This study provides insights into the effect of evaluation methods in management distance learning courses. The evaluation methods included in grading structure have been one of the motivation tools intending to encourage better performance in higher education. The strategy of designing a performance evaluation structure is essential for effective learning.

Previous literature has extensively investigated the impact of various grading policies on student performance. The empirical work is rather limited concerning the effect of grading structure in distance learning courses, where the evaluation of student activities plays a critical role in facilitating the instructor-student communication. The study explores the interrelationships among course performance, formative assessment instruments, and summative assessment instruments. The study also provides an exploratory analysis on how to increase the effectiveness of engaging students, and enhance learning in management distance learning courses.

INTRODUCTION

The use of a marking system to assess student performance is a general practice in education institutions. The evaluation methods are incorporated into the designated grading structure in a specific course. The grading structure in the syllabus also serves as a channel to communicate to students concerning the level of meeting instructor expectations and learning objectives. The result of the learning, or the grade, is normally in the form of percentage of points available in assignments such as quizzes, case study reports, and exams. A vast body of literature has examined the impact of various grading policies on learning and studies indicate that effective grading policies may effectively motivate student learning (Elikai & Schuhmann, 2010). The motivational aspect of grading and evaluation methods is even more important in distance learning courses, where the instructor-student communication is restricted.

The purpose of this study is to provide an exploratory analysis of different assessment methods adopted in online management courses in a regional university. The analysis includes comparisons among student effort on various types of methods assessing student learning and course performance. The findings can help instructors understand how to better prepare evaluation structure, engage students, and enhance learning.

LITERATURE REVIEW

Paradigm Shift in Education

Distance learning has blossomed in recent years as higher education community is aware of the efficacy of disseminating knowledge via Internet. Per National Center for Education Statistics (2008), "65 percent of postsecondary institutions reported college-level credit granting distance education courses and a total of an estimated 12.2 million enrollments" in the 2006-07 academic year. This rapid adoption progress of distance learning has invoked the academic debate on whether distance learning is an effective course delivery format (Bennett & Green, 2001; Bernard et al., 2004; Trawick, Lile, & Howsen, 2010). Although many empirical comparisons have been done to examine whether distance learning outperforms traditional learning format from different aspects, no consensus can be reached.

The rapid development of emerging technologies has made possible to support both asynchronous communication (e.g. email, discussion forum and etc.) and synchronous communication (e.g. chat, webcasting and etc.) in online environment. As a result, distance education becomes more competitive due to its superior flexibility and comparative effectiveness. Bennett (2002) finds that, despite less social interactions in distance learning courses, students achieve similar outcome, satisfaction and experience regardless of the teaching format used in a sport management course. A longitudinal study conducted by McLaren (2004) shows that learning outcome measured by the final grade in the business statistics course for persistent students is independent of the mode of instruction. Terry (2007) reports that student performance on class assignments in MBA courses is equivalent across different instruction modes. Therefore, we believe that technology advancement has shifted a paradigm in education.

Assessment in Distance Education

Assessment is critical to the success of any instructional design and the quality of learning (Benson, 2003). In particular, the development of distance learning courses generally costs more time and resources and students' feedback is hard to receive in time. Therefore, how to identify appropriate assessment methods for online learning becomes challenging (Dewald, et al., 2000). Assessment can be conducted for different purposes. The focus of this study is to identify effective assessment methods of student performance in distance learning courses, which may differ from those currently used in conventional learning environment.

Assessment methods are categorized as formative or summative. Formative assessment is defined as "the bidirectional process between teacher and student to enhance, recognize and respond to the learning" (Cowie & Bell, 1999), and includes discussions, interviews, observations, and etc. Formative approach helps students and instructors evaluate the current learning progress and make appropriate modifications immediately to better meet learning objectives. Summative assessment refers to the evaluation of learning objectives at a particular time, and has a form of tests or quizzes. It often occurs at the end of certain time periods in order to measure students' comprehension level of knowledge and determine their final grades. The feedback from summative assessment can help instructors make curriculum adjustment only in

the future, not for currently enrolled students. As a professional discipline, management focuses on the dissemination of applied knowledge, so students should have the opportunity to exercise problem-solving skills, critical thinking skills, and application skills, rather than stick to traditional assessment structure. According to the criteria proposed by Dewald, et al. (2000), formative assessment seems to be more effective to evaluate management distance learning courses. Relative to final exam grades, formative assessment focuses more on the learner, and benefits both instructors and students through in-time feedback and interactions.

Active learning is an effective instructional model to be assessed formatively. During active learning, students not only simply receive information, but also participate in course activities. Constructivists view active learning as learning by doing, a process that fosters learning by student taking active role in the learning process (Smart & Csapo, 2007). Empirical studies have showed that students are more likely to recall information and achieve higher effectiveness, if they are actively engaged with the learning materials (Hake, 1998; Hoffman, 2001).

Among many widely adopted online learning tools, asynchronous discussion can integrate formative assessment to facilitate active learning, as it supports "the process of assessment for learning and assessment of learning to enhance student learning" (Vonderwell, Liang & Alderman, 2007). In our management distance learning courses, students are required to discuss the assigned cases on a weekly basis. The online discussions require students to provide original analysis to the case questions and their responses to peers' answers. The interactive discussions among students facilitate information sharing (Wu & Hiltz, 2004) and co-construction of knowledge (Gilbert & Dabbagh, 2005).

Proposition

The discussion of previous literature indicates that instructors should consider consistently emphasizing formative assessment in management distance learning courses. Online discussion is an essential element to facilitate interaction and feedback among students and between instructors and students. Discussion function on Blackboard can be implemented easily through course management system, and requires minimal technical skills to use and maintain. The students' critical thinking skills, writing capabilities, and problem solving skills are assessed in online discussions. Therefore, we propose that both formative assessment results (e.g., online discussions) and summative assessment results (e.g., exams) are positively related to overall course performance measured by grades. Formative assessment results (e.g., online discussion) are also positively related to summative assessment results (e.g., online discussions). In other words, the impact of formative assessment results (e.g., online discussions) on the overall course performance is mediated by summative assessment results (e.g., exams). Students achieving higher scores in online discussions are more likely to gain higher scores in final exams, and thus leading to better overall course performance. Furthermore, the findings potentially imply that formative assessment (e.g., online discussions) is of significant value in the student evaluation.

BACKGROUND AND DATA COLLECTION

This study selected distance education courses from the School of Management of a public university in Midwest area. This regional campus is located in a suburban area of a metropolitan city and the degree programs of its School of Management attract a lot of working professionals. These part time students normally need to balance course work, job, and family. Most of these students tend to enroll in the distance education courses because of flexibility and convenience considerations. The observations are collected from management classes in the field of information system and accounting. Principles of Information Systems (MGMT 211) is required for all management major students. The other two courses E-business strategy (MGMT 318) and Auditing (MGMT 406) target primarily students of information system and accounting majors, respectively. Specifically, E-business strategy (MGMT 318) is required for Management Information System majors and also serves as an elective course for students in other major programs. Auditing (MGMT 406) is a required major course for accounting major students.

Table 1: Course Grading Structure				
Course	**Online Discussions**	**Assignments /Quizzes**	**Case / Project(s)**	**Exams**
MGMT 211 (Summer 2009)	10%	21%	17%	52%
MGMT 211 (Summer 2010)	23%	0%	19%	58%
MGMT 211 (Spring 2010)	18%	0%	36%	46%
MGMT 318 (Spring 2010)	30%	20%	0%	50%
MGMT 406 (Spring 2010)	27%	14%	9%	50%
MGMT 406 (Fall 2010)	27%	12%	15%	46%
Notes: the percentages are rounded. MGMT 211: Principles of Information Systems MGMT 318: E-Business Strategy MGMT 406: Auditing				

Online discussions offer a platform for students to exchange ideas and understanding of the materials. The students are required to initiate original posts, and respond to his or her classmates' original posts. Online discussions were graded by the instructors using grading rubrics which include both quantitative and qualitative considerations. When grading online discussions, the instructors focused on students' analytical skills, not the "correctness" of the responses. The objective of this approach of grading is to motivate students to think critically, and to raise any questions for clarification when necessary. On the other hand, exams in online courses are offered after the completion of a section of materials. The exams are open book because of the nature of distance courses. There were no instructor-student interactions during the exams, and the students were required to complete the exams independently.

Table 2: Variable Definitions	
Variable	**Variable Definition**
Discussion	Student performance in discussions (%)
Exam	Student performance in exams (%)
Grade	Student performance in the courses (%)

Table 1 presents the grading structures of the courses included in this study. The measurements for formative and summative assessment are "Online Discussions" and "Exams", which range 10-30% and 46-58% of the total course grade, respectively. The tests were performed on the dataset collected from Blackboard student grade books, with the definitions of the variables presented in Table 2. All three variables (Discussion, Exam, and Grade) take the form of percentage.

EMPIRICAL TESTS

Descriptive Statistics

The study extracted student performance data from grade books at Blackboard. The descriptive statistics of the major variables were illustrated in Table 3. The dataset contains observations of 132 students. The mean of "Discussion" is 0.884, higher than that of exam (0.789). The skewness and kurtosis statistics show that the three variables are not normally distributed. Therefore z-scores of the variables generated through the standardized procedure were used for further investigation requiring normality for statistical models. The standardized scores are defined as variables with mean equal to 0, and standard deviation equal to 1.

Table 3: Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Discussion	132	0.884	0.185	-2.240	0.211	5.332	0.419
Exam	132	0.789	0.131	-1.337	0.211	2.573	0.419
Grade	132	0.818	0.135	-1.608	0.211	3.966	0.419

Mediation Model

The proposition discussed in the previous section indicates a mediation effect of summative assessment (Exam) on the association between formative assessment (Discussion) and course performance (Grade). The four steps proposed by Baron and Kenny (1986) are used to test the mediation effect of summative assessment (Exam).

Following Baron and Kenny (1986), we first tested the association between variables "Discussion" and the "Grade" (Path C), and establish a significant association between the above two variables. Second, the test on relationship between "Discussion" and "Exam" also yields

significant and positive association (Path A). The third step is to test the correlation between "Exam" and "Grade" (Path B). The objective of the final step is to test the correlation between "Discussion" and "Grade" (Path C'), with the presence of proposed mediator "Exam". In this step, a reduced coefficient of the predictor (Discussion), relative to the coefficient in the first step, is indicative of partial mediation effect.

Table 4 shows the mediation diagram of the paths discussed above, with more detailed model information in Table 5. All paths are statistically significant at p=0.05 level, indicating a possible mediation effect. In particular, the coefficient of path C' (0.565) is decreased from the coefficient of path C (0.689). The decrease in coefficient suggested a partial mediation effect of "Exam" on the association between "Discussion" and "Grade".

Discussions and Implications

The above empirical results suggest that variable "Discussion" had both direct and indirect effects on "Grade". Additionally, the indirect effect of "Discussion" on "Grade" was mediated by "Exam", indicating that "Discussion" first impacted "Exam" that further affected "Grade". In the framework of evaluation structure, the empirical tests analyze the interrelationship between formative assessment instrument (Discussion), summative assessment instrument (Exam), and student performance (Grade). The influence of formative assessment (Discussion) was not limited to the direct impact on course performance. Furthermore, students who exercised diligence and earned high scores in online discussions are more likely to do well in the summative assessment (Exam), which consists of the largest portion of course grades.

Table 4: Partial Mediation Diagram
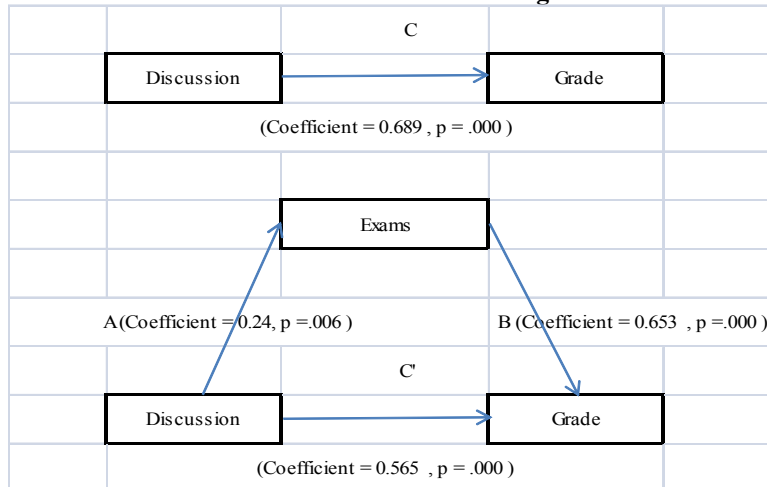
The implications of the findings are rather interesting. Regardless of its weight in the evaluation structure, formative assessment instruments in distance learning courses play an important role in engaging students in the learning process. The significance of formative assessment rests primarily on its motivational and interactive perspectives, which promotes

active learning. In the active learning environment, students are encouraged to learn by actively participating in course activities and receive immediate feedback to foster more in-depth understanding of course materials.

	outcome	predictor	R Square	coefficient (predictor)	p-value (predictor)
Table 5: Summary of Regression Models					
Model 1	Grade	Discussion	0.475	0.689	.000**
Path C					
Model 2	Exam	Discussion	0.058	0.240	.006**
Path A					
Model 3	Grade	Exam	0.427	0.653	.000**
Path B					
Model 4	Grade	Discussion	0.727	0.565	.000**
Path C'		Exam		0.518	.000**
**significant at < 0.05; *significant at p< 0.10					

SUMMARY

Evaluation structure normally takes the format of a percentage on an assignment and communicates the result of learning effort to a student. Over years evaluation methods have evolved from its traditional role of communicating performance assessment to students. A carefully designed grading structure consisting of various evaluation methods can also serve as a motivational tool to encourage improved course performance. An effective performance evaluation structure is essential to foster student learning.

The primary objective of this paper is to explore how to increase the effectiveness of engaging students and enhance learning in management distance learning courses. The empirical work is rather limited as to the effect of grading structure in distance learning. Because of the lack of face-to-face interactions in distance learning courses, evaluation of student activities plays an even more critical role in communicating instructor expectations to students. The students' responses to evaluation results, in turn, would motivate students to keep on track and work towards the learning objectives. The empirical tests focused on the examination of the impact of various evaluation methods on student performance. And the study explores the interrelationships among formative assessment method, summative assessment method, and course performance.

This study provides a preliminary and exploratory analysis of the effect of various evaluation methods on student performance. Providing empirical evidence to education research, the reflective note intends to bring awareness on the motivational perspective of formative assessment method, especially in distance learning courses. The responsibilities of instructors do not end with the completion of grading exams or assignments, but to provide sufficient feedback for student further improvement, and to motivate students to actively engage in the learning process. In spite of the contributions, this study is subject to limitations. First, the empirical tests were built on the dataset from one university, leading to potential problems in generalizability. Therefore the evidence of this study should be applied to other learning environments or other

courses with extreme caution. Additionally, the study did not claim casual relationship between the variables due to the use of objective data. Future research may expand on the empirical tests to offer more sophisticated models for comprehensive analysis.

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INFLUENCING VARIABLES AND PERCEPTIONS REGARDING MBA DEGREE PROGRAMS

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ABSTRACT

The purpose of this paper is to provide understanding of the variables involved in a student's decision to enroll in an MBA program, which can assist universities in recruiting and retaining students. A questionnaire was designed and distributed to students in two regional state universities to identify factors playing a primary role in the graduate school decision as well as to examine students' perceptions of an MBA degree. Seven a priori hypotheses were evaluated using a myriad of analyses, including examination of response percentages, ANOVA procedures, independent sample t-tests, and Levene's test for equality of variances to appropriately examine each. Majority support was found for all seven hypotheses, with a few reasonable delineations. Overall, it seems that the value of an MBA degree along with the perceptions regarding the pursuit and significance of said degree is fairly uniform across several demographic differences. This study is only interested in capturing opinions of students currently enrolled in undergraduate studies relative to an MBA degree. It did not include individuals not attending college, those actively engaged in careers, and individuals seeking employment or a career change. Assessing students' perceptions of the value of an MBA degree can be useful in the design and promotion of MBA programs, which can lead to more effective, tailor-made curriculum and recruitment of students.

INTRODUCTION

Providing career planning and development opportunities are an integral and important function of any institution of higher education. Advising students in the selection of a college major, in choosing a career, and making decisions concerning graduate education are essential elements in the process of preparing students for a successful career. Many variables are involved in the career choice decision and the supporting decision of continuing education. Given the realities of a nationwide challenge to maintain and/or increase university enrollments, demographic changes leading to a significantly more diverse student body, and greater pressures and demands for accountability from ever-increasing groups of stakeholders, colleges face a tremendous challenge/opportunity in recruiting students and advising them in career decisions.

It would be helpful to any college to identify and understand the processes and underlying assumptions that accompany students' choices concerning graduate school education.

In an effort to provide some insight from the student's perspective, a survey was conducted in two regional southeastern state universities. The primary purposes of this survey were to identify some important variables influencing students' choices to enroll in an MBA program and to assess undergraduate business students' perceived value of the degree. Results of this survey are presented in this article along with recommendations as to how the results can be useful in providing a better understanding of students' decision-making processes concerning graduate education and how faculty and supporting staff can recruit students more effectively and provide better guidance and assistance to students in this crucial area.

LITERATURE REVIEW

Career Decisions

Career planning and management on the part of students can range from the very haphazard to the very methodical. People (students) have varying expectations/aspirations concerning career opportunities and make decisions accordingly. The choice to pursue an advanced degree is an integral part of this process.

In a study involving MBA students, Simmering and Wilcox (1995) identified five factors that largely influence the decision to pursue the MBA graduate degree. These factors center around the personal prestige associated with the MBA, career exploration opportunities, goals for developing and improving interpersonal skills, entrepreneurial aspirations, and increasing career mobility.

Other issues related to entering into an MBA degree program involve the decision to attend a full-time, part-time, or Executive MBA program (Bruce, 2010); whether a traditional "general" MBA or one offering "specialization" is preferred (Gupta, 2007); and whether to gain pre-MBA work experience or enroll immediately after achieving an undergraduate degree (Yeaple, 2010).

Among the internal and external factors cited in studies aimed at identifying the primary determinants of career decisions are salary, influence by parents and family, perceived ability/personality fit, high job demand, image/prestige, and interest in an area (Duffy & Dik, 2009). Duffy & Dik found that the common assumption of "free choice" in making career decisions can be limited significantly by "life experiences and circumstances." One would expect the recent recession, for example, to be a prominent factor in decisions related to job searches and enrollment in education programs (Bruce, Edgington, & Olkin, 2003).

Successful career management ideally results in a fulfilling and satisfying work life that contributes to a well-rounded life experience. Reported satisfaction with career choice varies, however. One poll indicates that only 50% of Americans would choose the same career again if given the choice ("Half Would Pick," 1992). Although reports vary from one profession/career to another, Sariento (1996) reported that a number of people do indeed dislike their current jobs

and related career paths but feel "stuck." A more recent study seemed to confirm this bleak prognosis of job satisfaction by reporting that approximately 50% of the staff in a state child welfare agency stated they would indeed prefer to leave their current jobs, but stayed because of salary and benefits (Strand, Spath, Bosco-Ruggiero, 2010). A study of AD (associate degree) and BS (bachelor degree) nurses found that the individual and social returns on investment in higher education could result in reported differences in job satisfaction and career retention (Rambur, McIntosh, Palumbo, Reinier, 2005). Reports such as these may motivate undergraduate students to explore opportunities to expand their career options by continuing their education beyond the Bachelor's degree.

Value of an MBA Degree

A recent report published by the Bureau of Labor Statistics projected the fastest growing occupations between the years of 2006 and 2016. None of these fastest growing occupations listed the MBA as the "most significant source of postsecondary education or training" (Dohm & Shniper, 2007). Among the occupations with the largest job growth during this same time frame, "management analysts" is the only job title listed as possibly requiring a degree higher than a Bachelor's with the exception of mental health counselors, social workers, therapists, and physician assistants. These projections may not bode well for the perceived value and choice of an MBA degree. Total job openings due to growth and net replacement needs were predicted to increase during the 2006-2016 time frame by 6,706 (13.2%) for persons with Bachelor's degrees and by 819 (1.6%) for persons with Master's degrees. Additionally, the median annual wages in 2006 for a Bachelor's degree employee were reported at $53,330 and $51,380 for a Master's degree employee.

A study conducted by Wellman, Gowan, and White (2006) seemed to refute earlier claims by Pfeffer & Fong (2002) that there is little evidence that an MBA degree positively impacts salary and/or career advancement. Wellman, et.al. found that possessing an MBA degree serves to enhance an individual's human capital as well as affecting salary, managerial responsibility, and promotion opportunities. Similarly, a 2008 study by Arcidiacono, Cooley, and Hussey found that completing an MBA degree brings a fairly large monetary benefit, especially if the degree is obtained from a top-notch program. However, less substantial benefits were associated with a degree programs with lower rankings and lax admission standards.

Criticisms concerning the value of an MBA degree have been startling and harsh at times. Pfeffer and Fong (2002) stated that "There is little evidence that mastery of the knowledge acquired in business schools enhances people's careers, or that even attaining the MBA credential itself has much effect on graduates' salaries or career enhancement." This sentiment is supported by Mintzberg's (2004) criticism that "MBA programs are specialized training in the functions of business, not general education in the practice of management," and Bennis and O'Toole's (2005) claim that typical MBA programs fail "to impart useful skills—failing to

prepare leaders, failing to instill norms of ethical behavior, and even failing to lead graduates to good corporate jobs."

A 2005 survey calculated the return on investment in an MBA degree over the past decade to be 17.6 percent, about three times the return on Treasury Bills and four percent greater than the Dow Jones Industrial Average (Davis & Cline, 2005). Alternately, a survey by Pepperdine University's Graziadio School of Business of 1000 senior executives reported the MBA degree to be perceived as "useful" but not "extraordinary" with executives indicating preference for experiential learning coupled with a strong ethical grounding (Livingstone, 2007). A series of articles published in *Business Week* refer to the job outlook for MBAs as being "murky," "savage," and "dim" (Cornuke, 2008; VanderMey, 2009; MBA, 2009).

Despite these harsh criticisms, using three years of data collected from the annual Global MBA Graduate Survey of graduating MBA students conducted by the GMAC, Bruce (2010) found that the majority of students surveyed rated the overall value of the MBA degree as "outstanding" or "excellent". Satisfaction with the faculty, fellow students and the curriculum were rated highest among the determinants of satisfaction. Differences in satisfaction levels of students enrolled in Executive vs. traditional MBA programs did not appear to be significant, but satisfaction levels among full-time and part-time students did vary significantly, with full-time students reporting higher levels of overall satisfaction with the potential benefits of the program and the overall value of the MBA program.

METHODOLOGY

A questionnaire was distributed to students at two regional state universities located in the southern part of the United States; a copy of the survey instrument is included in Appendix A. All students were undergraduate students and the majority was business majors. Students were asked a variety of questions concerning their perceptions of and intentions for obtaining an MBA degree in addition to their undergraduate degrees.

Discussion of Sample

A convenience sample of students from two large regional universities was used to determine students' attitudes and intentions concerning obtaining an MBA degree as a part of their career planning.   Students enrolled in business courses at both institutions were administered the identical questionnaire. Seventy-four students from one institution and 34 from the other were included in the study. These students represented a variety of majors and classifications as well as other population demographics. Comparisons were made along the lines of these differences.

Statistical Analyses

Exploratory factor analysis was conducted to assess the validity and reliability of the survey instrument. The analysis used Varimax rotation, factor extraction was based on Eigenvalues > 1, and missing data were removed in a listwise fashion. Although some research suggests that listwise deletion has the potential to sacrifice a large amount of data, this particular sample, although small, did not exhibit many cases of missing data, so the listwise method was implemented (Malhotra, 1987). Questions 12 and 17 were removed from further analysis due to low loading factors and cross loading among factors. All remaining factor loadings well exceeded the recommended cutoff of 0.50 to be interpreted as significant (Hair et al., 2006). Overall, seven factors emerged with 64.77% of model variance explained by rotation sum of squared loadings. Cronbach alpha was calculated for the overall survey instrument ($\alpha = 0.564$), and was above the cutoff as recommended appropriate for exploratory or early stages of research when validated, frequently used measures are not implemented (Nunnally, 1978).

Following examination of the survey instrument regarding validity and reliability, the following hypotheses were examined:

H_1:   *The majority of students at both institutions agrees or strongly agrees that an MBA degree is valuable.*

H_2:   *The majority of students at both institutions agrees or strongly agrees that they intend to pursue an MBA degree sometime in the future.*

H_3 *There is no difference in responses of students according to class (junior, senior, other).*

H_4:   *There is no difference in responses of male and female students.*

H_5:   *There is no difference in responses of students at the two different universities.*

H_6:   *There is no difference in responses of students according to majors.*

H_7:   *There is no difference in responses of students according to chronological age.*

Hypotheses 1 and 2 were evaluated by examining response percentages with respect to the two research questions. For Hypotheses 3-7, ANOVA procedures, independent sample t-tests, and Levene's test for equality of variances were implemented where appropriate to identify and examine significance of students' perceptions and intentions regarding the pursuit of a MBA degree, and subsequently, differences between the referent groups with respect to the specific research questions. However, before examination of the pertinent hypotheses, the conditions under which inference testing is valid were assessed. Without the examination of these conditions, any significant findings or interpretations that come from them may be inaccurate or misleading. Plots to examine fit/linearity, homoscedasticity, and normality were generated and visual examination of all of the graphs suggests no major issues or delineation from these required assumptions. Autocorrelation (independence of error terms) is generally only a problem that occurs with time-series data, and because there is no reason to believe these data are seasonal or cyclical in nature, this assumption was not directly tested (Draper et al. 1998).

Finally, the issue of potential multicollinearity was examined by calculating tolerances and variance inflation factors (VIF) for the independent variables. There were no tolerance levels less than the suggested 0.20 cutoff and no VIF levels above the 4.00 cutoff for any of the constructs across the independent variables tested in this study (Hair et al. 2006). The results of these analyses and their implications are discussed below.

RESULTS

Hypothesis 1 posited that the majority of students at both institutions agree or strongly agree that an MBA degree is valuable. Eighty-five percent of respondents agreed that an MBA degree would enhance their career advancement and 70% indicated that the long-term benefits of an MBA degree well outweigh the costs. Additionally, 65% reported that they believed an MBA degree is the preferred graduate degree in the business world, significant because the majority of respondents were business majors and assumedly would enter the business arena upon graduation. However, 56% said they would not be willing to spend more than 2 years devoted to the pursuit of an MBA degree.

Hypothesis 2 postulated that the majority of students at both institutions agree or strongly agree that they intend to pursue an MBA degree sometime in the future. Only 19% of respondents indicated that they planned to enroll in an MBA program immediately upon graduation and 56% said they thought gaining work experience before entering a graduate program would be best. While only a small percentage of respondents said they planned to go directly from undergraduate studies to an MBA, 79% said they would pursue an MBA if their employer suggested doing so. However, the vast majority (82%) specified that they would expect their organizations to provide financial assistance. Further, over half (53%) of the respondents said that the state of the economy would greatly influence their decision in seeking a graduate degree.

The third research question (H_3) hypothesized that there would be no difference in responses of students according to class (e.g., junior, senior, other) regarding perceptions of and intentions for obtaining an MBA degree in addition to their undergraduate degrees. Where $\alpha = 0.05$, the ANOVA procedure did not reveal a significant overall effect for differences in upper and lower division students for any of the 19 questions asked on the survey instrument. Therefore, we are unable to reject the hypothesis asserting there are no differences between undergraduate class levels and their intentions regarding the pursuit of an MBA degree, lending support for Hypothesis 3.

Hypothesis 4 proposed there would be no difference in responses of male and female students. Both an independent samples t-test and Levene's test for equality of variances were not significant across all questions examined by the survey instrument, save one ($\alpha = 0.05$). The only exception found a significant difference between genders regarding Q13, which reads, 'An MBA degree would be the only graduate degree I would consider' ($p = 0.032$). Specifically, the

data suggests that males might be more likely to consider graduate degrees other than an MBA; however, no other significant differences between genders and intentions regarding the pursuit of an MBA degree arose. Therefore, we find majority support for Hypothesis 4.

The fifth research question (H_5) hypothesized that there would be no difference in responses of students between the two different universities. Similar to H_4, examination of independent samples t-tests and Levene's test for equality of variances indicated that there were no significant differences between the two universities on any of the survey items, except for one. Question 21, which reads, 'I would not be willing to devote more than 2 years in pursuit of an MBA degree' indicated that were indeed significant differences in perspective between schools ($p = 0.011$). Further investigation revealed that one of the universities included in the sample offers a 1-year intensive MBA program, which may help explain the difference in time-commitment expectations between the two schools. Ultimately, majority support was lent to Hypothesis 5.

Hypothesis 6 postulated that there would be no difference in responses of students according to majors. The majority of respondents were business majors, including Accounting, Communications, Computer Information Systems, Finance, General Business, Management, and Marketing. The ANOVA procedure revealed an overall significance in differences of perceptions regarding an MBA degree for only Q7 ($p = 0.01$), which reads, "My undergraduate business degree has adequately prepared me to enter an MBA program". Post-hoc tests were conducted to help determine where the significant differences lie, or in other words, which majors had significantly different opinions regarding an MBA degree regarding their undergraduate preparedness for the pursuit of an MBA. Initially, Levene's statistic indicated the sample groups were not homogenous; therefore, Tamhane's T2 test was used to calculate multiple comparisons between majors. Tamhane's T2 statistic revealed that there were indeed significant differences between majors. Specifically, both General Business ($p = 0.07$) and Management ($p = 0.014$) majors responded more positively regarding their preparedness for the pursuit of an MBA degree than those majors not included in the college of business (classified as 'Other'). This is not too surprising considering the correspondence in concepts covered in the college of business undergraduate programs and the continuation of these learning platforms in the MBA degree program, coupled with the potential for outsides majors to have to complete remedial coursework. Therefore, we find majority support for Hypothesis 6, outside of a few discrepancies between preparedness between majors; however, the results do indicate an MBA is perceived as valuable across all majors.

Finally, Hypothesis 7 posited there would be no difference in responses of students according to chronological age. Prior to analysis, the data were grouped into age range groupings as follows: Group 1–18-20 years; Group 2—21-23 years; Group 3—24-26 years; and Group 4—over 26 years. Where $\alpha = 0.05$, the ANOVA procedure did not reveal a significant overall effect for differences in students' age for any of the 19 questions asked on the survey instrument. Therefore, we are unable to reject the hypothesis asserting there are no differences

between chronological age and intentions regarding the pursuit of an MBA degree, lending full support for Hypothesis 7.

The following table contains an overview of the statistical analyses results and significance levels for the Hypotheses 3-7, where conventional statistical methodologies were employed:

Table 1: Influencing Variables and Perceptions Regarding MBA Degree Programs Results for H_3-H_7: An Overview		
Hypothesis	**Statistical Methodology**	**Level(s) of Significance**
H_3	ANOVA	No scale items were found to be significant at any reasonable α.
H_4	Independent Samples t-Test & Levene's Test for Equality of Variances	Q13*
H_5	Independent Samples t-Test & Levene's Test for Equality of Variances	Q21**
H_6	ANOVA	Q7**
	Tamhane's T2	General Business* Management**
H_7	ANOVA	No scale items were found to be significant at any reasonable α.
Note: **Significant at 0.01; *Significant at 0.05		

Post Hoc Analyses

In assessing the above hypotheses, one particular post hoc query came to mind—are the significant differences in perceptions and values between those students who plan to enroll in an MBA program immediately upon graduation and those who do not? Although several potential sources of disparity between the sample groups and their opinions regarding an MBA degree per hypotheses were developed *a priori*, additional post hoc analyses were performed to help answer the above question.

First, the responses to question one, which reads, 'I plan to enroll in an MBA program immediately upon graduation' were coded as a dummy variable with the responses Strongly Agree and Agree coded as 1, otherwise 0. To evaluate if there were indeed significant differences in the sample item responses between those who plan on enrolling in an MBA program straight after graduation and those who do not, both an independent samples t-test and Levene's test for equality of variances were performed.

Indeed, several statistically significant differences between the two groups were observed. Where $\alpha = 0.05$, six of the survey items returned significant results based upon the assessments. Q2, which reads, 'I believe an MBA degree will enhance my career advancement' and Q6, which reads, 'Gaining work experience before entering a graduate program would be best' both produced very significant results ($p < 0.000$). These differences make logical sense in

that they would both provide a reason for delaying the pursuit of an MBA degree. For example, if students value gaining employment experience before MBA enrollment or believe that an MBA would not currently enhance their career advancement, that would indicate students do not plan to enroll in an MBA program immediately.

Furthermore, two additional survey items, which pertain to the career value of an MBA program, were strongly statistically significant. Q8, which reads 'The long-term benefits of an MBA degree outweigh the costs' and Q12, which reads, 'An undergraduate business degree will be sufficient for my career success' both returned very significant p-values of 0.001 and 0.003, respectively. Again, both of these survey items relate to the benefits and long-term influence an MBA degree could potentially have on the students' careers, or at least their perceptions of these as a current undergraduate student. For example, if a student perceives that the long-term benefits of an MBA degree do not outweigh the cost and risk and/or if they believe their undergraduate education would be satisfactory for employment, it only makes sense that they may delay enrollment into an MBA program until later in their careers when perceptions and perhaps priorities change.

Finally, two other survey items returned statistically significant differences between respondents who said they plan to enroll in an MBA program immediately upon graduation and those who do not. Q11 (p-value = 0.009) and Q13 (p-value – 0.015) both relate to the appropriateness of an MBA degree for a student's career advancement and the possibility of other graduate degrees that may provide a better fit (see Appendix A for full question disclosure). These differences can be understood and explained best via potential differences in students' career choices and the paths that may lead them away or adjacent to the business world where other types of education may be appropriate. If students believe that a degree other than an MBA would better hone professional skills or steer them toward career advancement, it is only logical that they consider other degrees and delay enrollment into an MBA program, perhaps well after undergraduate degree completion.

LIMITATIONS

This study focuses only on responses of undergraduate business students at two universities concerning their intent to pursue an MBA degree and their opinions of the value of the degree. Students pursuing other majors, individuals who are not attending college and/or are actively engaged in careers, and individuals seeking employment or a career change were not a part of this study. Obviously, MBA programs consist of a variety of individuals representing a variety of backgrounds and circumstances. This study is only interested in capturing opinions of students currently enrolled in undergraduate studies relative to an MBA degree. As stated earlier, the study includes responses of students from two state universities and may not be representative of students in other places.

DISCUSSION AND CONCLUSIONS

Based upon the examination of the completed surveys, a multitude of interesting conclusions were realized. First, the majority of all respondents indicated that an MBA degree was indeed valuable as it is the preferred degree in the business world. Additionally, the results suggest that students are most likely to enroll in an MBA program if suggested to do so by their employer and that work experience before enrolling is perceived as beneficial.

Several different analyses were performed to examine potential differences between demographic factors and perceptions regarding the pursuit of an MBA degree. Differences of opinion regarding intentions and perceptions surrounding an MBA degree were examined across class (freshman, sophomore, junior, senior, other), gender, major, age, and between the two surveyed universities. No significant differences were identified across all survey instrument items for both class and age, lending full support to Hypotheses 3 and 7. Hypotheses 4, 5, and 6 only identified slight variations between gender, different home universities, and major, respectively. Only one scale item produced significant differences between males and females, suggesting that males are slightly more inclined to consider graduate degrees other than an MBA, lending majority support for Hypothesis 4 (Q13, p = 0.032). Several other factors not examined in this survey could be outside influences driving this difference, and future research might want to further examine graduate degree intentions between genders. Additionally, only one instrument item was identified to have significant differences between the two surveyed universities; Q21 uncovered statistically significant differences between the two when respondents were asked if they would be willing to spend more than 2 years in pursuits of an MBA degree (p = 0.011). As mentioned earlier, this could have more to do with the MBA degree program structure and the promotion of these offerings (1-year intensive vs. Executive MBA vs. evening coursework, etc.) rather than the location of the two universities, so we also lend majority support for Hypothesis 5. Finally, majority support was found for Hypothesis 7, as slight differences between majors were identified in only one of the survey instrument items (Q7, p = 0.01). Results indicated that General Business (p = 0.07) and Management (p = 0.014) majors both responded more positively regarding their preparedness for the pursuit of an MBA degree than those who were non-business majors. Each of the majors reported a high perceived level of value regarding an MBA degree, and the differences between non-business majors and those included in the college of business might best be explained by the potential for remedial coursework and the familiarity with topics typically covered in business courses. Future research might want to further investigate these differences as to better parse the influences driving this disparity.

Furthermore, post hoc analyses revealed other interesting relationships and stimuli regarding students' immediate pursuit of an MBA degree following their undergraduate studies. Several statistically significant relationships were discovered between those students who plan to enroll in an MBA program straightaway after graduation and those who do not. Upon further

investigation, it seems these differences between students can best be explained through their personal opinions of the value of an MBA regarding career advancement, gaining "real-world" experience before an MBA program, the potential for other graduate degrees providing better/more appropriate preparation, and the overall short- and long-term career benefits versus the cost of an MBA degree.

Overall, it seems that in spite of an economic downturn and the differences of opinion in the literature regarding the value of an MBA, students still see the degree as valuable and a way to advance their careers. University institutions and academicians alike need to recognize the driving forces behind students' intentions to pursue an MBA, and this research provides an initial roadmap to identifying how programs should perhaps be structured based on the opinions, values, and perceptions of potential MBA students. Future research might expand upon the current sample surveyed and include other potential influencers, as to better understand how and why students look to higher education to further their professional careers.

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APPENDIX A: SURVEY INSTRUMENT

		Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1	I plan to enroll in an MBA program immediately upon graduation.					
2	I believe an MBA degree will enhance my career advancement.					
3	The state of the economy will influence my decision to seek a graduate degree.					
4	The availability of financial aid will influence my decision to seek a graduate degree.					
5	AACSB accreditation would influence my choice of graduate school.					
6	Gaining work experience before entering a graduate program would be best.					
7	My undergraduate business degree has adequately prepared me to enter an MBA program.					
8	The long-term benefits of an MBA degree outweigh the costs.					
9	Obtaining an MBA degree at the same school from which I received my undergraduate degree is a good idea.					
10	It would be better to obtain an MBA degree from a school other than my undergraduate alma mater.					
11	An MBA degree is the preferred graduate degree in the business world.					
12	An undergraduate business degree will be sufficient for my career success.					
13	An MBA degree would be the only graduate degree I would consider.					
14	I would plan to pursue a doctoral degree after I obtained an MBA degree.					
15	I would prefer to be a full-time graduate student.					
16	I would prefer to attend graduate school while working a full-time job.					
17	I would prefer to obtain a graduate degree entirely on-line.					
18	I would pursue an MBA if my employer suggested it.					
19	If my employer encourages me to pursue an MBA, I would expect financial assistance from the organization.					
20	I would expect to have to take "remedial" coursework before being fully admitted to an MBA degree program.					
21	I would not be willing to devote more than 2 years in pursuit of an MBA degree.					

Major: _____   Classification: Junior(   ); Senior(   ); Other(   )

    Age: _____   Gender: Male(   ); Female

LEADERSHIP SKILLS IN MANAGEMENT EDUCATION

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ABSTRACT

Leaders in management education face diverse challenges in today's competitive and changing environment. However, educational administrators are often faculty members with little direct leadership experience, formal preparation, or skill development. Since leadership skills are abilities that can be developed, formal training should take place before these individuals enter leadership roles.

This study examines the required skills that lead to effective leadership in hospitality management higher education from the perspective of faculty and academic administrators using Mumford, Campion and Morgeson's (2007) strataplex model of leader behaviors as a framework. Both faculty and administrators ranked business skills as the most important skills for leadership; this was followed by cognitive skills, interpersonal skills, personal values, and strategic skills. Specifically, they unanimously ranked communication as the most important individual leadership skill and indicated that the method of communication depends on the audience and the content of the message. Ethics and fairness were prevalent personal values, as well as recognition that leadership should be able to understand faculty's interpretation of fairness.

INTRODUCTION

Leaders in management education face diverse challenges in today's competitive and changing environment. Evolving demands from superiors, financial challenges, faculty, and students create a turbulent environment in which administrators must thrive. One of the keys to being an effective leader in this situation is the application of the necessary leadership skills. However, leaders in educational institutions are generally faculty members that do not have formal leadership experience; as such, their formal preparation and skill development are practically non-existent, and consist mainly of on-the-job training. Since leadership skills are abilities that can be developed, formal training should be in place before the entrusting of administrative duties. The purpose of this study is to examine the required skills that make effective leaders in managerial higher education.

Leadership has often been thought of as based upon inborn personality traits, abilities, or gifts (e.g., Kenny & Zaccaro, 1983; Lord, Devader, & Alliger, 1986; Weber, 1947). However, in the middle part of the twentieth century leadership scholars began conceiving of leadership as

being bound to the particular social context in which it occurs, thus leading to theories of leadership as being based in individual behavior (e.g., Blake & Mouton, 1978; Fleishman, 1953). From the idea of leadership as a set of behaviors performed by the individual, it was only a small step to begin thinking of leadership as a definable set of skills that can be learned and developed (Connelly, Gilbert, Zaccaro, Threlfall, Marks, & Mumford, 2000; Katz, 1974; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000).Therefore, in this study, we examine leadership in an educational setting using Mumford, Campion, & Morgeson's (2007) taxonomy which describes leadership skills using four distinct categories of cognitive, interpersonal, business, & strategic skills.

This paper examines the expectations of leadership constituents in a hospitality management education setting: the faculty (the followers of these leaders), and the administrators within the larger university setting. We draw upon email surveys that are analyzed as a whole sample as well as within and between the two different sub-samples (faculty and administrators). Our findings show that there is a perceived hierarchy of skills for leaders within the context of management education, which suggests implications for both leadership theory and for the practice of leadership development.

Leadership skills in an education setting

Historically leadership research has utilized a variety of guiding frameworks, balancing between enduring, person-specific traits on the one hand and context-specific behaviors or skills on the other hand. This variety of approaches has been largely complementary (Bass, 1990). However, some have argued that a greater emphasis should be placed on leadership skills (Kanungo and Misra, 1992). These arguments tend to be based upon the ideas that 1) skills are behaviors that can be learned and developed, as opposed to personality traits or intellectual abilities; and 2) focusing on skills ensures that we are examining leadership within a specific context, with the explicit understanding that a required leadership skill in one context may be less relevant in a different context (Mumford, Campion, & Morgeson, 2007).

Leadership skills framework

Since Katz's classic (1955) work detailing the skills of an effective manager as being technical, conceptual, and interpersonal, there have been multiple attempts to categorize the skills or behaviors needed to be an effective manager, administrator, or leader (Boyatzis, 1982; Mintzberg, 1973; Peterson & Van Fleet, 2004). According to Katz, "skill implies an ability which can be developed, not necessarily inborn, and which is manifested in performance, not merely in potential." The important point is that skillfulness is demonstrated by effective action under various circumstances (Katz, 1955, p. 33). Much of the interest in skill-based conceptualizations of leadership appears to be based on the notion that while trait-based theories and measures of leadership describe who leaders are, skill- or behavior-based theories and measures of leadership describe what leaders actually do (Northouse, 2007), and as such may have more pragmatic value to both theorists and practitioners alike.

However, while most organizations appear to operate under the assumption that technical skills are the fundamental need for leaders (Hill, 2003; Rosen et al., 1976; Stumpf &London, 1981), academics studying high performing leaders and managers tend to focus primarily on either the interpersonal skills (Boyatzis, 1982; Sy, Cote, & Saavedra, 2005) or upon the leader's problem-solving or decision-making skills (Connelly, et al., 2000; Mumford, et al., 2000).

The skills-based model of leader performance proposed by Mumford, Zaccaro, Harding, Jacobs, and Fleishman (2000) does not diminish the importance of traits. Within this model, skills are in interaction with traits and experience; however the developed capabilities, referred to as knowledge and skills, have a more direct and immediate impact on leader performance than do traits. Broadly speaking, the model proposes that leader performance is based on three key types of capabilities: (1) creative problem-solving skills, (2) social judgment skills, and (3) knowledge (Mumford, Zaccaro, Connelly, et al., 2000; Mumford, Zaccaro, Harding, et al., 2000). Creative problem solving is important, especially in upper level leadership positions, because leaders are asked to solve novel and ill-defined problems due to the constantly changing organizational environment (Mumford, Zaccaro, Harding, et al., 2000). Leaders must be able to understand and motivate subordinates, influence and persuade their peers, and communicate the vision of the organization. Therefore, it is important to have social judgment skills that can be distinguished in four key social skills, such as perspective taking, social perceptiveness, behavioral flexibility, and social performance (Mumford, Zaccaro, Harding, et al., 2000; Northouse, 2007). Knowledge, the third competency suggested by this model, is defined as both accumulating information and also effectively structuring that information to facilitate effective problem solving and performance. To solve complex, ill-defined problems leaders must be able to quickly use information about the tasks at hand, the organization, and the people they work with (Mumford, Zaccaro, Harding, et al., 2000).

Some of the criticisms of Mumford et al.'s (2000) model are that it has low predictive value, and that it is not a pure skills approach to leadership because it includes traits. Additionally, some have criticized this model as it was constructed based solely upon observations of military personnel, and as such may have limited generalizability (Northouse, 2007).

More recently Mumford, Campion, & Morgeson (2007) identified a stratified approach to identifying leadership skills, which holds the assumption that part of the context of effective leadership is one's level within the organization and therefore that leaders will need to emphasize different sets of skills as they rise through an organization's hierarchy. Their strataplex model (Mumford et al., 2007) further elaborates on earlier typologies by examining leadership in terms of cognitive, interpersonal, business and strategic skills. In their model, "cognitive skills" refer to thinking, conceptual, and communication skills such as gathering and processing information, speaking and listening skills, and adaptability to new environments, information, technologies, etc. The category of "interpersonal skills" is centered on interacting with and influencing people through social awareness and interpersonal understanding. The category of "business skills" is related to specific functional skills for an individual's position, and includes the management of personnel, material, and financial resources in order to successfully accomplish critical business goals. Finally, the category of "strategic skills" is described as high level conceptual skills focused on managing complexity, ambiguity, and change within the organization. Strategic skills

are inherently based upon a systems perspective (Zaccaro, 2001), and involve understanding what is required to move the organization through a complex and dynamic environment towards specific goals (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000).

In addition to this four-part determination of leadership skill, Mumford et. al. (2007) also built upon previous work (Jacques, 1978; Mumford, Marks, Connelly, Zaccaro & Reiter-Roni, 2000; Schriesheim, Hunt, Hosking & Stewart, 1984; Zaccaro, 2001) establishing that the skill requirements of leadership interact with level. For example, at junior levels leaders need much higher levels of cognitive skills than strategic skills in order to be effective, whereas at the senior levels the need for strategic and cognitive skills was nearly equal (Mumford et al., 2007).

Leadership in an academic setting

There is a scarcity of research on leadership in higher education. Most leadership research has been conducted in business organizations with a secondary emphasis on the military and on government agencies (Vroom, 1984). This is perhaps partially because university leaders have not been as receptive to studies about what they do (Vroom, 1984) and partially because there are many more non-educational organizations in which to study leadership. Many of the studies that have been conducted on leadership in an educational setting have focused either on classroom teachers as leaders of their students, or have focused on primary school principals as leaders within their school. Relatively few studies have looked at the leaders of institutions of higher education.

Academic leadership is traditionally conceptualized in one of two ways. Some researchers define academic leadership as a series of tasks and functions performed by individuals, such as vice chancellors, deans, and department chairs, within universities (Gmelch & Miskin, 1993; Hecht, Higgerson, Gmelch, & Tucker, 1999; Leaming, 1998). Alternatively, the term "academic leadership" is used to describe the characteristics or qualities of particular individuals who are recognized by others as being academic leaders (e.g., Fisher & Koch, 1996; Ramsden, 1998). Consequently, leadership in the academic setting is routinely described as either the function of a particular office, completely independent of the individual holding that office, or it is described as an individual trait and not something that can be emulated, learned, or developed.

Leaders in academic institutions may have a particularly unique set of skills required for effectiveness, as opposed to those in business, military, or government settings. This is partly due to the fact that colleges and universities have unique purposes in society, and any definition of academic leadership should also be deeply concerned with what Duignan and Macpherson (1993) term "value-based leadership [which] ... should be primarily concerned with the generation of knowledge and the promotion of effective teaching and learning" (p. 10). As such, this type of values-based leadership is focused on goals which may be less tangible than the goals of the more traditionally studied business organization.

Additionally, there is some conflict within the academic community itself about the goals and behaviors on which academic leaders should focus. Murry and Stauffacher (2001) surveyed faculty and administrators from different disciplines within the physical sciences, social sciences,

arts, and humanities, and their findings demonstrated that depending on the discipline, different skills and behaviors are deemed important for department chairs. Faculty within the physical and social sciences, for example, tended to believe that effective department chairs needed to focus on promoting research and scholarly activity in the department. Whereas faculty in the arts and humanities wanted their department chairs to foster open communication, respect, and mutual trust among faculty and staff (Murry & Stauffacher, 2001). Interestingly enough, neither of these groups associated administrative tasks (e.g., preparing budgets, scheduling teaching assignments, handling faculty evaluations, managing office personnel, etc.) with effective academic leadership. This finding is supportive of the now widely accepted general notion that leadership skills will vary by context, even as slight-seeming a change in context as moving from one academic department to another.

In contrast to these perceptions of what behaviors academic leaders should be focused upon, a 1999 study by Wolverton, Gmelch, Wolverton & Sarros found that academic leaders are required to balance a multitude of diverse tasks, including: 1) resource management (preparing budgets and schedules, managing non-academic staff, etc.), 2) faculty leadership (encouraging research and professional development, maintaining a positive work environment), 3) personal scholarship (continuing one's own publication stream), 4) resource development (training and supervision of graduate students and junior faculty), and 5) faculty development (including recruiting faculty, measuring and monitoring faculty performance, etc.) (Wolverton, et al., 1999). This suggests that the lived experience of academic leaders is quite complex and demanding. This is bolstered by Bowman's (2002) comment that academic leaders require "a diverse set of leadership capabilities: well-honored communication skills [such as listening deeply to colleagues and students with empathy and curiosity], problem-solving skills, conflict-resolution skills, cultural-management skills, coaching skills, and transition-management skills" (p. 161).

Bryman (2007) further elaborated on this "diverse set of leadership capabilities" required by leaders within academic institutions through a comprehensive meta-analysis of the academic leadership literature. This meta-analysis revealed 13 different forms of leadership behavior associated with academic unit effectiveness, ranging from strategic skills such as creating a vision, making reputation-enhancing appointments, and advancing the unit's academic standing, to interpersonal skills such as consideration, trust, and treating staff fairly.

Additionally, academic leadership is complicated by the structure and nature of academic institutions. Individuals often rise to leadership positions within academic institutions without the advantage of leadership training, and often without a clear understanding of the new demands of the role compared to their previous role (Gmelch & Seedorf, 1989). These leaders are often asked to lead both their peers and their seniors within the institution. Additionally, academic leaders are often unable to exercise the traditional transactional ("carrot and stick") approaches to influencing others, as academic reward systems follow their own circuitous processes and the tenure system greatly reduces the ability of academic leaders to use coercive power.

Consequently, this study describes an effort to better understand the required skills that lead to effective leadership in management higher education from the perspective of hospitality management faculty and administrators.

METHODOLOGY

Population and Sample

This study is a part of a larger study that examined leadership in hospitality management education and was interested in a purposive sample (Kalargyrou & Woods, 2011; Kalargyrou and Woods, 2012). Therefore, intentional sampling of a specific group of individuals was used in order to best inform the researchers about the research problem under examination (Creswell, 2007). In this study, the sample consisted of both administrators and faculty of hospitality management education programs, since they are the stakeholders and evaluators of leadership effectiveness (Gay, Mills, & Airasian, 2006). The researchers were interested in identifying the required skills in academic leadership positions.

Purposive criterion maximum variation sampling was used where even a small sample of great diversity yields significant findings (Merriam, 1998). The selected cases were based on two criteria, the position of the participants, i.e., active faculty and administrators in hospitality management higher education, and the place of their employment, i.e., working for higher educational institutions located in the United States (Merriam, 1998; Miles & Huberman, 1994). In an effort to select representative cases that showed different perspectives of the problem and captured the diversity of educators, the initial sample consisted of all 236 individuals registered as educators in baccalaureate and/or graduate degree programs within the International Council on Hotel, Restaurant, and Institutional Education (I-CHRIE).

After the data from the email questionnaire were analyzed, the researchers conducted a focus group to validate the findings. The population of the focus group included participants from the initial study because of their familiarity with the study and its purpose.

Instrument

A pilot study was conducted with eight experts—four faculty and four administrators—from a four-year hotel administration baccalaureate program in a university located in a major metropolitan area. The final questionnaire included structured demographic questions, as well as semi-structured, open-ended questions about required skills that leaders such as deans and department chairs, in hospitality management education must have in order to be effective.

Data Analysis

Email questionnaire

The decision was made to distribute the initial survey using email rather than a more anonymous method, for example Survey Monkey or some other survey tool. This decision was reached for two reasons. First is that the usual reason for adopting an anonymous survey technique is the assumption that anonymity will lead to increased honesty or authenticity on the part of the respondent. In this case, while respondents were identifiable to the primary researcher, the content of the survey itself (beliefs regarding what leads to leadership

effectiveness in an academic setting) and the fact that the primary researcher did not have a relationship with respondents (other than the brief email exchange introducing the survey) led us to believe that respondents would not engage in self-censorship in their responses to the survey. The second and perhaps more important reason for administering the survey via email as opposed to a more traditional survey tool is that in this study, the open ended survey simply served as the initial round of data collection, and consequently was a background to the focus group interviews which followed. Consequently, it was of critical importance that the primary researcher had the ability to go back to the survey respondents in order to ask for clarification of their initial responses and to minimize the likelihood of misunderstanding the content of the questionnaire. This would not have been possible if using a more anonymous method of distributing the initial survey.

The examination of the email responses included the analysis of the demographic profile of the participants and a multiple case study that incorporated the within-case analysis (analysis on the individual level), and the cross-case analysis (analysis comparing the two main groups, faculty and administrators). The within-case study involved the analysis of data within the case, providing a description of each case and themes within it (Creswell, 2007). It was imperative to understand the differences of opinions between those two groups in order to evaluate their points of antithesis and agreement.

ATLAS.ti, a qualitative analysis software package, was used to assist the researchers with coding and comparison of segments of information, and the organization of codes hierarchically, so that smaller codes/categories were placed under larger units, such as themes. Both quantitative and qualitative content analyses were performed. Qualitative content analysis, analyzed text with text (e.g., themes/codes) and quantitative reported the frequencies with which a given concept appeared in the text, suggesting the magnitude of a specific concept (Berg, 2001).

Taxonomy Development

The study applied a combination of a priori and emergent coding. The a priori codes were based on the taxonomy of the leadership skills strataplex (Mumford, Campion, & Morgeson, 2007). Emergent codes that appeared during the analysis of data were also employed in an attempt to not limit the analysis to pre-figured codes (Creswell, 2007).

This approach was abductive—a combination of deductive and inductive analysis. Specifically, the abductive research started deductively with an existing categorical scheme: the leadership skills strataplex. Since the data did not entirely fit these categories the researchers developed categories inductively, such as personal values and general/leadership skills, which were grounded in the data, in an attempt to best fit the data (Berg, 2001). The objective was the development of existing theory, rather than its confirmation (Dubois & Gadde, 2002).

According to the leadership skills strataplex taxonomy, the first category, *cognitive skills,* referred to skills relating to basic thinking, conceptual, and communication capabilities such as collecting, processing, or disseminating information. These included both oral and written communication skills (e.g., speaking, active listening, and writing comprehension), as well as other cognitive skills such as the ability to learn and adapt (Mumford et al., 2007).

The next category, *interpersonal and social skills,* related to influencing and interacting with others. This category focused on social perceptiveness, which is awareness of others' reactions and understanding of the reasons they react the way they do. Interpersonal skills were used interchangeably with social skills, people skills, and human skills (Mumford et al., 2007).

The third category, *business skills,* were skills related to particular functional areas that create the context in which mainly leaders work. Business skills included: (1) management of personnel resources where leaders identify, motivate, promote, and develop individuals in their work; (2) management of material resources where leaders manage equipment, facilities and materials needed to do certain work (e.g., technology), and develop the promotion and sales of the educational product of their institutions; (3) management of financial resources, where leaders determine how money will be spent to get the work done, such as budgeting, accounting, and fundraising (Mumford et al., 2007).

Strategic skills, the fourth skill category from Mumford and colleagues (2007) are highly conceptual skills needed by leaders to deal with change, to understand the complexity of their organization and environment, and to influence their business. They include financial planning, visioning, and systems perceptions that determine when essential changes in the system occurred or were likely to occur (Mumford et al., 2007).

During the analysis of data a fifth category, *personal values*, was added to the four categories described in the leadership skills strataplex model (Mumford et al., 2007). Values have been defined as abstract beliefs about behaviors or end-states of existence that transcend specific situations and guide the selection or evaluation of behavior and events (Schwartz & Bilsky, 1987, p. 551). Rokeach (1973) argued that values can be learned, and once they are learned they are hierarchically ordered into a system based on the individual's perceived importance. For example, several studies support the notion that individuals can be educated to be ethical and moral (Maldonado, Lacey, Candace, & Thompson, 2007).

According to Bass (1990), personal values can include ethical conduct, achievement orientation, desire to excel, competitiveness, objectivity, independence, acceptance of responsibility, tough mindedness, persistence against obstacles, initiative, determination, confidence, inner-direction, preference for risk, and responsibility in the pursuit of objectives. Several of these concepts were discussed by the participants.

FINDINGS

Demographics of Email Questionnaire

Tables 1 and 2 provide details of the participants' demographic breakdown and experience levels. Of particular note are that 68% of study participants had at least some experience with leadership positions within academia, and a full 90% of participants had experienced a leadership position within the hospitality industry (outside of academia). Thus, the participants have direct knowledge of what makes effective leaders both through their own lived experience, as well as through their observations of others.

Table 1: Summary Profile of Sample Frame: Aggregate Personal Information (N=50)			
Demographics		N	%
Gender	Male	31	62
	Female	19	38
Age	26-35	2	4
	36-45	19	38
	46-55	13	26
	56-65	14	28
	>66	2	4
Ethnicity	White	40	80
	Asian Am./Pacif.Isl.	6	12
	African American	1	2
	Other	3	6
Position	Lecturer	1	2
	Assist. Professor	11	22
	Associate Professor	12	24
	Professor	5	10
	Assist. Prof/Assoc. Director	1	2
	Instructor/Director	1	2
	Senior Lecturer/Director	1	2
	Assist. Prof/Director	5	8
	Assoc. Prof/Director	2	4
	Professor/Director	1	2
	Assist. Prof/Chair	1	2
	Associate Prof/Chair	3	6
	Professor/Chair	3	6
Teaching Experience	<5 years	6	12
	6-11	10	20
	12-17	18	36
	18-23	8	16
	>24	8	16
Leadership experience in academia	<5 years	18	36
	6-11	11	22
	12-17	2	4
	18-23	2	4
	>24	1	2
	N/A	16	32
Leadership experience outside academia	<5 years	11	22
	6-11	16	32
	12-17	8	16
	18-23	6	12
	>24	4	8
	N/A	5	10

Table 2: Summary Profile of Sample Frame: Administrators Personal Information (N=21)/Faculty Personal Information (N=29)		Adminsitrators		Faculty	
Demographics		N	%	N	%
Gender	Male	10	48	21	72
	Female	11	52	8	28
Age	26-35	1	5	1	3
	36-45	7	32	12	41
	46-55	6	29	7	24
	56-65	6	29	8	28
	>66	1	5	1	4
Ethnicity	White	18	85	22	76
	Asian Am./Pacif.Isl.	2	10	4	14
	African American	N/A	N/A	1	3
	Other	1	5	2	7
Leadership experience outside academia	<5 years	5	24	N/A	N/A
	6-11	7	33	N/A	N/A
	12-17	3	14	N/A	N/A
	18-23	3	14	N/A	N/A
	>24	2	10	N/A	N/A
	N/A	1	5	N/A	N/A

Aggregate Opinions of Faculty and Administrators

Business Skills

Business skills were ranked first according to frequency among the five main categories (see Table 3). They were analyzed in four sub-categories: personnel management skills, general management skills, financial management skills, and material management skills.

Table 3: First Level of Analysis: Aggregate Ranked Frequencies of Leadership Skills	
Leadership Skills	N
Business Skills	134
Cognitive Skills	74
Interpersonal Skills	71
Personal Values	59
Strategic Skills	41
Uncategorized	12
Total Count of Quotations	391

Table 4: Second Level of Analysis: Aggregate Ranked Frequencies of Top 10 Leadership Skills	
Leadership Skills	N
Business Skills: Management of Personnel Resources	62
Business Skills: General Management Skills	43
Cognitive Skills: Ability to Learn & Adapt	41
Interpersonal Skills: AV: Public Relations	36
Strategic Skills: Planning	31
Cognitive Skills: Communication	29
Business Skills: Management of Financial Resources	20
Interpersonal Skills: NAV: Interpersonal Qualities	18
Interpersonal Skills: General	17
Business Skills: Management of Material Resources	9
Total Count of Quotations	306
Note. Personal Values don't have a second level of analysis.	

Personnel Management Skills.

Personnel management skills had the highest frequency among all leadership skills, with 62 quotations (see Table 4). According to study participants, effective leaders build teams by "understanding and encouraging teams," and by forming teams so that the strengths of some team members compensate for the weaknesses of the others (6 counts). Effective leaders also build consensus by using democratic procedures and embracing diversity (4 counts for each category). Finally, participants noted as important skills: (1) creating an environment of trust, especially "for those [faculty] who want to keep growing," (2) empowering faculty by "giving authority," (3) setting and enforcing high standards, (4) recruiting skills, (5) resolving disputes, and (6) conducting performance appraisals by "follow[ing] up regularly with individuals performing activities."

For leaders to effectively manage their faculty, they must "offer [their] faculty professional development opportunities in the university and in the discipline," and develop the staff, students, and culture of their organization. Administrators should be motivators (5 counts). A leader must be "a cheerleader," and must have "the ability to motivate faculty members to work as a team ...." Furthermore, leaders must be mentors and delegators (5 counts). Leadership needs "to understand the educational, administrative, and financial management piece, and be able to successfully delegate these duties to properly trained individuals."

General Management Skills.

General management skills were second in ranking after personnel management skills (43 counts). Organizing was heavily emphasized among general management skills (11 counts). "A leader should be an organized, competent administrator," and "be able to prioritize and have excellent time management skills." Six participants highlighted negotiating skills for acquiring resources and resolving conflicts.

Participants noted transparency as being significant in managing people (4 counts). "Transparency [is] a big issue now, everybody should know what is going on, e.g., financially, how much money do we have as a school, where are they going? If there is transparency, even if the faculty doesn't agree with his [administrator] decision, they will respect it."

Management of Financial Resources.

Financial acumen is increasingly seen as an important skill for leaders in an academic setting. The management of financial resources included fundraising (8 counts), budgeting (7 counts), general management of financial resources (4 counts), and accounting (1 count). Leaders should "generate support for their program primarily from funding and subsequently from gifts," and therefore be effective in forming relationships with funding sources such as the government or industry. Finally, budgeting skills were imperative "to help leaders know how to position their department, school, or whatever they are leading."

Management of Material Resources.

The management of material resources included the promotion and sales of the educational program/college to the industry, the public, and the administration (4 counts), technology (3 counts), and other diverse material resources such as "visit[ing] classes, ask[ing] for syllabi each semester, monitor[ing] the textbooks and peripheral materials being used," and "manag[ing] the curriculum" (2 counts).

Cognitive Skill.

According to frequency count, cognitive skills ranked second among the five main categories (see Table 3). Cognitive skills include collecting, processing, and disseminating information, learning, and critical thinking (Mumford et al., 2007). For the purpose of this analysis the categories described below were oral and written communication (29 counts), the ability to adapt (41 counts), and problem solving (4 counts).

Communication skills, such as written and verbal communication skills were the most frequently reported necessary skills for effective leadership (29 counts). "Leaders in academia most importantly must be strong communicators who are not afraid of controversy."

The ability to adapt refers specifically to the ability to navigate the trends of higher education (18 counts), the institutional environment (11 counts), and the hospitality industry (8 counts). At the level of higher education, an effective administrator should have knowledge and understanding of the following: (1) trends in higher education; (2) a wide variety of hospitality topic areas; (3) educational administration and financial management; (4) research and grant writing; (5) faculty responsibilities; (6) changing pedagogies and technology; (7) academic administration policies and practices; and (8) the specific needs of students and faculty. Specifically, one participant stressed the importance of having a dean from the hospitality discipline. In her college the previous dean came from the Business College and he was unable to understand the needs of the faculty and students. The food and beverage department of the

college was operating a restaurant and the dean was entirely focused on the return on investment (ROI) of the restaurant, disregarding the fact that the main purpose of the restaurant's operation was the training and practical experience of students.

Administrators need to have "extensive teaching experience in hospitality management, and practical working experience, e.g., in hotels/resorts, for providing guidance, encouragement, and problem solutions to faculty in teaching, curricular planning and development, research and grant seeking." Administrators must "keep up with the fast changes of the environment, [be] eager to understand and learn new things, e.g., foreign culture, language, [and] technology," by being "perennial students and always learning from others," and by "being open minded with the ability to compromise."

Interpersonal Skills.

Interpersonal skills relate to interacting and influencing others. The prevalent sub-category of interpersonal skills was engaging in public relations with groups of people such as the industry, faculty, staff, students, and the community (public relations, 36 counts), and the second sub-category included personal characteristics of how a leader should conduct him- or herself when interacting with others on a personal, one-on-one basis, i.e., leaders should be caring, empathetic, forgiving, hospitable, patient, respectful, and trustworthy (interpersonal qualities, 18 counts, see Table 4).

The distinction between interpersonal skills and business management of personnel resources was that interpersonal skills included interacting with people in general (18 counts), although management of personnel, as the definition dictates, was limited to interacting with the personnel, such as faculty and staff.

Primarily, effective administrators must be able to engage in public relations with the industry (12 counts), with the students and faculty/staff (6 counts for each group), and finally with the community (5 counts) and other administrators (4 counts). The most important ability for a leader was to develop strong support from the industry for the achievement of the school's mission. Personal contacts in industry as well as strong and active relationships with alumni were specifically mentioned as being critical for leadership success.

Other interpersonal skills referred to personal characteristics of how a leader should interact with others. Patience had the highest frequency among those characteristics (4 counts). One faculty-participant noted that administrators must be patient when dealing with higher administration and faculty.

Leaders should be empathetic and have an understanding of the needs and wants of faculty, students, and students' parents. Administrators should recognize that even amid different departments the needs of faculty and students are different because of the different focuses. For example, the food and beverage department needs more instructors that teach in laboratories versus the marketing department that teaches mainly theory in classrooms.

Leadership should also demonstrate concern to the faculty, staff, and students. Leaders should be compassionate, caring, forgiving, and hospitable (for frequencies see Table 5). Administrators must be respected and respectful, meaning that they should cultivate a mutual respect between themselves and the people they lead.

Personal Values.

Ethics were considered the most important attributes to successful leadership from a personal values perspective (18 counts). Leaders must have strong ethical standards and a sense of fairness; they "must not play favorites." Ethical leadership was also related to integrity, honesty, and transparency. Transparency was also discussed at the general management skills section. Therefore, administrators should manage their faculty and staff with transparency.

Fairness and objectivity were the second most frequent sub-category among personal values (12 counts). A faculty member noted that administrators must "be consistent regarding the level of rigor that [they] require from others, by imposing the same rigor upon themselves." An administrator-participant suggested that "the administrator needs to treat faculty not fairly but equitably." There is a thin line between equity and fairness that leaders must walk.

Administrators must be committed to excellence and "must set high standards and enforce those high standards" to their faculty, staff, and students. Rewarding excellence can be a good motivation for achieving it. Additionally, leadership must embrace risk and be daring when making decisions and planning for the future, while "dream[ing] big dreams and seeking any opportunity."

Effective administrators must value success and before they assume administrative positions they should demonstrate a successful academic career. Other important personal values were humor, humility, persistence, and "boldness; [that] means [for administrators] to stand their ground, and not change with the wind."

Strategic Skills.

Strategic skills are highly conceptual skills and in this study they rated fifth among the main leadership skills categories (see Table 3). Administrators should have "an understanding of strategy development and execution." The most important strategic skill according to study participants was the strategic planning of the vision (18 counts).

Leaders must "create and follow a vision" with the intent to "provide direction to the educational program/college." They must "see things others can't see" and must be able to picture the future. An administrator noted "I like to picture what is important to me, how things look, or the curriculum. I visualize the curriculum in my head; I visualize what graduation is going to look like in my head …."

Another participant (an administrator) described that leaders "MUST have a vision, communicate that vision as a missionary, sleep NOT until [they] achieve it, and be flexible through the process." When leaders define the vision/mission of the unit they lead, e.g., college department, this vision/mission must fit into the broader institutional vision. Furthermore, administrators should be able to properly place the strengths and weaknesses of the team within the vision; they must know how to use the strengths of some team members and compensate for the weaknesses of others.

Strategic skills included recognizing opportunities and the appropriate strategies to deal with them (Mumford, et al., 2007). Thus, leaders must be able to bring and manage change (5 counts). Therefore, they should be "change agents" that can "keep up with the fast changes of the

environment, [be] eager to understand and learn new things." They must promote the free exchange of ideas and "stimulate creative ideas by challenging the status quo."

Ranking	Leadership Skills	N
**Table 5: Final Level of Analysis: Aggregate Ranked Frequencies of Leadership Skills**		
1st	Communication	29
2nd	Ability to Learn & Adapt in Higher Education	18
	Ethics	18
	Planning of Vision	18
3rd	General Interpersonal Skills	17
4th	Strategic Planning	12
	Fairness	12
	Engage in Public Relations with the Industry	12
	Leading	12
5th	Organizing	11
	General Ability to Learn and Adapt	11
6th	General Management	10
	Personnel Development	10
7th	Fundraising	8
	Ability to Learn & Adapt with the Industry	8
8th	Time Management	7
	Budgeting	7
9th	Negotiating	6
	Build Teams	6
	Engage in Public Relations with Students	6
	Creativity	6
	Engage in Public Relations with Faculty & Staff	6
10th	Bring & Manage Strategic Change	5
	General Strategic Skills	5
	Delegator	5
	Mentor	5
	Motivator	5
	Engage in Public Relations with Community	5
11th	Supporter	4
	Team Player	4
	Directing	4
	Transparency	4
	General Management of Financial Resources	4
	Marketing & Sales	4
	Build Consensus	4
	Embrace Diversity	4
	Patient	4
	Passion	4
	Responsibility	4

Table 5: Final Level of Analysis: Aggregate Ranked Frequencies of Leadership Skills		
Ranking	Leadership Skills	N
	Politics	4
	Problem Solving	4
	Engage in Public Relations with Other Administrators	4

Similarities and Differences between Faculty and Administrators

Faculty represented 58% of the sample and administrators 42%, which approximated an equal representation of both populations, thus enabling comparisons between faculty's and administrators' opinions. The ranking below was based on the frequency count of faculty's and administrators' quotations.

First Level of Analysis

With some exceptions, there was a general difference of opinions between faculty and administrators in ranking the leadership skills that were deemed important to leading effectively. Primarily, faculty and administrators agreed that business skills are an essential requisite for effective leadership in a higher education institution. Business skills include organizing, negotiating, and managing personnel, financial, and material resources. Both faculty and administrators put business skills in the highest ranking of leadership skills (see Table 6).

Faculty ranked cognitive skills second (21% of quotations), including communication skills, the ability to adapt to change, and problem solving. In contrast, administrators ranked interpersonal skills in second place (21% of quotations). Interpersonal skills emphasize interacting and influencing others, and mainly include engaging with the industry, faculty, and staff, students, and other administrators.

Faculty ranked personal values in the third position. These include ethics, fairness, creativity, responsibility, risk taking, and passion (17% of quotations). Administrators ranked cognitive skills in the third position (17% of quotations). In the fourth position faculty ranked interpersonal skills (16% of quotations) and administrators ranked strategic skills (13% of quotations). Finally, near the bottom of the taxonomy, administrators considered that personal values (12% of quotations) such as ethics and fairness were important for leadership effectiveness, while faculty placed strategic skills (8% of quotations) at a similar level of importance. Both groups ranked general leading skills, the ability for administrators to guide their team by example, last.

Second Level of Analysis

At the second level of analysis, Table 7 depicted the differences and similarities between the opinion of faculty and administrators. For both groups, management of personnel, including building teams by consensus, creating an environment of trust, and empowering faculty and staff, was the most important leadership skill (17% of quotations).

Table 6: Comparison of Leadership Skills between Faculty and Administrators First Level of Analysis		
Ranking	Faculty	Administrators
1st (highest frequency)	Business	Business
2nd	Cognitive	Interpersonal
3rd	Personal Values	Cognitive
4th	Interpersonal	Strategic
5th	Strategic	Personal Values
6th (lowest frequency)	General	General
Note. The ranking is based on the frequency count of quotations.		

Administrators ranked second engaging in public relations with the industry, the personnel, the students, and the community (12% of quotations). In contrast, faculty rated fifth engaging in public relations. Faculty ranked general management skills, including directing, negotiating, organizing, time management skills, and transparency, as the second most important group of skills (12% of quotations).

Table 7: Comparison of Leadership Skills between Faculty and Administrators Second Level of Analysis		
Ranking	Faculty	Administrators
1st(highest)	Mgmt of Personnel	Mgmt of Personnel
2nd	General Management*	Public Relations
3rd	Ability to Adapt	General Management
		Strategic Planning
4th	Interpersonal Qualities**	Ability to Adapt
5th	Communication	Communication
	Public Relations	
6th	Strategic Planning	Interpersonal Qualities
7th	Mgmt of Financial Resources	Mgmt of Material Resources
8th	General Interpersonal Skills***	General Interpersonal Skills
		Mgmt of Financial Resources
9th(lowest)	Mgmt of Material Resources	
Notes: The ranking is based on the frequency count of quotations.		
* General Management refers to directing, negotiating, organizing, time management skills, and transparency.		
**Interpersonal Qualities refer to how leaders conduct themselves in relations with other people, i.e., caring, empathetic, forgiving, hospitable, patient, respectful, and trustworthy.		
***General Interpersonal Skills refer to generic terms used by the participants such as "social skills," "interpersonal skills," and "people skills."		

Faculty agreed that the ability to learn and adapt to the changes in higher education, and the industry was the third most important skill in the ranking of leadership skills (11% of quotations). Administrators ranked third general business skills, along with strategic planning (10% of quotations). Faculty ranked strategic planning sixth, lower than administrators. Other similarities between the two groups were that both administrators and faculty ranked fifth the skill of oral and written communication (9% of quotations for both groups). Management of

financial and material resources and general interpersonal skills ranked towards the bottom of importance for both groups.

Final Level of Analysis

The last level of analysis gave detailed information about specific skills that were significant to the success of higher education administrators. Both groups, faculty and administrators, agreed that communication was the most important leadership skill (8% of quotations).

Ethics (such as integrity and honesty) and the ability to learn and adapt in higher education (where administrators should know the operations and environment of their department and/or school) ranked second among faculty members and third among administrators. Administrators ranked the planning of vision second in importance, whereas faculty ranked this sixth. Furthermore, administrators allocated more significance in public relations with the industry (third ranking) and with the students (sixth ranking) than did faculty. Fairness and strategic planning ranked the same for both groups (fifth ranking). Finally, administrators valued the development and motivation of personnel more than faculty did (see Table 8).

Table 8: Comparison of Leadership Skills between Faculty and Administrators – Final Level of Analysis		
Ranking	Faculty	Administrators
1st	Communication	Communication
2nd	Ability to Adapt to Higher Ed	Planning of Vision
	Ethics	
3rd	General Interpersonal Skills*	Ethics
	Leading skills	Ability to Adapt to Higher Ed
		Engage in PR with Industry
		General Interpersonal Skills
4th	General Management**	Organizing
5th	Fairness	Fairness
	Strategic Planning	Strategic Planning
	General Ability to Adapt	Personnel Development
6th	Planning of Vision	Personnel Motivation
	Fundraising	General Ability to Adapt
		Engage in PR with Students
Notes: * General Interpersonal Skills refer to generic terms used by the participants such as "social skills," "interpersonal skills," and "people skills." ** General Management refers to quotations that did not define specific skills, but used generic terms such as "management skills" and "administrative skills."		

Six faculty members (21% of faculty participants) and only two administrators (10% of administrators) noted fundraising as an important skill to leadership effectiveness. Faculty did

not make any reference to the importance of technological skills and the management of teaching material, and only a small number of administrators did.

Only three administrators (14%) noted that it was important to create an environment of trust, but both groups equally agreed on the necessity of diversity, building consensus, and empowering faculty and staff. Only faculty members emphasized the importance of recruiting skills, dispute resolution, and empathy; administrators did not note these issues at all. On the other hand, only administrators noted the concept of respect, both being respected and demonstrating respect for others. Finally, faculty looked for humor, persistence, and risk taking in their leaders, characteristics that administrators did not note.

Focus Group Results

Demographics of Focus Group

According to Table 9, the sample of the focus group was diverse in gender, age, and position (57% faculty and 43% administrators). A plurality of participants were white (85%) just like the sample of the e-mail survey. The administrators had more teaching experience, and leadership experience inside and outside academia than faculty, probably because they were older than faculty participants.

Communication Channels

Communication skills ranked first among both administrators and faculty in the e-mail questionnaire. Participants in the focus group agreed with the findings and also discussed effective ways of leaders communicating with their constituents. The participants discussed the need to use multiple methods of communication, and to be sensitive to both the content and the intended audience. They cited the challenges of adapting to technology and social media in order to reach particular constituent groups, as well as the added impact of taking the time to deliver a message personally and in a face-to-face setting, as opposed to using technology. Additionally, they stressed the importance of listening, particularly active listening through which the individual perceives both the factual content of the message as well as expressed emotional sub-content.

Equity and Fairness

The e-mail questionnaire findings included fairness and equal treatment of faculty as important required skills for effective leadership. Many of the focus group participants noted that there was a high potential for "fair" and "equal" to be very different, and that this would often depend upon perception. For example they noted that an "equal" treatment of faculty might include requiring all faculty to teach the same number of courses, even though some faculty may engage in other critical work activities such as research, university/school/department level service, and outreach to key constituent groups such as students, alumni, or industry. While giving all faculty the same course load may be "equal" in this circumstance it would not be

"fair." Hence the distribution of duties and expectations should be "fair" but not necessarily "equal."

Table 9: Summary Profile of Focus Group Sample: Personal Information (N=7)			
Demographics		N	%
Gender	Male	3	43
	Female	4	57
Age	26-35	-	0
	36-45	2	29
	46-55	2	29
	56-65	2	29
	>66	1	14
Ethnicity	White	6	85
	Asian American/Pacif.Island	.-	-
	African American	-	-
	Other	1	15
Position	Assist. Professor	3	43
	Professor	1	14
	Professor/Chair	2	29
	Assiociate Dean	1	14
Teaching Experience	<5 years	-	-
	6-11	2	29
	12-17	1	14
	18-23	2	29
	>24	2	29
	N/A	-	-
Leadership experience in academia	<5 years	3	43
	6-11	2	29
	12-17	-	-
	18-23	-	14
	>24	-	-
	N/A	1	14
Leadership experience outside academia	<5 years	3	43
	6-11	3	43
	12-17	1	14
	18-23	-	-
	>24	-	-
	N/A	-	-

It was also noted that fairness is not necessarily only about how the leader/administrator views the situation, but more important is the ability to know the faculty's interpretation of fairness. For example, different faculty members value different activities; one may value or prefer teaching, whereas another may be more invested in research, and so to give these two the same expectations would not necessarily be seen as "fair" by the individual faculty.

Fundraising

The members of the focus group noted that the results of the email questionnaire did not evidence a high value placed upon fundraising (sixth among faculty and eighth among administrators). They suggested that this is in part due to different terminology used to portray the same skills. For example, some participants used the term "fundraising" and others "engaging in public relations with the industry," which was coded under the category "interpersonal skills." Members of the focus group who were serving as administrators noted that this is a particular skill that is of critical importance in the recent educational and political environment, stating that it was explicitly raised in their own hiring process and that it is an essential skill to maintain a viable educational program.

Strategic Planning

The focus group participants deemed it important to elaborate on the concept of strategic planning. According to them, strategic planning includes the long-term planning of the goals and objectives of the educational unit, and the means, such as policies and tactics, that leadership would use to achieve them. Depending on the internal and external environment of the institution, the period of time of projected planning may vary from five to ten years.

In an educational setting, the most appropriate people to do the planning are not just the administrators; everyone in the unit should participate, because they would all be involved in the plan's execution. Faculty needs to be involved in the formation of a feasible and achievable strategic plan because they are the key team members that would support its implementation.

CONCLUSIONS AND RECOMMENDATIONS

Overall, both faculty and administrators ranked business skills as the most important set of leadership skills, followed by cognitive, interpersonal, and strategic. These findings were different from the study conducted by Mumford, Campion, and Morgeson (2007) that concluded that at the leadership level cognitive skills would be needed the most, followed by interpersonal, business, and finally, strategic skills.

Business skills included general management skills, and management of personnel, financial, and material resources. Management of personnel resources ranked as the most important for faculty and administrators among business skills. Bryman (2007) found similar results that included allowing personnel the opportunity to participate in key decisions, creating a positive and collegial work atmosphere in the department, e.g., by creating a climate of trust and mutual respect, and providing feedback on performance.

Administrators underlined more than faculty the need for leadership to have the necessary skills to develop and motivate personnel. This is interesting, as it suggests faculty either feel that this is not a required role for administrators, or that motivation of faculty is not needed. If the latter, this begs the question of how one provides motivation and developmental opportunities for someone who feels that they already have sufficient of motivation and professional development. In this sense, academic leaders experience some of the same difficulties as their peers, as many

leaders and managers struggle with the motivation and development of knowledge workers (Amar, 2004; Tampoe, 1993).

Management of financial and material resources, including fundraising, budgeting, accounting, technology, marketing, and sales and curriculum, ranked towards the bottom of importance for both groups. Surprisingly, mostly faculty noted fundraising as an important leadership skill. The explanation might be that some participants that noted good public relations with the industry and the community as important skills did not explicitly refer to fundraising but implied it as part of public relations. Technology as part of management of material resources ranked low among participants, the assumption presumably being that since administrators do not have to interact with students, they do not need to keep up with current technology.

Cognitive skills ranked second in aggregate frequency count and emphasized effective communication and the ability to adapt to the changing environment of higher education. Faculty and administrators unanimously ranked communication skills as the most important leadership skills. This reinforces the research of multiple previous authors (e.g., Bowman, 2002; Bryman, 2007; Cichy, Cha, & Kim, 2004; Murry & Stauffacher, 2001) citing communication skills as being among the important skills necessary in effective leadership.

Faculty participants emphasized more than administrators the necessity of having the ability to learn and adapt in higher education. Administrators should have teaching experience, research skills, and be able to understand research and grant writing (especially in research-oriented institutions) in order to better comprehend faculty's and students' needs. Furthermore, they need to have an understanding of the university's system, such as policies and practices, and be able to keep up with the changing pedagogies and trends in the hospitality discipline.

Interpersonal skills such as good public relations with internal and external constituents, and interpersonal characteristics such as empathy, respect, hospitality, forgiveness, trustworthiness, and caring, had the third aggregate frequency count after cognitive skills. Bryman (2007) in his meta-analysis of peer-reviewed publications identified similar leadership behaviors, such as being considerate, building relationships of trust, and being trustworthy, that were associated with departmental effectiveness in the United States. Interpersonal skills were more important for administrators than faculty respondents.

Future researchers could compare the administrators' perceptions and their actual behavior and see if their faculty is satisfied with their interpersonal skills. Specifically, the findings of the study can be used in future quantitative research as an evaluation tool for leadership skills of the administrators in hospitality management education. A questionnaire can be produced, based on the skills that participants valued as important, that would assess the level of faculty's satisfaction with their administrators in hospitality management education. Researchers may also test for significant differences based on gender and ethnic diversity of their administrators.

It is important to note that often administrators are faculty members that have assumed administrative positions, and are used to working independently without having to develop interpersonal skills. Therefore, academic development programs should heavily emphasize training in interpersonal skills for future or current leaders. Future researchers might also study the reasons that faculty undertake administrative positions in the hospitality management education.

Administrators emphasized more than faculty the need to engage in good public relations with the industry and students. Having an extended industry network would facilitate internships, improve graduates' employment placement, bring guest speakers and corporate training into the college/school/department, assist with the formation of a valuable advising board, develop the curriculum according to the needs of the industry, and provide financial support of the industry, e.g., gifts and scholarships, resulting in the advancement of the program's standing, profile, and reputation.

Administrators ranked personal values fifth and faculty ranked them third; ethics and fairness were the prevalent personal values. That might suggest that faculty values the importance of ethics and fairness higher than administrators do in leadership effectiveness. Some might argue that personal values cannot be taught, yet practices showed that people can even develop attributes that in the past were considered uniquely inborn characteristics; these practices included business colleges offering MBA classes in ethics, and corporate training for the development of ethical values and conduct. Therefore, academic development programs might consider including in their curricula training in ethics and other personal values such as fairness, creativity, and responsibility.

Bryman (2007) and Lucas (1994) also found in their studies that treating academic staff fairly and equitably and displaying integrity and ethical behavior were skills and behaviors that contributed to leadership effectiveness. Moreover, regarding personal values, faculty wanted humor, persistence, and risk taking from their leaders, characteristics not mentioned by administrators. Hence, administrators should find creative ways to be more fun, not give up easily, and demonstrate more risk-taking when believing in the best interest of the people they lead.

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INTEGRATING ICT INTO HIGHER EDUCATION AT THE UNIVERSITY OF MONCTON: A STUDY OF ONSITE VS ONLINE STUDENTS' PERCEPTIONS

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ABSTRACT

For the past two decades, information and communication technologies (ICT) have transformed the ways professors teach and students learn. This study aims to investigate the perceptions of onsite students (blended mode) and of those taking the same courses on the Internet (online mode). To guide the study, a moderator-type theoretical research model was developed, out of which eight hypotheses were formulated. The model was tested in a field experiment. To collect data, we used a multimethod approach, that is, a Web survey involving open- and closed-ended questions. The sample was formed of 192 onsite and online students from the three campuses of the University of Moncton (Moncton, Edmundston, and Shippagan). The quantitative data analysis was performed using a structural equation modeling software, that is, Partial Least Squares (PLS); the qualitative data were analyzed following a thematic structure using QSR NVivo software. In this paper we present a summary of the quantitative results (closed-ended questions) supported and enriched by the qualitative results of the students (open-ended questions).

INTRODUCTION

For the past two decades information and communication technologies (ICT) have transformed the ways professors teach and students learn. Some professors have actively shifted the information flow from a face-to-face mode (student listening, onsite presence) to an entirely online mode (student reading, onsite non presence); that is, they have designed courses and curricula offered completely online using the Internet and the Web. Others have developed the hybrid or blended mode (a combination of face-to-face and online activities; less student onsite presence, ongoing use of ICT both inside and outside the classroom). Hence, knowledge acquisition and dissemination have been re-conceptualized, and new methods developed in order to satisfy the rapidly evolving needs of a population of individuals in search of more knowledge, heterogeneous, and geographically distributed.

In today's global economy, organizations (including universities) who want to survive and strive to stay highly competitive must continually innovate at the human, material, and

technological levels. Alavi and Leidner (2001) pointed out that, during the past decade, universities and corporate training facilities have at an increasing rate invested into ICT to improve education and training. Marshall (2002) added that actual classrooms are more and more enriched by technology. Recent studies by the National Center for Education Statistics (Waits & Lewis, 2003), the Sloan Consortium (Allen & Seaman, 2004, 2005, 2006, 2007, 2008, 2009, 2010), Aggarwal and Legon (2006), Borstorff and Lowe (2007), Martz and Shepherd (2007), Kinuthia and Dagada (2008), as well as Washburn (2011) showed a growing appeal and acceptance of online learning. Other recent studies by Kim and Bonk (2006), Gomez et al. (2007), Eynon (2008), Young and Ku (2008), Steele (2008), Moskal and Dziuban (2011), and the Garrison and Vaughan's (2008) book showed the growth of blended learning. Further, it is argued by Giddens (1999) that one of the more important functions of the university is to allow people to play a significant role in today's new economy. Thus, universities, faculties, and professors are currently looking for ways to improve teaching and curricula, as well as develop new modes capable of satisfying the actual and future needs of organizations and societies. Out of their recursive attempts, the four fundamental questions often revisited are the following: (1) What are we teaching? (2) What should we be teaching? (3) What is the best way to teach it (pedagogy)? and (4) What are the impacts on students?

The study described in this paper aims at helping universities to stay highly competitive in the current global shift in higher education, an approach that is innovative in its exploration of new directions as regards the last two above-mentioned questions. We examine the relation between students' learning outcomes (undergraduate and graduate students) and learning environments integrating ICT. Specific relations between student onsite presence and student online presence are examined as to identify their effect on the basic relation between learning environments and students' learning outcomes. More particularly, this study compares onsite technology-rich hybrid or blended learning environments and online learning environments. Moreover, this study brings to the foreground several moderator variables related to students' characteristics (psychology) and professors' pedagogy in order to better understand the relation between learning environments and students' learning outcomes.

Building on questions 3 and 4 raised previously (professor's pedagogy and impacts on students), this study focuses on the following three research questions: (1) Are there differences between learning outcomes of onsite students and of those taking the same courses online? If so, which ones? (2) Do students' characteristics influence the relation between learning environments and students' learning outcomes, and are there differences in this influence between onsite and online students? If so, which ones? and (3) Does professors' pedagogy influence the relation between learning environments and students' learning outcomes, and are there differences in this influence between onsite and online students? If so, which ones?

This paper describing the study builds on a framework suggested by Fillion (2004) in the conduct of hypothetico-deductive scientific research in organizational sciences, and it is structured as follows. First, the theoretical background supporting the study is examined; second, the

methodology followed to conduct the study is presented; and finally, the results of the study are reported and discussed.

THEORETICAL BACKGROUND

This study is theoretically-based on Leidner and Jarvenpaa's, and Phipps and Merisotis' key research works. On the basis of three case studies, Leidner and Jarvenpaa (1993) developed a theoretical research model for other researchers to test in future studies. And, in a literature review, Leidner and Jarvenpaa (1995) inventoried numerous educational variables to be examined in future studies according to different scenarios using ICT. Several of the variables suggested by these authors are used in this study.

In their literature review on distance learning effectiveness in the 1990's, Phipps and Merisotis (1999) pointed out that the studies comparing the distance ICT-based learning environments with conventional learning environments (face-to-face without ICT use) fall into three categories: (1) students' results (performance); (2) students' attitude toward learning in these two types of environments; and (3) students' general satisfaction. We use the last two categories (learning effectiveness and satisfaction) as dependent variables in this study.

Of the 8,110 papers published over a period of 15 years in the journals and reviews examined, Chin et al. (2003) found only 74 that contained moderator variables. Moreover, several IS dominant theories (e.g., Davis' 1989 Technology Acceptance Model (TAM) and Doll and Torkzadeh's 1991 user participation/involvement model; quoted in Chin et al., 2003, p. 192) as well as the streams of research that have extended these models (e.g., Barki et al., 2007; Bhattacherjee & Sanford, 2006; Brown et al., 2010; Carswell & Venkatesh, 2002; Chin et al., 2008; Davis & Venkatesh, 2004; Devaraj et al., 2008; Hartwick & Barki, 1994; Karahanna et al., 2006; Limayem et al., 2007; Morris & Venkatesh, 2010; Venkatesh & Davis, 2000; Venkatesh & Speier, 1999; Venkatesh & Speier, 2000; Venkatesh & Johnson, 2002; Venkatesh et al., 2003; Venkatesh et al., 2008) suggest that moderator variables are an important avenue of future development. Furthermore, numerous researchers within the IS field have suggested that models using moderator variables be tested (Anderson, 1985, Doll & Torkzadeh, 1989, Ives & Olson, 1984, McKeen et al., 1994, Sambamurthy & Zmud, 1999, Tait & Vessey, 1988; quoted in Chin et al., 2003, p. 192; Barki et al., 2007; Brown et al., 2010) as have researchers in other fields (Chin et al., 2003). Hence, most of the variables identified by Leidner and Jarvenpaa (1993, 1995) are used as moderator variables in this study. The resulting theoretical research model is shown in Figure 1.

Figure 1 shows that the theoretical research model which guides the study is articulated around an independent construct, learning environments, a dependent construct, student learning outcomes, as well as two moderator constructs, student characteristics and professor pedagogy. On the basis of this theoretical research model, eight research hypotheses are formulated.

H1: Students whose onsite presence is required to take courses (blended mode) find learning more effective than those whose onsite presence is not required (online mode).
H2: Students whose onsite presence is required to take courses (blended mode) are more satisfied than those whose onsite presence is not required (online mode).
H3: Students' autonomy has an influence on the relation between learning environments

(students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H4: Students' anxiety has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H5: Students' motivation has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H6: Students' participation has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H7: Type of professor has an influence on the relation between learning environments (students' onsite presence and non presence) and students' learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is required.

H8: Teaching practice has an influence on the relation between learning environments (students' onsite presence and non presence) and students' learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is required.
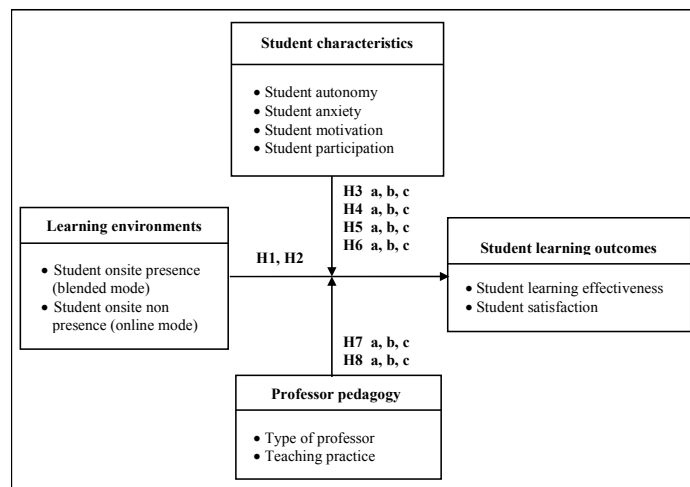
Figure 1: Theoretical Research Model

In the next section of the paper, we describe the methodology followed to conduct the study.

METHODOLOGY

Sample and Data Collection

The theoretical research model depicted in Figure 1 was tested in a field experiment at a small Canadian university, the University of Moncton. The sample was formed of students of eight undergraduate and seven graduate courses, which were offered at the three campuses of the university (Moncton, Edmundston, and Shippagan) in the two modes taken into account in this study: blended mode and online mode. Students were not randomly assigned, that is, for each course selected, the students were asked to participate in the study. The study was spread over two semesters: winter and fall. Each course had to meet the four following criteria: (1) to use a similar set of ICT in the two modes (computer, e-mail, chat, discussion forum, Web browser, Internet-based software, videoconferencing system, etc.); (2) to be taught by a different professor in the two modes; (3) to have the same course content in the two modes; and (4) to have, as much as possible, a similar group size in the two modes. In addition, each course was selected so that groups of students in the two modes were the most homogeneous possible in terms of age and ICT experience. Finally, the course selection was made in order to cover a large area of administration disciplines. Thus, the sample of the study consisted of 192 students, 105 (42 in winter and 63 in fall) in blended mode courses and 87 (34 in winter and 53 in fall) in online mode courses.

Three weeks before the end of each semester of the data collection, students were asked to fill out an electronic survey on a Web site. To that end, an e-mail, including a URL and a password allowing access to the electronic survey, was sent to students. As follow up, ten days after the students had been asked to fill out the survey on the Web site, an e-mail was sent to students relating the importance of the study for the advancement of scientific knowledge on integration of ICT into higher education. Finally, a few days later, all professors were asked to relay the importance of the study to students during class or in the discussion forums of the online courses.

In the winter semester, 76 students (42, blended mode; 34, online mode) out of 392 completed the electronic survey for a response rate of 19.5%; in the fall semester, 116 students (63, blended mode; 53, online mode) out of 508 completed the electronic survey for a response rate of 22.9%. Overall, 192 students (105, blended mode; 87, online mode) out of 900 completed the electronic survey on the Web site for a global response rate of 21.3%. And, of these 192 students, 174 (98, blended mode; 76, online mode) completed the qualitative section (open-ended questions) of the Web survey for a response rate of 90.6%.

Constructs Measurements

The learning environments construct was dummy coded with students' onsite presence (blended mode) as "1" and students' onsite non presence (online mode) as "2". And to measure all the variables that made up the other constructs, with the exception of teaching practice, we used various measures validated by other authors in past studies. They are presented in Table 1.

Table 1: Measures of Variables	
Variable	**Measure and (# of items)**
Learning effectiveness[a]	Alavi (1994); Centra (1979); Hiltz (1988) (12 items)
Student satisfaction	Hobbs and Osburn (1989) (15 items)
Student autonomy[b]	Hackman and Oldham (1975) (2 items); Wilson (1990) (4 items)
Student anxiety	Spielberger et al. (1970) (20 items)
Student motivation	Hackman and Oldham (1975) (10 items)
Student participation	Green and Taber (1980) (5 items)
Type of professor[b]	Hiltz (1990) (11 items); Thach and Murphy (1995) (2 items)
Teaching practice[c]	Chickering and Gamson (1987) (7 items)

[a] The measure of this variable was formed using 12 items developed by Alavi (1994) and derived from Hiltz's (1988) survey on the basis of Centra's (1979) theoretical summary.

[b] The measure of this variable was formed using items of two instruments. Following Keller and Dansereau (2001) who showed the importance of retesting the validity and reliability of an instrument after the addition or removal of some items, we pre-tested the modified instrument with a sample of 63 students.

[c] The seven principles of a good teaching practice proposed by Chickering and Gamson (1987) were used for the first time to measure teaching practice in a large study conducted by Fillion (2005) (see also Fillion et al., 2010) and the new instrument was then pre-tested with a sample of 63 students. This one showed a high level of validity and reliability.

Data Analysis

The quantitative data analysis was performed using a structural equation modeling software, that is, Partial Least Squares (PLS-Graph 3.0). And the PLS bootstrap resampling procedure was used with an iteration of 100 sub-sample extracted from the initial sample (192 students) to ensure the stability of each model developed in order to test the research hypotheses (the interested reader is referred to a more detailed exposition of bootstrapping (see Chin, 1998; Efron & Tibshirani, 1993)). Some analyses were also performed using the latest version of Statistical Package for the Social Sciences software (SPSS; PASW Statistics 18.0). As for the qualitative data analysis, it was made using the Qualitative Solutions & Research NVivo software (QSR NVivo 8). We performed thematic analyses on the qualitative data provided by students; the results are presented on the form of within-case/cross-case matrix as suggested by Miles and Huberman (1994). They follow.

RESULTS

Constructs Reliability

To ensure the reliability of a construct using PLS, we must verify the three following properties: individual item reliability, internal consistency, and discriminant validity (Yoo & Alavi 2001; see the paper for more details).

To verify individual item reliability, a confirmatory factor analysis (CFA) was performed on the eight variables of the moderator and dependent constructs. Only an iteration of the CFA

was needed and no item was withdrawn. Indeed, in the whole, items had high loadings, that is, between 0.62 and 0.86, which suppose a high level of internal consistency of their corresponding variables. In addition, loadings of each variable were superior to cross-loadings with other variables of the model. The first criterion of discriminant validity was therefore satisfied.

And to get composite reliability indexes and average variance extracted (AVE) in order to satisfy the second criterion of discriminant validity and to verify internal consistency of the variables, we used the PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (192 students). The results are presented in Table 2.

Table 2: Means, Standard Deviations, Composite Reliability Indexes, Correlations, and Average Variance Extracted of Variables											
Variable	*M /5*	*SD*	*Reliability index*	*Correlations and average variance extracted*[a]							
				(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
(1) Type of professor	3.81	1.30	**0.91**	**0.67**							
(2) Teaching practice	3.90	0.97	**0.86**	0.43	**0.69**						
(3) Student autonomy	4.33	0.73	**0.85**	0.11	0.16	**0.71**					
(4) Student anxiety	2.84	1.44	**0.91**	0.17	-0.21	-0.33	**0.60**				
(5) Student motivation	3.91	1.03	**0.70**	-0.20	0.27	0.31	-0.16	**0.46**			
(6) Student participation	4.03	0.84	**0.88**	0.26	0.28	0.19	-0.33	0.24	**0.77**		
(7) Learning effectiveness	3.81	1.05	**0.94**	0.31	0.49	-0.04	-0.22	0.31	0.26	**0.77**	
(8) Student satisfaction	4.14	0.92	**0.92**	0.39	0.51	0.25	-0.39	0.35	0.21	0.46	**0.66**
[a]Boldfaced elements on the diagonal of the correlation matrix represent the square root of the average variance extracted (AVE). For an adequate discriminant validity, the elements in each row and column should be smaller than the boldfaced element in that row or column.											

As shown in Table 2, PLS analysis indicates that all square roots of AVE (boldfaced elements on the diagonal of the correlation matrix) are higher than the correlations with other variables of the model. In other words, each variable shares more variance with its measures than it shares with other variables of the model. Consequently, discriminant validity is verified. Finally, as supposed previously, we can see in Table 2 that PLS analysis showed high composite reliability indexes for all variables of the theoretical research model. The variables have therefore a high internal consistency, with composite reliability indexes ranging from 0.70 to 0.94.

Test of Hypotheses

To test hypotheses involving independent and dependent variables (H1-H2), we developed a PLS model similar to those of Fillion (2005), Fillion et al. (2010), and Yoo and Alavi (2001). And to test hypotheses involving moderator variables (H3-H8), we developed several PLS models according to the Chin et al.'s (2003) and Carte and Russell's (2003) procedures. Table 3 presents a summary of the test of hypotheses.

Table 3 shows that online students found learning more effective and they were more satisfied than those onsite ($p < 0.05$, PLS; $p < 0.001$, PASW). As for the moderator variables, autonomy had an influence on the relation between learning environments and student learning effectiveness ($p < 0.05$) and satisfaction ($p < 0.05$), and this influence was more pronounced for

online students than for those onsite (p < 0.001). Anxiety also had an influence on the relation between learning environments and student learning effectiveness (p < 0.01) and satisfaction (p < 0.05), but this influence was not more pronounced for online students than for those onsite.

Table 3: Summary of the Test of Hypotheses		
Hypothesis	*Result*	*Software (Sig.)*
H1: Learning effectiveness	Not supported[c]	PASW[a] (0.000****)
		PLS (0.180*)
H2: Satisfaction	Not supported[c]	PASW[a] (0.000****)
		PLS (0.362*)
H3: Autonomy	(a) Supported	PLS (0.521*)
	(b) Supported	PLS (0.841*)
	(c) Supported	PASW[b] (0.000****)
H4: Anxiety	(a) Supported	PLS (0.759**)
	(b) Supported	PLS (0.920*)
	(c) Not supported	PASW[b] (0.957)
H5: Motivation	(a) Not supported	PLS (-0.130)
	(b) Supported	PLS (0.867*)
	(c) Supported	PASW[b] (0.000****)
H6: Participation	(a) Not supported	PLS (-0.077)
	(b) Supported	PLS (-0.351*)
	(c) Supported	PASW[b] (0.000****)
H7: Type of professor	(a) Not supported[d]	PLS (-0.527†)
	(b) Not supported[d]	PLS (-0.320†)
	(c) Not supported	PASW[b] (0.283)
H8: Teaching practice	(a) Not supported[d]	PLS (-0.469†)
	(b) Not supported[d]	PLS (-0.276†)
	(c) Not supported	PASW[b] (0.482)

[a] Bonferroni's One-Way Anova multiple comparisons test at a level of significance p ≤ 0.05 was used to verify the difference in group means. Bonferroni's test takes into account inequality in group sizes in adjusting the selected alpha level before each separate test to control the overall Type I error rate.
[b] Box's M test of equality of covariance matrix was used to verify whether there is a difference in the interaction effect of the moderator variable between onsite and online students (blended mode vs. online mode).
[c] The test is significant, but the result is in opposition with which is formulated in the hypothesis.
[d] The hypothesis is not supported given the level of significance of the test is too low (p < 0.10).
†p < 0.10; *p < 0.05; **p < 0.01; ****p < 0.001.

Motivation and participation had an influence on the relation between learning environments and student satisfaction (p < 0.05), and this influence was more pronounced for online students than for onsite students (p < 0.001). And type of professor and teaching practice had a significant influence on the relation between learning environments and student learning effectiveness and satisfaction, but the related hypotheses were not supported because the level of significance is too low (p < 0.10). In fact, in the whole, the quantitative results observed in the present study involving a small Canadian university are consistent with those observed in a one

year previous study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). So these results allow us to conclude, "cautiously" of course, that ICT use at the university (onsite vs. online) has relatively similar impacts on students and that students have relatively similar behaviors when using ICT, whether in a small or in a large university. Assuredly, future similar studies are needed to reinforce these findings. The quantitative results got in this study are also relatively consistent with the body of research which compares these two learning modes: blended learning vs. online learning. The results of the qualitative data analysis follow.

Open-Ended Questions

Students' preferences in the course when using ICT

In the first open-ended question of the Web survey students were asked to indicate what they appreciated the most in the course. Table 4 shows the themes extracted from the thematic analysis of the onsite and online students' responses. Boldfaced themes represent the interrelation between onsite and online students' responses.

We can see in Table 4 that the elements most appreciated by both onsite and online students (in order of priority) are professor, course usefulness, course material, ICT use, assignments, access to the course material on the Web site, discussion forums, prompt feedback, student/student and student/professor interaction, course structure, evaluations, nothing, participation, and collaboration. We can then conclude that whether or not students come to class to take courses, when the same set of ICT is used, they appreciate the same elements related to these courses. And, among the elements they appreciate most, professor and course usefulness in every day life and for their career are by far at the lead. Clearly, professors still take a predominant place in the formation of students at the beginning of the 21st century.

Students' suggestions for improving the course when using ICT

In the second question, it was asked of students to suggest ways of improving the course. The themes derived from the thematic analysis of the onsite and online students' responses are presented in Table 5. Boldfaced themes represent the interrelation between onsite and online students' responses.

The results show that the elements the students want improved in the course (in order of priority) are professor, presentation of the material, course material, assignments, amount of work, course content, nothing, evaluations, student/student and student/professor interaction, discussion forums, and Desire2Learn (D2L) use. Thus, we can conclude that whether or not the students come to class to take courses, when the same set of ICT is used, generally both groups of students suggest improving the same elements related to these courses.

Table 4: The Elements Most Appreciated by Students in the Course When Using ICT			
Onsite students (n = 98)		**Online students (n = 76)**	
Themes	**n**	**Themes**	***n***
Professor	47	**Professor**	31
Course usefulness	38	Course flexibility and schedule	19
Access to the course material on the Web site	13	**Course material**	16
Course material	12	**Prompt feedback**	14
ICT use	12	**Assignments**	10
Assignments	10	**Discussion forums**	10
Student/student & student/professor interaction	8	**Course usefulness**	9
Discussion forums	6	Distance course via the Internet	8
Nothing	4	**ICT use**	8
Course structure	4	**Access to the course material on the Web site**	7
Evaluations	4	**Course structure**	4
Participation	3	**Student/student &student/professor interaction**	4
Help	3	**Evaluations**	3
Prompt feedback	2	**Collaboration**	1
Learning	2	**Participation**	1
Collaboration	1	Fulfillment	1
Freedom of expression	1	**Nothing**	1

Table 5: The Elements that Students Suggest to Improve in the Course When Using ICT			
Onsite students (n = 98)		**Online students (n = 76)**	
Themes	**n**	**Themes**	**n**
Professor	27	**Course material**	16
Presentation of the material	21	**Professor**	14
Course content	16	**Nothing**	10
ICT use	14	**Presentation of the material**	9
Amount of work	13	**Assignments**	8
Assignments	11	Course structure	8
Student/student &student/professor interaction	7	**Evaluations**	7
Evaluations	6	Web site	5
Course material	6	**Amount of work**	4
Course organization	6	**Discussion forums**	4
Classroom	5	Feedback	3
Discussion forums	4	**Student/student &student/professor interaction**	3
Nothing	3	Technical aspects	2
Group size	1	**Course content**	1
Attribution of the courses to professors	1	Correction of assignments / exams (corrector)	1
Discipline	1	**D2L use**	1
D2L use	1		

Of the elements proposed, professor and presentation of the material are by far at the lead. As a result, whether the students take courses onsite or online, they put crucial importance on the professors and their teaching practice, as much to appreciate them when they are satisfied

(as we have seen previously in the analysis of the first question in Table 4) as to criticize them when they are dissatisfied (as we can see in Table 5).

Benefits of students' onsite presence when using ICT

The third open-ended question of the Web survey asked students if the onsite presence provided benefits to them with the integration of ICT into higher education, and why? The themes extracted from the thematic analysis of the onsite and online students' responses are regrouped in Table 6. Boldfaced themes represent the interrelation between onsite and online students' responses.

Table 6: To What Extent Students' Onsite Presence Is Advantageous When Using ICT				
Onsite students (n = 98)		*Online students (n = 76)*		
Themes	*n*	*Themes*		*n*
Advantageous	*3*	*Advantageous*		*2*
Allows a better understanding of the material	**41**	**Allows a better understanding of the material**		**20**
Promotes student/student and student/professor interaction	**18**	**Promotes student/student and student/professor interaction**		**10**
Allows social contact	**10**	**It depends on which course and type of student**		**6**
It depends on which course and type of student	**6**	**Allows social contact**		**6**
No interest without onsite presence	4	Allows having more information		5
Some students need onsite presence to succeed	**3**	**Some students need onsite presence to succeed**		**4**
ICT complement the conventional classroom	2	Promotes student motivation		2
Non-advantageous	*1*	*Non-advantageous*		*4*
We can learn as well at home with a book	**12**	**ICT allow taking courses at a distance**		**11**
Many students are playing with their computer without listening to the professor	5	**We can learn as well at home with a book**		**8**
ICT allow taking courses at a distance	**4**	**Much waste of time onsite**		**3**
All the material is on the Web site	2			
Much waste of time onsite	**1**			

As shown in Table 6, students' responses to this question are regrouped in two categories: advantageous and non-advantageous. In the first category, the two themes which are by far at the lead are that onsite presence allows a better understanding of the material and promotes student/student and student/professor interaction. As for the second category, the two themes which are most evident are that students can learn as well at home with a book and that ICT allow students to take courses at a distance without onsite presence.

Impacts of using ICT on students' characteristics

In the fourth question, students were asked to indicate the impacts of using ICT on students' characteristics (autonomy, anxiety, motivation, and participation). Table 7 shows the themes extracted from the thematic analysis of the onsite and online students' responses. Boldfaced themes represent the interrelation between onsite and online students' responses.

Table 7: The Impacts of Using ICT on Students' Characteristics			
Onsite students (n = 98)		*Online students (n = 76)*	
Themes	*n*	*Themes*	*n*
Autonomy			
ICT increase autonomy	**29**	**ICT increase autonomy**	**23**
Autonomous students appreciate more distance courses	3		
Anxiety			
ICT increase anxiety	**11**	**ICT increase anxiety**	**10**
ICT decrease anxiety	**5**	**ICT decrease anxiety**	**4**
Motivation			
ICT increase motivation	**22**	**ICT increase motivation**	**17**
ICT decrease motivation	**2**	**ICT decrease motivation**	**3**
Participation			
ICT increase participation	**14**	**ICT increase participation**	**10**
ICT decrease participation	**4**	**ICT decrease participation**	**2**
Others			
These characteristics have an influence on student learning outcomes	**17**	**These characteristics have an influence on student learning outcomes**	**13**
ICT use at the university is excellent for the workplace	**3**	**ICT use at the university is excellent for the workplace**	**2**
It depends on students	**2**	**It depends on students**	**1**

As shown in Table 7, the three impacts that have been by far the most important for students are that ICT use at the university increases the level of autonomy and motivation, and that the students' characteristics (autonomy, anxiety, motivation, and participation) taken into account in this study have an influence on their learning outcomes. And the two next most important impacts for students of the two modes are that ICT use at the university increases their level of participation and anxiety.

Impacts of using ICT on professors' pedagogy

Finally, in the fifth and last question of the Web survey, students were asked to indicate the impacts of using ICT on professors' pedagogy (type of professor and teaching practice) into higher education integrating ICT. The themes derived from the thematic analysis of the onsite and online students' responses are regrouped in Table 8. Boldfaced themes represent the interrelation between onsite and online students' responses.

Table 8 shows that the four impacts that have been by far the most important for students are: when using ICT at the university, professors must be dynamic to keep students' interest, they must make good use of ICT to bring motivation to students, use active learning techniques, and be more familiar with ICT. We can see here that these impacts related to professors and their teaching practices (the two variables taken into account in this study to assess the quality of

professors' pedagogy) are of crucial importance to students. And the next most important impacts for students of the two modes are that, when professors are using ICT at the university, they must be there for students and have a well-organized course.

Table 8: The Impacts of Using ICT on Professors' Pedagogy			
Onsite students (n = 98)		*Online students (n = 76)*	
Themes	*n*	*Themes*	*n*
Type of professor (professor must:)			
Be dynamic to keep students' interest	21	Make good use of ICT to bring motivation to students	18
Make good use of ICT to bring motivation to students	17	Be dynamic to keep students' interest	14
Get more familiarized with ICT	12	Be there for students	9
Be there for students	8	Have a well-organized course	7
Be very engaged	5	Get more familiarized with ICT	7
Have a well-organized course	4	Be very engaged	2
Promote ICT use	3	Promote ICT use	2
Teaching practice (professor must:)			
Use active learning techniques	19	Use active learning techniques	15
Motivate students	7	Provide prompt feedback	8
Establish links between theory and real life	3	Establish links between theory and real life	3
Provide prompt feedback	3	Motivate students	3
Promote student/student and student/professor interaction	3	Promote student/student and student/professor interaction	2
Others			
Very important impacts	4	Few impacts	3
ICT use provides students with a good experience	4	Very important impacts	2
Professors' pedagogy has an influence on student learning outcomes	2	I do not know	1
No impact	1	No impact	1

The qualitative results got in the present study involving a small Canadian university are consistent with those observed in a one year previous study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). As mentioned previously in the interpretation of the quantitative results, these qualitative results allow us to conclude, "cautiously" of course, that ICT use at the university (onsite vs. online) has relatively similar impacts on students and that students have relatively similar behaviors when using ICT, whether in a small or in a large university. Future similar studies are also needed to reinforce these findings. The last section of the paper is devoted to a discussion on the findings of the study.

DISCUSSION

Comparison of the Research Findings with Existing Theories

First, with respect to student learning effectiveness, our findings are in opposition to those of Allen and Seaman (2004), and Phipps and Merisotis (1999), who concluded that students'

learning is as effective online as in the classroom ("the no significant difference phenomenon"). In fact, the findings of our study suggest that, even with the addition of the permanent use of ICT into conventional learning environments, online students found learning more effective than onsite students. So here is a very surprising result which will require further investigation.

With respect to student satisfaction, similar to learning effectiveness above, our findings are in opposition to those of Allen and Seaman (2004), and Phipps and Merisotis (1999), who concluded that students taking the courses at a distance are as satisfied as those in conventional education ("the no significant difference phenomenon"). In fact, in our study, even with the addition of the permanent use of ICT into conventional learning environments, online students were more satisfied than those onsite. Thus, our findings are consistent with those observed in a similar one year study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). Therefore, at this stage, further investigation is needed to reinforce these findings.

Let us now examine the results of the verification of hypotheses involving moderator variables. Our findings show a significant influence of student autonomy on the relation between learning environments and student learning effectiveness and satisfaction, and this influence is more pronounced for online students than for those onsite. Thus, if we add the permanent use of ICT into conventional learning environments, as in the present study, given that online students were more autonomous than those onsite, our results provide support for what Bilodeau (1995) stressed, that is, students at a distance are less dependent on their professor and then become more autonomous. Our findings are also partially supportive of the results observed in a similar one year study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010) where autonomy had a significant influence on the relation between learning environments and student learning effectiveness, and this influence is more pronounced for online students compared to onsite students.

Past research has shown that students experience moderate to high levels of anxiety in courses, as much in conventional environments as in online ones. In this study, we found that the level of anxiety was relatively low both for onsite and online students (a mean of 2.84/5). Here is another surprising result which will require further investigation in future studies. In addition, our findings suggest that anxiety has a very significant influence on the relation between learning environments and student learning effectiveness and satisfaction, but this influence is not more pronounced for students taking the courses online than for those taking the same courses in the classrooms. So if we add the permanent use of ICT into conventional learning environments, our research results provide support for what Harasim (1987a, 1987b; quoted in Harasim et al., 1995, p. 15) and Hiltz and Turoff (1997) said, that is, connected environments might bring anxiety into communication. On the other hand, our findings are in opposition to those of the study carried out by Jegede and Kirkwood (1992) in a distance learning environment, which indicated that students experienced a high level of anxiety and were more anxious at the end of the semester than at the beginning. They are also in opposition with the results observed in a similar one year

study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). Further investigation is then needed here in order to shed more light on the moderating role of anxiety between learning environments and students' learning outcomes.

In our study, we found that student motivation has a significant influence on the relation between learning environments and student satisfaction, and that this influence is more pronounced for online students than for onsite students. Thus, when adding the permanent use of ICT into conventional learning environments, and given that online students were more motivated than their peers taking the courses onsite, our results are partially supportive of the conclusion drawn by Riel (1993), Harasim et al. (1995) as well as Hiltz and Wellman (1997) indicating an increase in students' motivation in the connected classroom environments (the mean is relatively high, that is, 3.79/5) compared to the conventional environment. They are also partially supportive with the results observed in a similar one year study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010) where motivation had a significant influence between learning environments and student satisfaction, but only at the level $p < 0.10$. On the other hand, our findings provide support for the conclusion of the studies conducted by Barron and Orwig (1997), and Blyth (2000) that pointed to an increase in students' motivation in the Internet and the Web environment compared to the conventional environment.

Previous studies have argued that participation is crucial in distance learning environments (Alavi et al., 1995; Leidner & Jarvenpaa, 1993; Webster & Hackley, 1997). Our findings somewhat challenge these results and support the results observed in a similar one year study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010) as we found that student participation is crucial in both onsite and online environments (participation got high means of 3.90/5 and 4.19/5, respectively). Indeed, in the whole, we noted relatively high levels of student participation, and participation has an influence on the relation between learning environments and student satisfaction. And this influence is more pronounced for students taking courses online rather than onsite. Thus, if we add the permanent use of ICT into conventional learning environments, and given that online students participated more than those onsite, our results are partially supportive of the conclusion drawn from the studies conducted by Hiltz (1990) and Hiltz and Wellman (1997) indicating an increase in students' participation in the connected classroom environments. Our results are also partially supportive of the results observed in a similar one year study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010) where participation had an influence on the relation between learning environments and student satisfaction, among others. On the other hand, our findings are in opposition to those of Karp and Yoels (1976) who, while following the observation of 10 undergraduate courses, noted that even in small classrooms, only few students participated in the discussions. Clearly, in our study, student participation is one of the moderator variables that showed having a great influence on the relation between learning environments and student satisfaction. Consequently, it is an important variable to take into account in future development of courses and curricula, and in future studies.

Finally, the results of our study show that type of professor and teaching practice have a significant influence on the relation between learning environments and student learning effectiveness and satisfaction, but only at the level of significance $p < 0.10$, and this influence is not more pronounced for onsite students than for online students. So, even if this influence is significant, it is not enough significant to support the related research hypotheses. Here again, these are very surprising results. According to us, a fact that may explain these surprising results is that type of professor and teaching practice had such a strong direct (independent) influence on the dependent variables that they did not have a significant indirect one (moderator), at least to a level of significance $p = 0.05$. These findings support the results observed in a similar one year study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). But, type of professor and teaching practice assuredly require further investigation as moderator variables in future studies.

Limitations

First, the experimental research design (a field experiment) of this study inherits the limits of this research approach: a weak level of control on independent variables and a weak level of internal validity compared to the laboratory experiment. But, inversely, it presents a higher level of external validity as it was conducted into a real life environment instead of a laboratory. In addition, this study was carried out at only one university (regrouping three campuses) instead of several universities. If it would have been conducted in several universities, the external validity would have been even higher.

Second, as this study tested for a second time a new moderator-type theoretical research model which, to our knowledge, had never been used before, it was necessary to interpret the findings using different perspectives that make sense of one or several independent variables influencing one or several dependent variables. In this study, we used moderator variables that cannot have a direct influence on dependent variables, but rather an indirect one. As a result, we needed to use a different approach to compare the findings with existing theories.

Third, to compare the results of this study with existing theories, we stress that both onsite and online students were using a similar set of ICT. In other words, both learning environments were ICT-supported or technology-rich.

Theoretical and Practical Contributions

From a theoretical point of view, this study provides academic and organizational communities with theoretical foundations which are innovative, interesting, useful to strategic decision-makers to anticipate the future with a greater certainty, and generalizable to other universities with regard to the impacts of students' onsite presence and non presence on their learning outcomes, as well as to the influence of numerous moderating variables on the relations

between highly technological learning environments and students' learning outcomes. This study is also opening the door to the comparison of different ICT-supported or technology-rich learning environments, whereas until now researchers have always compared an ICT-supported learning environment with the conventional learning environment (face-to-face without ICT use). To our knowledge, this study is also only the second which explore the impact of several important moderating variables related to students' characteristics (psychology) and professors' pedagogy in order to better understand the relation between learning environments and students' learning outcomes. Hence, it sheds some light on the role of students' characteristics and professors' pedagogy in the students' learning process while they are in ICT-based learning environments. In addition, our new and creative moderator-type theoretical research model might be tested by other researchers in other universities and/or other situations.

From a practical point of view, this study will help educational institutions to develop curricula better adapted to ICT-supported or technology-rich learning environments so that students take full advantage of their learning activities into these new environments. It will also allow decision-makers of educational institutions to target professors likely to be "the best" in these highly technological learning environments or at least to make such that those already teaching in these environments become more aware of the importance of adapting their pedagogy to these new environments and to continually be innovative in the ways of presenting their material to students. Moreover, this study will allow ICT providers to be more proactive in the design of these new technology-rich learning environments in choosing "the best" technologies to support them.

CONCLUSION

The purpose of this study was to investigate the perceptions of onsite students (hybrid or blended mode) and of those taking the same courses on the Internet (online mode). To guide the study, a moderator-type theoretical research model was developed, out of which eight hypotheses were formulated. The model was tested in a field experiment at a small Canadian university. To collect data, we used a multimethod approach, that is, a Web survey involving open- and closed-ended questions. The sample of the study was formed of 192 onsite and online students from eight undergraduate and seven graduate courses offered at the three campuses of the university in the two modes taken into account in the study: blended mode and online mode. The quantitative data analysis was performed using a structural equation modeling software, PLS; the qualitative data were analyzed following a thematic structure using QSR NVivo software.

The quantitative results indicate that online students find learning more effective and are more satisfied than their peers taking the same courses onsite. As regards to students' characteristics, autonomy has an influence on the relation between learning environments and student learning effectiveness and satisfaction, and this influence is more pronounced for online students. Anxiety has an influence on the relation between learning environments and students

learning effectiveness and satisfaction, but this influence is not more pronounced for online students. And, motivation and participation have an influence on the relation between learning environments and student satisfaction, and this influence is more pronounced for online students.

As for the qualitative results, *grosso modo*, they are the following: the elements the most appreciated by students are professor and course usefulness; the elements that the students suggest improving are professor and presentation of the material; students' onsite presence is still advantageous when using ICT as it allows a better understanding of the material and promotes student/student and student/professor interaction; ICT use at the university increases the level of autonomy and motivation in students, and students' characteristics (autonomy, anxiety, motivation, and participation) have an influence on their learning outcomes; and when using ICT at the university, professors must be dynamic to keep students' interest, they must make good use of ICT to bring motivation to students, use active learning techniques, and be more familiar with ICT.

Finally, much more research will be needed as technology-rich environments unfold. Better understanding of their impacts on students, professors, and educational institutions will be required in order to improve them or design new ones still better adapted to higher education students. So we will continue to inquire into this exciting field.

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DILEMMA OF JOURNAL RANKING: PERPLEXITY REGARDING RESEARCH QUALITY

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ABSTRACT

Publication in a ranked journal has been considered as indicator of scholarship among individuals. A ranked journal and its relationship with an individual's research have been unknown for last two decades. But it is seen in last few years that most of the institutes and individual authors give tremendous importance to these rankings. The research explores the relationship between these rankings and evaluation of an individual author. The research study uses multiple literature reviews to study the methods for evaluation of author and a journal.

The research also explores existing flaws in the method and relates them to the interrelations that may exist between journal ranking and author's research. The research concludes with the design of a flowchart proving the interrelations existing among the current research trend and journal rankings. The research in its conclusion tries to bring up suggestions given by renowned scholars and tries to relate them with the flaws. The research study tries to incorporate these suggestions into a new flowchart showcasing the changes taking place in the interrelations among the methods.

KEYWORDS: Journal Rankings, Citation Analysis, Journal Impact Factor, h- index, g-index, Peer Surveys, Thompson Reuters ISI, Third Party Evaluations, and Marketing.

INTRODUCTION

The research study deals with the influence of journal ranking on the perception of individual towards the research quality of an article published in that journal. It has seen in the last decade that the use of journal has heavily increased to cite articles for future research. Relying on journal ranking started in early nineties when publishing an article in a ranked journal became a way to showcase the quality of a research. Researchers started giving more importance to ranked journal which inherently went on to effect the distributions of articles across different genres. The reason for such increase in the rate of article production was that most of the institutes started considering the factors of number of publication, journal reputation, and research awards as criteria for promotional considerations for faculty members. This method has been used increasingly by academic, research, and public institutions worldwide for policymaking, to monitor scientific developments, and as a basis for promotions, tenure, hiring, salary, and grant decisions (Borgman and Furner 2002; Warner 2000; Weingart 2005).

The method of journal impact factor started gaining popularity being the only method in the industry to evaluate a journal. Citation analysis started reflecting on an author's ability to

produce great research. It was considered that the higher the author has been cited the better his research is compared to others. Citation analysis has become a substitute for research quality. Several governments started using citation analysis and other bibliometric measures to make decisions regarding research quality assessment and allocation of research funds in higher education (Adam 2002; Butler 2007; Moed 2008; Weingart 2005). These factors gave rise to the use of method of citation analysis in the industry. With the rise in the method of citation analysis, a method of impact factor came into the picture which started ranking journals according to its popularity among the authors. Popularity in this case dealt with the usage of its articles as citation by other authors in other publication. It was somehow assumed that more an article from a journal is cited more the journal is read, and more a journal is read better is its research quality. It has been seen that journal rankings has became very popular in the last decade and the most popular rankings are those that use publications and citations as indicators of scientific worth (Groot and Garcia-Valderrama 2006; Moed, Henk, Frankfort, Burger & van Raan 1985; Nederhof and van Raan 1993; Tijssen and van Wijk 1999; Ventura and Mombru 2006). It can thus be seen how journal rankings have gained importance with respect to the factors of research quality evaluation, future promotions, scholar evaluation and institution evaluation. Thus these factors have interrelations among each other and these interrelations among them, affects the existence of these factors.

This research study tries to identify these interrelations and tries to prove the existence of relation among these variables. This research paper with the help of multiple theoretical aspects tries to prove the relationship existing among the variables. This research paper takes into consideration the aspects of methods used for journal rankings, methods used for individual or scholar evaluation, the importance of journal rankings and suggestions which can help improve the process. The research uses flowchart to showcase the relationship between these different factors. To finish the discussion the research study will also try to pin point certain flaws present in the system and then it will try to remodel the flow chart showcasing the influence of those flaws on the method used for ranking evaluation. Thus the research will try to conclude showcasing the theoretical evaluation of interrelations among different factors and changes occurring in these interrelations due to the influence of new improvements which can be included in the methods of ranking.

LITERATURE REVIEW

The literature review method considered for the research takes into account multiple aspect of the ranking system. It takes into account the different methods used for journal and scholar evaluation. Review was also done considering suggestions as a factor affecting the perception of an individual towards ranking and research quality. The research study by Dr Shagun was taken into account which introduces multiple steps which should be taken into consideration when approaching journal rankings. The research study by Frey and Rost was used to highlight the drawbacks of the ranking method and the new suggestions were used to sketch and improve the flow chart cycle narrating the interrelations among the different factors. Overall 31 research papers were studied to describe the existing methods and the process of ranking and evaluation.

METHODS

Citation Studies

Individual citation is the oldest and the most commonly used method in the ranking business. Citation analysis is a method of citation indexing and analysis. It was started by Shepard's citations in 1873 which was then followed by Institute of scientific information which was started in 1960 by Eugene Garfield. Today famously called as Thomson ISI, ISI became a legal part of Thomson Reuters Corporation. The method of citation index was published in 1960 in academic journal which at that time had only science citation index (SCI), today it has expanded into social sciences citation index (SSCI) and arts and humanities citation index (AHCI). Citation index is an index of citations between publications. It tracks references that authors put in the bibliographies or reference list of published papers. It is basically a technique that allows a person to trace the use of an article published in a journal which has been cited in other journals.

Citation studies are perhaps the most favored method for assessing journal quality, and the data source, for many of these ISI Thomson's Journal Citation Rating Reports has proven to be the most efficient one (ISI, 2007 b). Citation index is also responsible for impact factor which is specifically called as journal citation impact factor. The impact factor is a measure reflecting the average number of <u>*citations*</u> to articles published in *science and social science journals*. The impact factor today is widely used as a measure to rank journals of different genres. Citation impact factor deals more with citation analysis or bibliometrics where citation counts are taken into account for individual article about how often it has been cited, for an author for total number of citations or average citation per article and a journal and for an journal average citation count articles in the journal. Due to recent criticisms regarding the method of citation impact factor, for individual evaluation the method was further modified and sub divided into two more methods the h- index and the g- index.

The h- index was suggested by Jorge E. Hirsch, thus it was called as h- index because of his last name. The method of h- index measures both the productivity and the impact of published work of the researcher (Hirsch, 2005). The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other people's publications. The index can also be applied to the productivity and impact of a group of scientists, such as a department or university or country (Hirsch, 2005). The second method that was implemented was g- index. This method was first implemented by Leo Egghe. The index is calculated based on the distribution of citations received by a given researcher's publications (Egghe, 2006). The g-index has been characterized in terms of three natural axioms by Woeginger (Woeginger, 2008).

The simplest of these three axioms states that by moving citations from weaker articles to stronger articles, one's research index should not decrease. The g- index takes into account the factor of quality of research rather than the factor of journal ranking. Today the methods of impact factor, h- index and g- index are heavily used when considering ranking an institution, a journal and an individual scholar. The below table is an example of both citation analysis method

and journal impact factor method. The source of citation showcases how the citations are counted but the table fails to show the exact number of citations used from each journal. Exact number of citation from each journal would indicate the exact number of articles used and also this can be followed by the author whose article has maximum number of citations.

Table 1		
Rank[*]	Journal Name	Source of Citations[**]
1	Journal of Marketing.	1. Industrial Marketing Management.
		2. Journal of Business Research.
		3. Advances in Consumer Research.
2	Journal of Marketing Research.	1. Advances In Consumer Research.
		2. Journal of Marketing.
		3. Industrial Marketing Management.
3	Journal of Consumer Research.	1. Advances in Consumer Research.
		2. Journal of Consumer Psychology.
		3. Psychology and Marketing.
4	Marketing Science.	1. Journal of Marketing Research
		2. Marketing Letters
		3. Management Science
5	Journal of the Academy of Marketing Science	1. Journal of Marketing
		2. Industrial Marketing Management
		3. Advances in Consumer Research
*Ranks are based on ISI 2009 journal citation reports. See the copyrighted ISI reports for details. **Ranked by journal providing largest number of cites excluding self cites (from highest number of cites to lowest number of cites).		

INSTITUTIONAL LISTS

Institutional list for ranking journals is a very simple approach which deals with evaluation of journals with respect to its articles by individual department. Individual department assigns faculty members to carry out article and citation evaluation of an article and thus based on such evaluations journals are ranked. A particularly useful resource is the "list of lists" compiled by Ann Wil-Harzing, which includes journals ranking lists from business schools in the USA, Australia, China, France, Germany and the UK (Harzing, 2009).

The institutional listing mainly takes into the aspects of citations, journal reputation, quality, previous citations of the authors, teaching and research experience etc. The best example for such kind of journal ranking is academy of marketing science "AMS". The AMS web based journal ranking is well known in the field of education. The method used by AMS consists of two indices to rank the journals importance/prestige index and popularity/familiarity index. The institutional lists are only web based they don't enjoy the popularity of distribution like other journals do.

Peer Surveys

Peer surveys are mainly used to evaluate an article rather than a journal. The quality of articles is assessed in the process rather than the institution and journal to which the article is affiliated. Peer survey decisions are mostly restricted to a specialized field rather than multiple mixed and diverse subjects. The biggest advantage is that assessment is detailed coverage of a single specialization. The biggest disadvantage is that these assessments are hard to compare especially in the field of marketing. For example, assessment of *Journal of Marketing Research* can't be compared to the assessment of *Journal of Consumer Psychology* on the basis of specialized articles on human psychology but can be compared using other methods like impact factor etc. Also the factor of biasness comes into the picture where it has been seen that the peer reviews prefer certain authors and institution due to their popularity and reputation. Peer surveys have a tendency systematically to inflate the ratings of journals in which the assessors and associates have published (Van Fleet, McWilliams, & Siegel 2000). This is the biggest disadvantage of the method of peer survey.

Individual Citation

Individual citation is method used to rank individual author based on citation score. Citation score is measure of the number of times the work or author is referred to in articles from a selected range of journals and occasionally other forms of publication. Most of the journals are ranked with the help of individual citation. For example, a journal consisting of ten articles will be judged on the basis of impact factor, which can be found out by checking the average number of times individual article is published. Citation score and impact factor act vice versa benefiting each other in the process.

Derived Lists

Derived list is a method which uses list of names of author affiliated with the institutions which have been highly ranked by certain firms or other organization. It is also the simplest way of selectivity as it only selects certain articles from certain institutions which results in simplicity of its rankings. This method has been criticized a lot for its approach towards ranking. The biggest drawback of this method is that it fails to analyze the factors of quality, number of citation, impact factor etc. This method is rarely used today by any organization to rank journals.

IMPORTANCE OF PUBLICATION IN RANKED JOURNALS

Journal rankings are used to compare institutions and evaluate individual economists by weighting the journals in which they publish their research (Kalaitzidakis, Mamuneas, & Stengos, 2003; Dusansky & Vernon, 1998). Because a journal's ranking is seen as an indicator of the research quality of individual papers in the journal, many institutions use rankings either formally or informally to evaluate job seekers or current staff. Rankings are used in this way

because one typically has little more than the journal name to indicate a paper's quality. Most of the universities also use journal ranking as a way of evaluating articles for its quality. It has been seen that publication and citation rankings have become major indicators of the scientific worth of universities and determine to a large extent the career of individual scholars (Frey & Rost, 2010).

The method of individual citation is used mainly to evaluate an individual author to determine his credibility for a promotion in an institution. Whether an individual gets a position as an assistant professor at a university, receives tenure and is promoted to full professor, or receives research funding depends to a large extent on that individual's publication and citation record, as published in the various rankings (Frey & Rost, 2010). Also getting a research published in a prestigious highly ranked journal is somewhat considered as a matter of pride by most of the authors. It is the way of comparing the research of others to an individual's and the only parameter to measure the quality is the publication in the journal itself. Publishing in a ranked journal matters a lot as it has multiple facets connected to it. There is also a great diversity in the way researchers, faculty, scholars and institutes think about this matter. It has been seen for some that these rankings matters while as for others it's just a way of publicizing a product.

Overall most of the institutes heavily depend on the article publication in journal by their faculty and students which helps the institute to publicize about their faculty as a way to market their programs. In the last decade the PhD institutional rankings by University of Texas, Dallas have heavily relayed on number of article published, while as the rankings by Wharton school of business, University of Pennsylvania have relied both on number of articles published and the quality of research. The measures used to indicate the quality of articles is survey rating taken from top professionals of the marketing research world. This has provoked the institutional competition in the race to become a better school to showcase their talent by keeping themselves higher in the ranking.

This situation has pressurized the world of article publication resulting in increase in competition among the faculty members of different universities. Even if this kind of competition is not seen in the pragmatic world, this kind of competition exists. The benefits of ranking have definitely emerged into a cycle of sequences happening in the world of publication.

DISADVANTAGES

There are many disadvantages of the method. Both the methods of citation analysis and journal impact factor suffer from multiple flaws. Citation analysis fails to evaluate an individual scholar on multiple bases. Its *first* disadvantage is that for a more-recent paper, the citation record is probably not long enough to gauge impact, unless the paper is extremely successful early on (Wall, 2009). This explanation by Dr. Wall showcases the biggest flaw where the method of citation analysis fails to consider the quality of the research. The *second* disadvantage explored by Wall is the quantitative analysis in the method where the method considers mean or average number of citations as a parameter for evaluation. Wall suggests that mean is not the

appropriate measure of the central tendency of the citations received by articles in a journal (Wall, 2009). While mean is the method used to compare the citations of different articles.

Wall has provided an explanation showcasing how mean can be a wrong way of analyzing the comparisons. For example, a journal consisting of ten articles out of which article number three, has seventy citations and article number nine only five. Due to the variability in the number of citations present per article calculating the mean is a wrong way of comparison, median in this case provides a right estimate for comparison. The median is more appropriate because it would eliminate the large effect that a single article can have (Wall, 2009). The *third* disadvantage that has been explored is that many articles from lower ranked journal are cited more frequently in other low ranked journal compared to high ranked journal articles getting cited. As more than a decade has passed away in ranking journals, those journals which are in top twenty are considered frequently in ranking and journal impact factor of those journals are only considered. Large percentages of articles in the highest-ranked journals are cited less frequently than are typical articles in much-lower-ranked journals (Wall, 2009).

The *fourth* disadvantage explored by Wall is that, citation analysis fails to take into account the number of citations in an article in a low ranked journal is higher than an article in a high ranked journal. With respect to this scenario the factor taken into consideration is which journal that article belongs to, an article belonging to a high ranked journal is taken into consideration compared to an article belonging to low ranked journal because low ranked journals don't make a large number when the citations are counted, also it has been seen that most of the low ranked journal citations are in small numbers compared to most high ranked journals and they also have a very high diversity. Similarly, large percentage of articles in low ranked journals is cited more frequently than are articles in high ranked journals (Wall, 2009).

The *fifth* disadvantage of the citation analysis and journal impact factor method is that it takes into account only the publication of the articles published in the journals and not the chapters published in the books, notices, handbooks, templates etc. This also acts as deficiency in the system prohibiting quality research available in the market. This also puts a question mark on how the system fails to the factors of orthodoxy and biasness of the system. For example, most rankings ignore publications such as books, general public notices, handbooks, and other collections of articles, as well as anything published in a non-refereed journal (Donovan & Butler 2007; Johnes 1988; Reedijk 1998).

The *sixth* disadvantage is that the most of the third party analyst responsible for analyzing the impact factor take into consideration the journals ranked in previous year journal rankings. For example, an article published in a highly ranked journal will be considered to have higher impact than an article published in lower ranked journal. The journal rankings used from last decade are considered as the prominent source for evaluating the quality of research of a published article. Publications in refereed journals are categorized according to the prominence of the journal, which is measured by impact factors (Ideas & Repec, 2008).

The *seventh* disadvantage is the familiarity of the third party institute with the research subject and method. The third party institutes take into consideration only the factor of citation and the quality of research subject is assumed to be dependent on the citation usage. It is seen that persons responsible for evaluating the journal impact factors have credentials and experience irrelevant to the subject of the journal. Many of the analysts prefer to go by the rules to rank the

journals with respect to their citations. The factor of research quality losses its importance and preference is given to age old method of analyzing the number of the articles from a particular journal used as citations in articles of certain journals, which are particularly considered as prestigious because of their presence in journal rankings. It is seen that only minimal 'engineering' knowledge is usually available on the precise interrelationship between the research inputs that are used and the research outputs that are produced (Cherchye & Abeele 2005).

The *eight* disadvantage using both the methods is that, the methods have reviewers and editors who themselves are involved in the publication. They themselves have their own publication and many articles for review use these publications as a source, this strategy can act in favor of the articles that use those publications. In the past it has been seen that peer reviews, external reviewers and also editors had some sort of bias towards certain subjects and research articles which prefer the subjects and publications of the members on the review and committee board (Horrobin 1990; Moxham & Anderson 1992). The opinions of experts may indeed be influenced by subjective elements, narrow mindedness, and limited cognitive horizons.

These shortcomings may result in conflicts of interest, unawareness of quality, or a negative bias against young scientists or newcomers to a particular field (Wall, 2009). This research study only focuses on the main disadvantages described by many famous experts and researchers in the field of management, it is seen that there are many flaws and concerns about importance and influence of journal ranking growing day by day in the research world.

SUGGESTIONS

Bruno and Katja in their research have made some suggestions for improving the methods. After doing a research over the methods and learning the disadvantages of the system they concluded their research by making some suggestions which can help improve the method and make pathways for improving quality of journal ranking. Their *first* suggestion was to involve expertise into the field of review and ranking. Rather than using only quantitative methods for measuring the number of citations, it is preferred to use expertise to analyze the relation of citations with the research study. The factors of research inputs and research outputs should be taken into consideration. Public management should return to approved methods such as engaging independent experts who in turn provide measurements of research quality for their research communities (Bruno & Katja, 2010).

The *second* suggestion by Bruno and Katja involved the method of citation analysis which is considered for evaluating an individual scholar. Their advice was to consider the quality of research, considering the factors of research data, applicable method, quantitave analysis, significance of method to results and proper channeling of resources. Quality should be considered the essence of scientific research (Johnes, 1988): from the perspective of society, it should not matter how many publications have been authored or how many citations have been accumulated, but rather what new insights have been produced and how valuable these are; that is, whether the research is useful, satisfies stated or implied needs, is free of deficiencies, and meets more general social requirements (Nightingale & Scott 2007; Reedijk 1998).

The *third* suggestion by Bruno and Katja was to involve individual instituitions and universities to come forward to evaluate journals and individual scholars. Expertise from individual universities would be of great help rather third party analyst seemed a better option to them. They argued that public management, especially university management, should stop the mass euphoria of rankings and return to approved methods, such as engaging independent experts who in turn provide measurements of research quality that is applicable to their specific research community (Bruno & Katja, 2010).

The *fourth* suggestion by Bruno and Katja takes a step further beyond the conventional process. They advise to remove citations during the particular review of an article. The biggest reason for such method is to prevent any bias taking place on the review side. The reviewer and editor may only favor those articles which showcase articles from the respective journal of publication used as a citation in their article, which indirectly would help that journal to improve its journal impact factor. This would be vice versa process helping both the author and journal to maintain status the ranking quo. The opinions of experts may indeed be influenced by subjective elements, narrow mindedness, and limited cognitive horizons. These shortcomings may result in conflicts of interest, unawareness of quality, or a negative bias against young scientists or newcomers to a particular field (Bruno & Katja, 2010).

The *fifth* and the last suggestion by Bruno and Katja were to bring more diversity into the categories of research subject. Rather than emphasizing on the importance of citations in an article, it is advisable to give new opportunities to pure research. The use of citations as a way to measure the quality and impact has became an obstacle for articles written on new and diverse fields of study. In the last decade pure research has been only restricted to the field of engineering and management has completely lost the essence of pure research. Articles embracing unfamiliar knowledge are assumed to have unimportant content and, therefore, are not cited (Bruno & Katja, 2010). Thus, differences in citation rankings often reflect the subjective or ideological rejection of the theory employed rather than the research quality or the importance of the research to the discipline (Bruno & Katja, 2010). Wall also has made some suggestions in his research study. He emphasized more on improving the quantitative method.

He in his research paper has shown the way the mean fails to prove as a right parameter to compare different journals. The high relative variance and extreme skewness of journals' citation distributions indicate that the mean is not the appropriate measure of the central tendency of the citations received by articles in a journal (Wall, 2009). The median is more appropriate because it would eliminate the large effect that a single article can have (Wall, 2009). Wall also suggests that if the current method is followed for a long time then the influence of journal ranking would be detrimental to new research in the field of management.

A lot of importance will be given to applied research and pure research will lose its presence in the community. This will result into information lag only about the studies which are not covered in journals. Given this information lag, perhaps the best (or at least most practical) predictor of future impact is the reputation of the journal in which the paper is published (Wall, 2009). Hult, Reimann and Schilke have suggested that citation is not the only way to evaluate the journal but if others factor like library holdings, journals used in marketing doctoral programs and perceptual survey-based studies are considered with citations then a proper channel can be developed for evaluating and comparing the journals on a ranking scale.

FLOWCHART DIAGRAM: CYCLE ANALYSIS

The figure 1 shows the flowchart diagram of the process combining both the methods of citation analysis and journal impact factor. The figure 1 shows the interrelation between both the methods and how they benefit each other. In the figure the "number of times cited" block is the first step for both the methods. Citation analysis helps to evaluate an author and the method of journal impact factor helps to evaluate a journal. Both the methods rely heavily on the number of times an article has been cited. In case of an author the average number of times the author has been cited is used as an indicator to rank authors ability to do research. The factor of popularity is used as a substitute for quality of research. Rather than evaluating the authors research by analyzing the research inputs and the use of references to build up the research output the quality of research is assumed to be related to the popularity of author, which is determined by the number of times he has been sited. For example, it has been assumed that if an author has been cited on an average of 100 times for 10 different articles rather than analyzing the use of citation and its relation with the research output only the factor of number of times a article is sited is taken into consideration. The number of times an article gets cited is the number of times the journal gets cited. This helps the journal to increase its journal impact factor index number. Both the methods benefit each other. The biggest disadvantage comes out this benefit is the factor of biasness. The reviewers and editors of a particular journal may be bias towards citations from their or from particular journals which they favor. Indicating journal names in the bibliography or reference list can help author to publish the paper in a particular journal. Also due to competitive nature of the publication there can be a chance for such kind of bias to take place. Increase in journal impact factor index number helps a journal to improve its ranking and getting a paper published in a ranked journal helps an author to benefit himself for promotions in his institution of employment. The cycle acts benefiting both the journal and the author from the method of evaluation. Due to the robust structure of the cycle it can be seen that pure research and studies involving unfamiliar would the ones which are least benefitted. The reasons for this would be number of citations. As new research would contain few citations it would be unfavorable for many journals to except it, especially the ones which are competing in the publication world. Also book chapters, magazine articles don't count as journal citations these won't benefit a journal neither an author to benefit themselves from it. Overall figure 1 indicates on which steps the disadvantages/ flaws are related with the system. Figure 1 also shows the interrelations between the methods of citation analysis and journal impact factor. The hidden agenda behind figure 1 was to show how research quality is assumed to be based on evaluation which considers nothing more than numbers indications the popularity of citations from a particular journal. The figure 2 shows the flowchart showcasing a new mapping done using the suggestions from renowned authors. Here the cycle uses these suggestions as multiple stages of method. The method of citation analysis is completely changed and suggestions are used as individual or combined method to work out as method of evaluation. It tries to relate the new suggestions with the evaluating method used for calculating the journal impact factor. It can be seen that the suggestions by the expertise involve a lot of emphasize on the quality of research. The suggestions also try to open doors for new research where it tries to remove the barrier of

citation analysis. As new research deals with pure research the researchers advise institutions like universities and colleges to take part in evaluation of an article. To prevent any kind of bias from taking place it is recommended to blank off any in text and in body citations and completely remove reference list for the first review. For the next consecutive reviews it would advisable to use them. The suggestions for evaluation of a journal have similar suggestions. These suggestions mainly deal with creating genre for each type of journal, rather than comparing journals with each other it is preferred to see a journal rated on a scale belonging to its genre. Also again involvement of expertise and institution is recommended compared to any third party evaluators. Most of the third party evaluators like Thompson ISI and Google scholar use only specialized programs to count number of citations for each journal rather than evaluating each article of that journal. Also it has seen that there has been an information lag with respect to certain genres of management and causes of information lag also has been highlighted in the chart. The flowchart figure 2 tries to incorporate as many suggestions so that the disadvantages can be avoided and the system can be made much better in the mere future.

CONCLUSION

The research tries to explore and explain the current methods used in evaluation of an individual and article. The research tries to correlate the methods used for evaluation with the assumptions done towards research quality. The research study highlights the flaws present in the system of evaluation and tries to explain them with the help of examples. The figure one displays the interrelation lying between the method of citation analysis and journal impact factor. The figure showcases the flaws/ disadvantages involved in each step of the flow chart.

The research study also explores the suggestions given by other researchers for improving the method and system of evaluation. These suggestions showcase the biggest flaw in the system where it can be concluded that the method relies a lot on the citations and the journals in which those articles are published which are used as citations. It can also concluded that the three decade old system of journal ranking relies a lot on its past where it emphasizes a lot on its previous records which broadly deal with the journal which has had a consistent record of being in the journal rankings. This is the biggest reason why the citation analysis method fails to consider pure research and new research with very references.

Also it can be concluded from the flowchart figure that use as citation of article from a certain helps the journal to maintain its impact factor, which in turn helps the journal to maintain its position in the journal rankings. Getting an article published in a ranked journal helps an author to attain scholarship in the community and to acquire benefits from the institution of his employment. The flowchart describes the cycle where both the individual author and a respective journal are mutually benefitted due to ranking system. Thus it can be concluded that this mutual beneficiary act has given rise to the flaws/ disadvantages in the systems. The most affected are the quality of research, pure research, new ideas and literature available in other mediums except journals. Also it can be concluded journal rankings have changed researcher's perception towards research subject. Rather than working on subjects of their own likings, researchers' today prefer those subjects which are popular among publications. For example, in marketing

consumer behavior acquires a lot of attention compared to marketing engineering, thus consumer behavior becomes a popular topic of publication in journal.

These published topics are further used as citations and thus the field of consumer behavior moves ahead leaving back marketing engineering. The flowchart for suggestions and advises from experts tries to incorporate the new steps in the existing methods. It mainly focuses on the fact that research quality should be the prime factor for evaluating an article and journal and not number of citations. It also indicates how the interrelations between an author and a journal can be improved using these suggestions as multiple steps of a method.

Using both the flowchart as medium facilitating the proof of interrelations it can thus be concluded that research quality in the existing method is restricted to only towards the articles used as citations. Use of a citation from a ranked journal is assumed to positive influence on research quality. The higher the number of citation from a reputed journal, the greater is the research quality. Methods of evaluation and journal rankings are seen to have higher influence on authors and reviewers rather than the subject, quantitative and qualitative approach of research. Overall it can be concluded from the research study that the method can be improved with the help of more research and more emphasize is to be given on the research quality than on journal rankings.

Figure 1
Flowchart Diagram: Cycle Analysis.
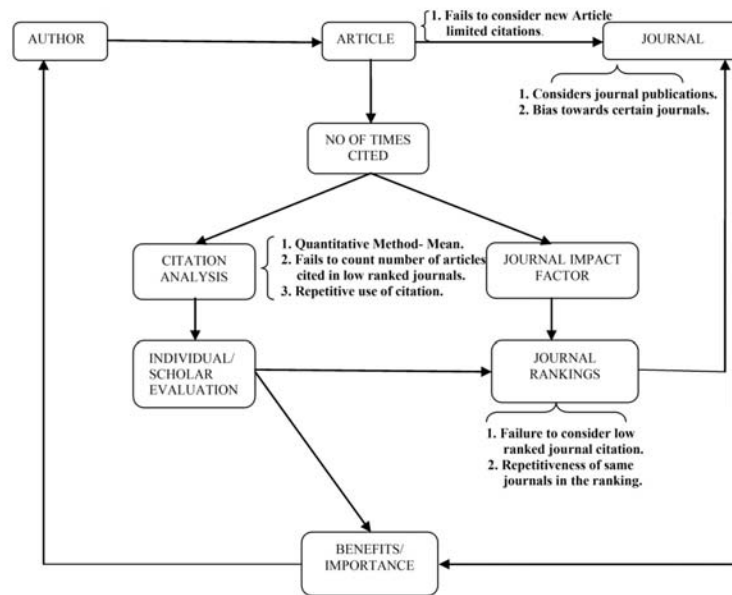
Note
Bold script indicates flaws/ disadvantages. Non bold script in the boxes indicates multiple steps.

Figure 2
Flowchart Diagram: Cycle Analysis.
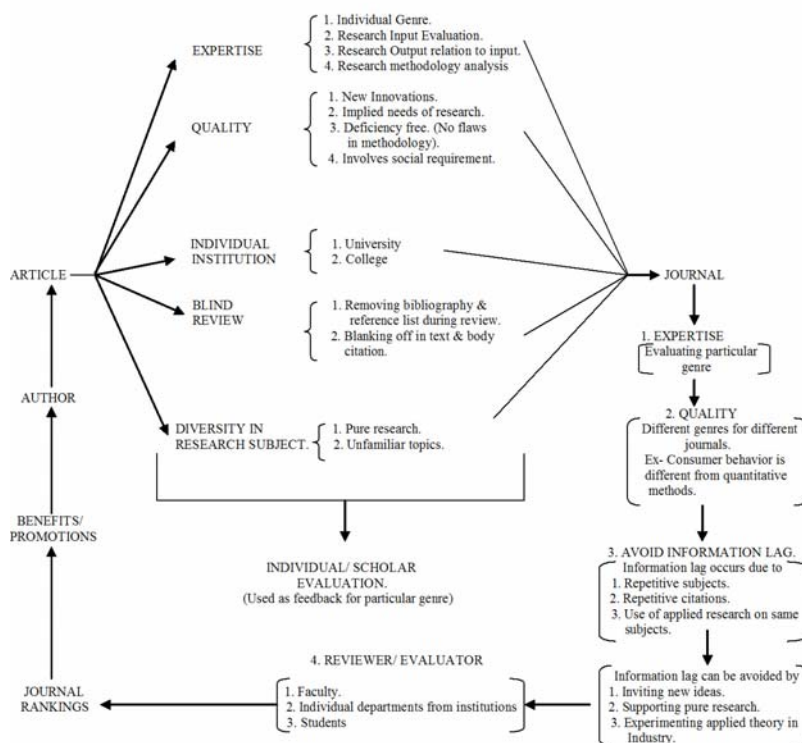
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EFFECTIVENESS OF ACTIVE LEARNING ENVIRONMENT: SHOULD TESTING METHODS BE MODIFIED?

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ABSTRACT

It is often reported in the literature that a collaborative leaning environment is a more effective learning environment for students. However, there is less emphasis in the literature on testing and assessment mechanisms when classes are taught using different collaborative learning techniques. Should testing methods remain the same while classroom environment has changed? This research examines the effectiveness of the collaborative learning environment in the classroom along with the testing methodologies.

To test the effectiveness of the collaborative learning environment, we have designed and used three different teaching environments in a particular course over three different semesters. In each successive semester a more collaborative classroom environment was created for a selected course. The first semester classroom environment (baseline) was the traditional lecture format. The next semester, a modified classroom environment was used. This was designed to be a more interactive environment with focus on problem solving and extra time for classroom discussions. Instructor-to-student and content-to-student interaction was emphasized. Student–to-student interaction was encouraged as well. In the following semester, course delivery was based on a hybrid environment. Students were given Tablet PCs to produce a more interactive class. The collaborative environment was created based on the InkSurvey Tool from the Colorado School of Mines (2008). This environment provided an active and collaborative learning environment in a hybrid format (face-to-face with on-line features/components). This environment allowed the multi-faceted student interactions using Tablet-PCs along the active learning environment created on the previous semester.

To test the learning, we used two different methods each semester. First, independent classroom observations were made. During these observations, both, frequency and quality of students' interactions were recorded. Second, we used traditional assessments and recorded the students' grades. The results show that as the classroom environment becomes more interactive, the classroom quality of interactions increases and students have better understanding of the subject matter. However, students' performance in traditional examination does not improve at the same rate with higher level of collaborative environment. This research shows that while

changing the classroom environment, testing methods and tools must also change accordingly to reflect the full effect of the collaborative learning.

INTRODUCTION

There is a vast amount of literature available (Boyer Commission, 2007; National Commission on the Future of Higher Education, 2006; National Assessment of Adult Literacy, 2003) to show that current college students have lower level of interest in old lecture-based teaching style. This lower interest is due to a variety of reasons including lack of preparation, shorter attention span, lack of instant gratification, trend towards general lack of interest in traditional classroom methods, difference in learning styles, etc. This lack of interest creates an endemic problem that is manifested as students who are not actively engaged in the classroom. And when students are not engaged in the classroom, their level of learning and understanding of the material taught is relatively poor. Despite lower level of understanding, sometimes students may do well in examinations due to better memorizing skill but still lack fundamental understanding of the material taught.

There is a plethora of research to indicate that active learning environments improve students' learning (Bransford, Brown, & Cocking, 1999; Hu, Kuh, & Li, 2008; Kuh, et al., 2005). However, there are vast differences in the active learning environment based on its design, implementation, extent of the active learning component in the material delivered, and the measurement of outcomes. Most researchers are concentrating on the variety of active learning tools and mechanism of making didactic elements more interactive. Fortunately with advancement in the digital classroom technologies and increased availability of these technologies, creating more active classroom environments is becoming easier. Furthermore, use of personal information technology tools like laptops, cell phones, PDAs, ipods, ipads, etc. is increasing rapidly; and the younger generation is more comfortable in utilizing these information technology tools. These technology tools can help to engage students in the classroom thus providing opportunities to create a variety of active learning environments.

However, it is not sufficient to simply change the classroom environment. With the changed environment, other classroom tasks must also be changed. These tasks include delivery of material, classroom management, testing/measurement, etc. Assuming that every plan of the active classroom teaching requires necessary changes in delivery mechanism, it still leaves one major element of the active learning puzzle untended—the outcome measurement.

The research related to the measurement of active learning environment outcomes should start with the applicability of the testing methods to active learning environment. Testing methods designed for traditional lecture-based classroom may not be the right tool to assess the learning outcomes in the changed environment. It is unclear from research that measuring tools created for the traditional classroom environment can be transferred directly to the active learning classroom. Does old fashion paper-pencil examination, which served traditional classroom well, fit as an effective outcome measurement mechanism for the active learning environment? Should student performance be measured just based on the test scores? How will one measure "the increased understanding of fundamentals or better problem solving skills"

based on old paper-pencil test? What value should be allocated to the enriched classroom participation? How classroom participation should be differentiated and recorded? This is further complicated by the fact that different subject matters may require different outcome measurement techniques based on the assigned value given to the classroom discussion. Despite a lot of work in the area related to the active/collaborative learning environment, less emphasis is placed on the measurement techniques. This shows that there is a need for more research in the area of assessment of the active/collaborative learning environment. In this research we propose to operationalize the construct of active/collaborative learning by using technology tools. Furthermore, we propose to use several different outcome measurements methods to test their effectiveness. One of the objectives of this research is to show that the outcome measurement methods need to be revised if the classroom environment is changed to active/collaborative learning environment.

LITERATURE REVIEW

There is plenty of evidence and concern in the higher education regarding educational quality at the college level. National Commission on the Future of Higher Education (2006) stated that "as other nations rapidly improve their higher education systems, we are disturbed by evidence that the quality of student learning at U.S. colleges and universities is inadequate and, in some cases, declining." National Assessment of Adult Literacy (2003) reported that the percentage of college graduates deemed proficient in prose literacy has actually declined from 40 to 31 percent between 1992 and 2002. These data clearly show that improvement in the college education delivery systems are definitely warranted if colleges want to prepare the future workforce which is globally competitive with necessary skill like critical thinking, problem solving and communication. The colleges and universities are finding ways to address the challenge of declining education quality through active learning. Active learning may include variety of ways where student led scholarly efforts contribute to their direct learning. This may include many forms of student-led efforts such as guided research work, experiential learning, problem-based learning, and inquiry-based instruction. There is evidence that active learning techniques like inquiry-based learning creates better learning environment (Boyer Commission, 1998).

There are several studies conducted where researchers have been examining ways to improve educational efficiency and effectiveness by exploring different instructional delivery modes, specifically, and overall educational practices in general (Kuh, et.al. 2005; Kuh, 2001). There is ample research that points to the benefits of active and collaborative/cooperative learning as compared with "traditional" lecturing modes used in academia (Bransford, et al. 1999, Hu, et al., 2008; Kuh, et al. 2005; Bonk & Cunningham, 1998; Johnson & Johnson, 1975; Oliver, Omari & Harrington, 1998; Slavin, 1991).

Objective measures such as tests, quizzes or similar instruments remain the dominant assessment tools in the classroom. However, these tools largely miss the collaborative and constructivist learning taking place in the active learning environments. Some researchers have tried to develop different methods applicable to a particular discipline (Grussing, Valuck & Williams, 1994). Meyers & Jones (1993) also argued that different classroom environments

should measure learning differently. Alavi, Marakas, and Yoo (2001) measured learning based on student to student communication in two different environments. They found that simple email/listserv based system provided better venue to learning as opposed to complex Group Support System (GSS). Serva and Fuller (2004) reported that use of different assessment matrix which reflects use of active learning tools is important in assessment. In general, different researchers are using different techniques to assess performance in the active learning environment with no common agreement on the tools of assessment. Therefore, there is a need to further investigate assessment methods in the active learning environment.

PROBLEM STATEMENT AND HYPOTHESES

It is clear from the literature that the active learning environment is better for students in many different subject matters. However, it is not clear as to how one should measure the outcome of active learning and show the improvement achieved in the students' learning. Traditional testing mechanism may not capture all different aspects of the learning taking place in the active learning environment classrooms. This research has two major objectives to address this research gap. First objective is to measure effectiveness of the active learning environment in a computer information system curriculum class. The second objective is to measure the adequacy of the three outcome measurement tools in the active learning environment. The problem development is shown in Figure 1 below. As depicted in Figure 1, active learning is a construct which is being operationalized using technology based classroom as described above. Three different measures are used to collect the outcome data. These measures are test scores, frequency of participation and quality of participation.

Figure 1. Active Learning Construct

Construct
Active learning

Operationalization of Construct
1. Performance in modified instruction with active learning.
2. Performance in technology tool-based active leaning environment.

Measurements
Test score improvement
Frequency of participation
Quality of participation
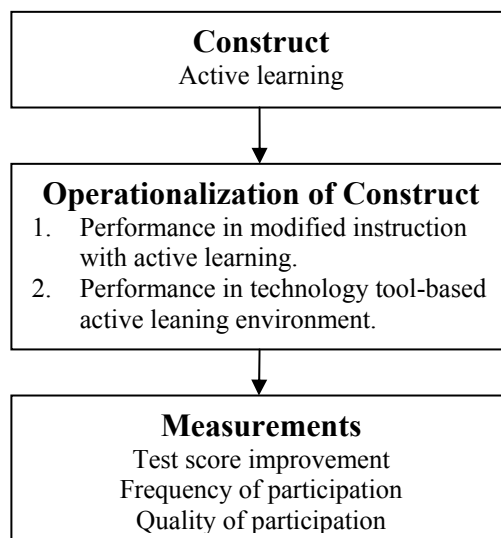
To test the validity of the construct, three hypotheses were developed. These hypotheses are as follows:

> *H1:* *The student performance in the test improves as the learning environment becomes more and more active.*
>
> *H2:* *The frequency of student participation in the class improves as the learning environment becomes more and more active.*
>
> *H3:* *The quality of student participation in the class improves as the learning environment becomes more and more active.*

METHODOLOGY

To carry out the testing of the above listed hypotheses, a field experiment was designed. It is a quasi-experiment scenario where samples for the pretest and posttest are not same. The experiment was designed to run a senior level course, MIS 410: Information Systems Analysis and Design at the Norfolk State University, Virginia. This experiment ran for three semesters using three distinct teaching environments. Each successive environment was more interactive and collaborative than the previous one. To remove the effect of instructor, same instructor taught this class for three different semesters. Same text-book was used and identical course material was taught during each of the three semesters. Correspondingly to remove the effect of the testing, similar examinations with comparable questions were used in all three semesters. Based on the experience from past teaching, it was assumed that students in each semester were of the same basic knowledge and academic caliber. Furthermore, entering GPAs of these three groups of students were not statistically different.

Baseline

In this environment no active learning treatment is applied in the classroom, i.e., the selected course was taught in traditional lecture format. If students' asked questions, those were answered by the instructor or other students; otherwise students were mainly involved in taking notes. This became the baseline study.

Three different measurements were recorded: test score improvements, frequency of questions and quality of questions. Test score improvements were recorded based on the performance in a traditional multiple choice examination. Since the experiment was carried on a course which had a related prerequisite course, students were expected to have some basic knowledge of the subject matter. An examination based on the MIS 410 content material was created. Students took the same examination both in the beginning as well as at the end of the course. The differential in the end of the course score and beginning of the course score was recorded as improvement for a given student. However, to record both student-to-student interaction and professor-to-student interaction, a separate instrument was designed. The instrument is shown in Table 1.

A trained independent rater was used to record interactions. The rater unobtrusively captured the interactions on paper, still images, and video clips as they occurred throughout an entire semester in a random fashion. The instructor and rater met several times throughout the semester in order to reach agreement and consensus concerning the various observations collected at random. The same rater was utilized for all observations in order to minimize any variance caused by different rater. The average frequency and quality rating was calculated for each course based on the sample of the classes where observations were made. A sample of recording is shown in Table 2.

Treatment

In this phase of the experiment, classroom instruction delivery was modified according to the constructivist theory tenets (Jonassen, 1992). These tenets include:

- student controls learning process,
- learning is embedded in complex, problem-based, real-world tasks,
- learning environment is open and flexible,
- assessment is continuous and embedded in learning tasks
- multiple perspectives and social negotiation.

Table 1: Interaction Ratings and Their Description				
1	**2**	**3**	**4**	**5**
Student inquires about definition(s). [Recalls, recognizes, lists, identifies, labels, names, etc.]	Student recalls definition(s) AND contributes additional insight(s). [Extends, discovers, distinguishes, etc.]	Student recalls definition(s) and contributes additional insight(s) PLUS compares and contrasts points of view offered so far. [Connects, deduces, explains, etc.]	Student recalls definition(s) and contributes additional insight(s) plus compares & contrasts points of view offered so far WHILE **attempting to** synthesize. [Integrate, combine, derive, generalize, formulate, modify, recommend, etc.]	Student recalls definition(s) and contributes additional insight(s) plus compares & contrasts points of view offered so far WHILE **successfully** synthesizing them. [Integrating, combining, deriving, generalizing, formulating, modifying, recommending, etc.]

Table 2: A Sample Class Observation				
Date:	**Class:**	**Type:**	**Rating:**	**Rater's Comments:**
Sept 18, 2008	MIS 410-01	SS (student-to-student)	2	Student 1 properly identified definition and offered an alternative one s/he learned in another class.
		SI (student-to-instructor)	4	Student 2 tried to generalize on the necessary conditions for an entity to be classified as "weak." The instructor had to correct a couple of his/her observations.

Lectures were de-emphasized. Most notes and extra reading materials were provided prior to each class. Each lecture was mixed with examples, discussions, and group activities. These activities were motivated by real-life based exercises, projects, simulations, and case studies. The classroom environment was more free-flowing compared to the rather "tight-lipped" classroom sessions found in the baseline.

Treatment

In the last semester, students were issued a stylus-based tablet PC. Students were allowed to employ these tablet PCs to freely explore and interact while actively learning. The InkSurvey Tool software made it possible to share (in real-time) with the entire class a given student's answers to an informal query, formal quiz, or case study problem posed by the instructor. This allowed the entire class a chance to collaboratively learn, while discussing the merits of the student's work. The software functionality also allowed faculty members a chance to assess (on real-time basis) the level of understanding being achieved by the given individual, the thought process followed by the student, as well as the entire class. The InkSurvey Tool software (http://ticc.mines.edu) is accessed as a shareware system under approved conditions by the School of Mines at Colorado (Kowalski, Kowalski, & Hover, 2007). All of the technologies used in the class allowed the instructors the possibility to create an interactive assurance of learning networked environment with active and collaborative/cooperative student learning and real-time assessment capabilities (IAOLNE). These modifications in the course delivery were made while maintaining most of the elements of modified lecture format, real-life problem, project, and simulations, used in $Treatment_1$.

The Tablet PCs were obtained via Hewlett-Packard™ grant for higher education awarded to Norfolk State University, Virginia. The grant made possible to obtain the necessary equipment for this experiment. A mobile laboratory was received which consists of twenty-one tablet PCs, computer projector, wireless access point, wide-format printer, video camera, notebook cart, plus Microsoft™ donated twenty licenses of its Office Enterprise Edition software. The funds portion of the grant was utilized to purchase ten additional tablet PCs and secure access to Smart SynchronEyes™ software for classroom management.

Each of these environments was applied in three successive semesters. These were designed in such a way that each classroom environment was more interactive compared to the previous semester. The baseline was the least interactive and $treatment_2$ was the most interactive environment.

DATA COLLECTION

Data were collected over three semesters, Fall 2008, Spring 2009 and Fall 2009, of MIS 410 course taught at Norfolk State University, Virginia. Table 3 below shows the improvement in the scores over three semesters with three different treatments/classroom environment.

Table 3: Test Score Improvements (Posttest-Pretest) With Three Different Treatments			
No.	**Baseline**	**Treatment$_1$**	**Treatment$_2$**
1	16	47	12
2	18	29	3
3	26	28	39
4	14	18	0
5	20	22	20
6	18	33	20
7	26	19	39
8	16	26	7
9	8	38	16
10	8	34	26
11			26
12			6

The frequency of the student-to-student as well as student-to-professor interaction was sampled in all three semesters. Efforts were made to sample the course roughly on the similar class day to remove any effect of the topic in discussion on the classroom interactions. However, availability of the rater and other logistical issues sometime made it difficult. The frequencies of the interaction are listed below in Table 4.

Table 4: Student-to-instructor (SI) & Student-to-Student (SS) Interactions Count									
	Baseline			**Treatment$_1$**			**Treatment$_2$**		
No.	**SI**	**SS**	**Total**	**SI**	**SS**	**Total**	**SI**	**SS**	**Total**
1	1	1	**2**	21	0	**21**	7	2	**9**
2	1	0	**1**	8	0	**8**	3	4	**7**
3	2	1	**3**	16	0	**16**	3	0	**3**
4	2	0	**2**	8	0	**8**	1	3	**4**
5	4	0	**4**	11	0	**11**	5	0	**5**
6				12	0	**12**	5	2	**7**
7				13	0	**13**	3	1	**4**
8				4	0	**4**			
9				8	0	**8**			
10				16	0	**16**			
11				15	0	**15**			
12				16	0	**16**			
13				8	0	**8**			
14				4	0	**4**			

Each interaction was recorded by the rater for the quality index as presented in Table 1. It was reconfirmed with videotapes and discussion with instructor after the class for any discrepancies in the understanding of the rater. The frequency of the interaction quality is shown in the Table 5.

|	Baseline Interaction Ratings					Treatment$_1$ Interaction Ratings					Treatment$_2$ Interaction Ratings				
No.	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
1	2	0	0	0	0	21	0	0	0	0	7	0	0	0	2
2	0	1	0	0	0	7	1	0	0	0	0	2	1	4	0
3	0	1	2	0	0	16	0	0	0	0	0	3	0	0	0
4	2	0	0	0	0	8	0	0	0	0	0	0	1	0	3
5	3	1	0	0	0	10	1	0	0	0	0	2	3	0	0
6						12	0	0	0	0	0	1	1	5	0
7						10	3	0	0	0	0	0	0	4	0
8						0	0	4	0	0					
9						1	7	0	0	0					
10						0	15	1	0	0					
11						7	3	5	0	0					
12						16	0	0	0	0					
13						8	0	0	0	0					
14						4	0	0	0	0					

Table 5: Quality Rating of Class Interactions

ANALYSIS AND DISCUSSION

This was a field experiment where samples are changed for each application of the new treatment. To ensure that the samples of students represented the similar populations, it is important to show that there was no difference in their pretest scores. Pretest score averages for baseline, treatment$_1$ and treatment$_2$ were 48, 50.2 and 50.17 respectively. An ANOVA of students pretest scores was performed with null hypothesis stating that there is no difference in the groups on the basis of pretest scores. The ANOVA results showed a p-value of 0.62 (See Table 6), meaning that null hypothesis could not be rejected or the groups are similar on the basis of the pretest scores.

Source of Variation	SS	df	MS	F	P-value
Between Groups	32.73	2	16.37	0.48	0.62
Within Groups	983.27	29	33.91		
Total	1016	31			

Table 6: One-Way ANOVA for Improvement in Test Scores

Before testing the other hypotheses as listed in an earlier section, some simple observations can be made from the data. Average of improvement in the scores of students in the baseline was 17 points, whereas the improvements after treatment$_1$ and treatment$_2$ were 29.4 and 20.67. It is graphically shown in Figure 2. It is clear from Figure 2 that treatment$_1$ was far better while measuring class performance on the basis of old paper-pencil test. That is, when class was modified to deliver material based on real-world problems and projects (treatment$_1$) the students' performance in the traditional test methods was the best. The pen-based computer with InkSurvey and other delivery modification (treatment$_2$) showed rather small improvements in the test scores compared to the baseline environment.

Figure 2: Average Test Score Improvements for Three Different Treatments
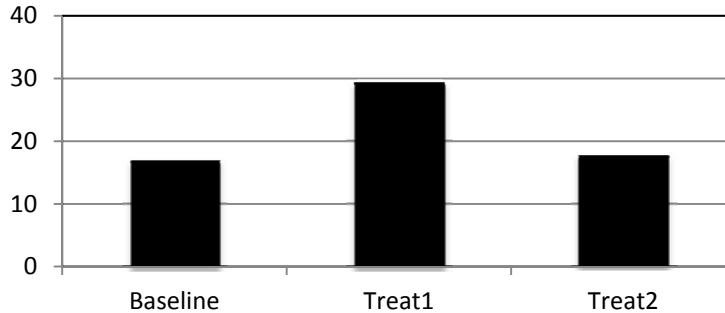
Similar observation can also be made from frequency of classroom interactions. The average interactions per class has increased from 2.4 per class in the baseline to 12.0 per class in the treatment$_1$, however, average interactions per class has declined to 5.57 from treatment$_1$ to treatment$_2$ (see Figure 3). This measurement is presenting a similar pattern as the one depicted by the test score improvement.

To further analyze the interactions, a quality index of the interactions was calculated. To calculate this index a weight was assigned to each type of question. The weights were geometrically increasing from 1 to 16 for each type of rating; e.g., a question rated as '5' is 16 times more important than the question rated as '1.' This was done to incorporate the learning demonstrated by the student while asking a question rated as 5 compared to question rated as 1. The index was calculated as the product of frequency and weight of the question rating for a given interaction. The interaction quality index is shown below in Table 7. The average quality index per interaction was calculated by dividing total quality index by total number of interactions recorded in a given semester. This is presented in Figure 4. Its measurement provides a very different picture. Average quality index has declined from baseline to treatment$_1$; however, it increased sharply in treatment$_2$. That is, simple modification in the delivery of the course material did increase the interaction but not the quality of interaction. This shows that if interaction quality is used as the performance measurement, treatment$_2$ (pen-based computing with InkSurvey and other modifications), may outperform both baseline and treatment$_1$.
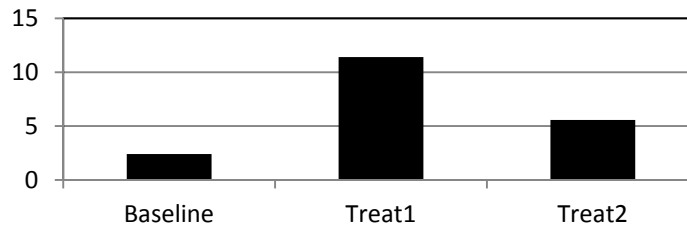
Figure 3: Average Interactions Per Class for Three Different Treatments

Table 7: Quality Index of Class Interactions			
	Baseline	**Treatment$_1$**	**Treatment$_2$**
1	4	21	39
2	4	9	40
3	20	16	6
4	4	8	52
5	10	12	16
6		12	46
7		16	32
8		16	
9		15	
10		34	
11		33	
12		16	
13		8	
14		4	

Figure 4: Average Quality Index Per Interaction for Three Different Treatments
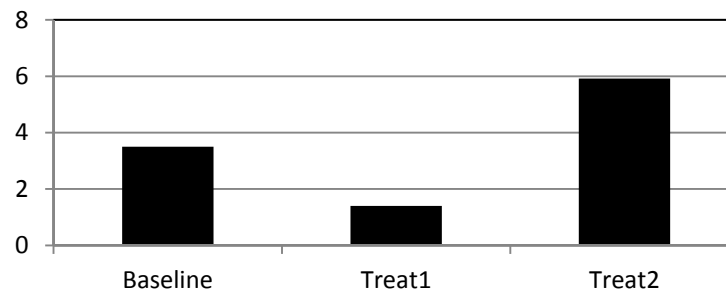
To test the first hypothesis that increased interaction improves student performance in the traditional examination, two statistical tests were performed: a one-way ANOVA test to see if there is a difference in three groups based on improvement in the test scores and post-ANOVA analysis to find which groups are different. The ANOVA results are shown in the Table 8.

Table 8: One-Way ANOVA for Improvement in Test Scores					
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**
Between Groups	984.81	2	492.40	4.85	0.015
Within Groups	2942.07	29	101.45		
Total	3926.88	31			

It is clear from the ANOVA results that treatments are different at alpha of 5%. To test which treatments are different, group-wise t-tests were performed. The baseline and treatment$_2$ are similar with a p-value of 0.84. However, treatment$_1$ is different from both baseline and treatment$_2$ with p-values of <0.01 and 0.02, respectively. Results show that most interactive and the least interactive environments are same whereas interactive environment without new

technological tools did outperform other two environments. Thus, the hypothesis that 'the student performance in the test improves as the learning environment becomes more and more active' must be rejected.

Same two statistical tests were performed to test the second hypothesis that increased interaction improves frequency of the student interactions in the classroom. The one-way ANOVA test for the frequency of interactions for three different groups is shown in the Table 9.

Table 9: One-Way ANOVA for Frequency of Interactions					
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**
Between Groups	362.31	2	181.16	11.56	0.00
Within Groups	360.34	23	15.67		
Total	722.65	25			

It is clear from the ANOVA results that treatments are different (p-value is <.01). To test which treatments are different, group-wise t-tests were performed. All three treatment groups are different from each other on the basis of the frequency of the interactions. All three combinations, baseline and treatment$_1$, treatment$_1$ and treatment$_2$, and baseline and treatment$_2$ have p-values <.01. Treatment$_1$ has the highest average interaction per class (11.43 interactions per class) followed by the treatment$_2$ (5.67 interaction per class) and baseline average of the interactions per class the least (2.4 per class). Results show that most interactive environment has lower average interactions per class compared to treatment$_1$ environment which was designed without new classroom technological tools. Thus, the hypothesis that 'the frequency of the student participation improves as the learning environment becomes more and more active' must be rejected.

The third hypothesis that 'the quality of the student participation improves as the learning environment becomes more and more active' was tested similarly. The ANOVA of the quality index for three groups is shown in Table 10.

Table 10: One-Way ANOVA for Quality of the Interactions					
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Between Groups	2084.90	2	1042.45	8.50	0.00
Within Groups	2820.06	23	122.61		
Total	4904.96	25			

Table 10 shows that groups are different on the basis of the quality of interactions (p-value is < .01). The t-test for each combination of groups shows that treatment$_2$ is different from baseline as well as treatment$_1$. The p-values from the t-tests are 0.05 for baseline and treatment$_1$, 0.016 for treatment$_1$ and treatment$_2$, and 0.003 baseline and treatment$_2$. Results show that most interactive environment has highest quality index of the interaction; however there is difference between baseline and treatment$_1$; however, not very significant. Again, there is little data to support the third null hypothesis.

It is clear from the results that no one measure works well with all type of class environments. It should be noted that baseline (traditional lecture model) environment was the lowest performing based on any performance measure. The treatment$_2$ (class environment with

Tablet PC and InkSurvey tools plus constructivist theory tenants) performed best on quality index whereas treatment$_1$ (constructivist theory tenants without technology tools) performed best on improvement in test scores and participation frequency. From the class experience, it was clear the treatment$_2$ environment had more creative energy in the classroom and students were willing to try problems from different perspectives. Despite showing more understanding on the daily basis in the classroom, treatment$_2$ group showed relatively little improvement in the test score compared to the baseline group. This could possibly be due to three reasons: (1) there was less emphasis on memorizing which is captured more on the traditional test; (2) better understanding of the subject matter made students rather complacent on the examination day thus putting less effort from examination preparation; and/or (3) traditional tests are not designed to capture problem solving skill which was emphasized more in treatment$_2$.

CONCLUSIONS

The following conclusions can be drawn from this research:

a. The value of interactive environment is not captured by all performance measuring instruments.
b. Increased student interaction and its quality can't be captured using traditional testing methods.
c. Not all student performance measurements work in every classroom environment. That is, with classroom environment modifications, performance measuring mechanisms must change accordingly.
d. Active and collaborative/cooperative learning environments improve students' performance if properly measured.
e. Different testing and assessment methods must be used for the different classroom environments.

It was noted that there was a dramatic increase in the engagement level of students by instructor as classroom environments were changed each semester. The combination of constructivist-based modifications to the instructional delivery plus the utilization of the tablet PCs within the InkSurvey Tool environment have made it possible to create a learner-centered, knowledge-centered community of inquiry where students are actively engaged in pursuing knowledge. This pursuit of understanding occurs within well-defined "knowledge paths" designed by the instructor. Students query the instructor, as well as each other, challenging the theoretical frameworks or models presented. This is an expression of higher order and critical thinking occurring in the classroom. The InkSurvey Tool creates an environment which facilitates formative assessment and more importantly, allows the instructor as well as the students a chance to peek into the thought process behind the answers given by their peers, and to challenge them. In conclusion, effort in collaborative/active learning improves students' understanding.

There were some caveats, which make complete generalization of results rather difficult. First, it was a small study for a very small class. Furthermore, classroom observations samples were very small as well. The experiment is tried in one course, in one university only. Furthermore, the introduction of new classroom technology could be challenging in different majors. This class was an MIS/computer science curriculum class. Even then, early in the semester when the Tablet PCs were introduced, the instructor had to force the students to use them as tablets and not like regular notebooks. New technologies may have different impact in

different majors both based on students' adaptability and comfort level with the new technologies. Thus, the experiment must be repeated in other environments before considering a generalization of the results.

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FACULTY ON THE FRONTLINE: PREDICTING FACULTY INTENTIONS TO ADDRESS COLLEGE STUDENT PLAGIARISM

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ABSTRACT

What are faculty beliefs about their role in addressing student plagiarism? This study was conducted to identify how the faculty at a doctoral/research university (DRU) saw their role in order to have a starting point for establishing a university-wide policy and set of procedures. The results of the survey indicate that faculty members who think punishment is an apt course for both intentional and unintentional plagiarism are more likely to directly address student plagiarism. Faculty members who take an all-encompassing approach to plagiarism by expecting students to credit resources for all class work intend to take a more formal course of dealing with plagiarism by reporting it to the administration.

INTRODUCTION

There are over 7 million results from a Google search today on the term "plagiarism." There have been hundreds of news media and academic articles written about college students and cheating (Perry 2010). The claims that cheating is increasing—and specifically plagiarism—are based on anecdotal evidence (Perry 2010; Park, 2003). However there are strong arguments that the Internet is contributing to the increase in cases of plagiarism in higher education including distance education (Decoo, 2002, Kennedy, Nowak, Raghuraman, Thomas, & David, 2000). McKenzie (1998) puts it bluntly, "The New Plagiarism may be worse than the old because students now wield an Electronic Shovel that makes it possible to find and save huge chunks of information with little reading, effort or originality." To further complicate the issue, many scholars argue that the issues of plagiarism and originality are historically mercurial and impossible to define. (Freeman, 1998, Campbell, 2007).

Studies indicate that there are many different causes for student plagiarism (Perry, 2010; Park 2003). The most common causes found in the literature are articulated by Williams (2007) who suggests that students plagiarize because they are

> A. Deceitful and trying to put one over on their teachers
> B. Lazy and trying to get by with the least amount of work possible

C. Confused about how to use and credit other sources of information
D. Struggling to write with new information and new genres
E. All of the above

In addition, there are also several types of plagiarism identified in the literature (Park, 2003). There are several variations on using others' materials as one's own: buying a paper, copying a paper, and using another student's work. Then there are cases where students have other do the work and submit it as their own. The obvious copy and paste plagiarism aside, the identification of plagiarism often depends on methods faculty use in identifying plagiarism. One study found that students' writing was sometimes considered as 'plagiarized' or 'non-plagiarized' based on professors' own practices of writing and particularly paraphrasing (Roig, 2001). A five-year study using the software Turnitin.com to identify plagiarism acknowledges a major limitation in the fact that the different graders used their own judgments in evaluating the originality reports (Walker, 2010).

With the provost's goal to establish clear and consistent policies and processes for handling suspected cases of plagiarism, the first challenge is defining plagiarism. Although that issue is beyond the scope of this paper, it is worth noting a university-wide definition of plagiarism may be challenging. One psychology department found how difficult it is to reach agreement on the definition of plagiarism, even within a single department (Sutherland-Smith, 2005)

Institutional processes to address plagiarism can get bogged down with trivial cases (Decoo, 2002). In addition, institutions and faculty have concerns about legal battles. Decoo (2002) argues that when plagiarism cases are addressed, the more serious offenses often cause devastating effects on the institution, the offender, and the faculty member who charges plagiarism.

FACULTY ON THE FRONT LINE

A 2006 study of 147 faculty found that "faculty beliefs about the frequency of student academic misconduct were positively related to…prevention measures and efforts to challenge students suspected of misconduct (Hard, Conway, & Moran, 2006, p. 1061). Although examining a broader concept of academic misconduct than the single focus here on plagiarism, this study confirms an earlier finding (Koljatic & Sylva, 2002) of a significant relationship between faculty beliefs and behaviors.

Howard's (2007) analysis of the relationship between the internet and plagiarism explores the historic context of intertextuality. The internet is not the first revolution of increased access to text and the challenge that access bring to a cultural understanding of authorship and textual culture. "In all its forms, new media constitutes yet another revolution in access to text, and one of its controversies is the anxiety of authorship" (Howard, 2007, p. 6). A result of this

"anxiety" is the pressure for gatekeepers to monitor, identify, and often determine the punishment for plagiarism.

One survey of 270 faculty shows considerable variation in faculty characterization of both severities of offense and appropriate actions; however, there was a common theme that the "punishment should fit the crime" (Robinson-Zanartu, Pena, Cook-Morales, Pena, Afshani, and Nguyen, 2005). Martin (1994) asserts that there is a wide variation in types and severity of plagiarism offenses and that because of the relative ease of detection faculty most often focus on the least serious offenses and ignore the more egregious offenses.

Although there is an assumption that faculty is on the front line in the issue of college student plagiarism, researchers have not studied faculty beliefs about their role in addressing student plagiarism.

Research question #1: What are faculty beliefs about their role in addressing student plagiarism?

METHODOLOGY

The survey was designed according to the theoretical framework of Icek Ajzen's Theory of Planned Behavior (TPB) (2002) and questions developed based on a literature review of TPB and research on plagiarism in colleges and universities. Figure 1 is a model of the theory as applied in this study.
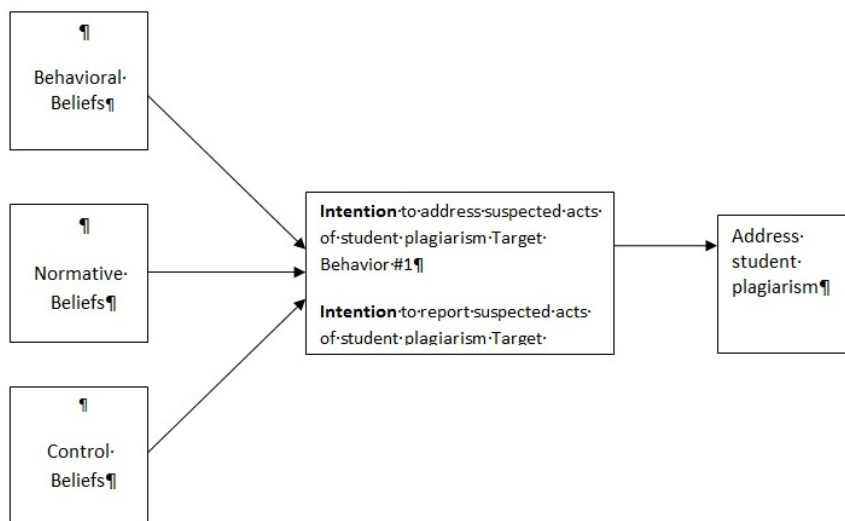

Figure 1. Applied Model for Theory of Planned Behavior.

The Theory of Planned Behavior has been the basis of hundreds of research articles and the efficacy of the theory was demonstrated in a meta-analysis of 185 TPB studies (Armitage &

Conner, 2001). In short, a well-designed TPB survey predicts the subject's likelihood of enacting the target behavior. The survey measures a subject's attitude towards a behavior; subjective norms; perceived behavioral control; and intention to enact the behavior.

In this study the target behavior is faculty intention to address suspected acts of student plagiarism. The subjective norms are faculty beliefs and attitudes about social pressures to enact the behavior-in this case, beliefs about social norms among students, other faculty, and administration. Perceived behavioral control identifies faculty beliefs about the ease or difficulty of addressing suspected acts of plagiarism.

The subjects for the survey were the entire faculty (348 faculty members as of spring 2010), including tenured, full and part time instructors. The University Institutional Review Board approved sending out the survey via faculty email.

In order to send the survey questionnaire to the interest population, the entire questionnaire was uploaded on the Survey Monkey® (internet based response collection tool) by enrolling in the Pro Plan for two months. Special care was taken not to record the respondents' computer IP address in order not to reveal the identity of the same. The anonymity of response was also conveyed to the population of interest.

An email was sent to the entire faculty on April 21, 2010 requesting their participation in the survey and included the online link to the survey questionnaire. Faculty members had more than four weeks to access the link and complete the survey. After the first email, four subsequent reminder emails along with the survey link were sent to the faculty members. The link to the survey on the Survey Monkey® was disabled on May 22, 2010, after which the results were downloaded in the Microsoft Excel® format.

SURVEY DESIGN

Out of 42 questions in the survey, 35 were aimed at recording faculty beliefs, attitudes and intentions, 3 were related to the past behavior and 4 regarding demographics. Out of the 35 belief based questions, 2 questions had 3 categorical response options and 1 question had 2 options. So in all there were a total of 40 queries to be answered regarding the beliefs and attitudes through 35 questions.

All the belief-based questions could be answered on scale of 1 to 6 with 1 being affirmative response to the question and 5 being the negative and with 6 having the option of N/A (not applicable to the respondent). The N/A option was intended to measure accurate response rate. Sometimes the length of survey can prompt the respondent to skip some questions in order to complete the survey in a short time. So an adjustment was made through the survey tool, Survey Monkey®, used for data collection. It was set to require the respondent to answer all the questions before the survey could be submitted. It was designed to encourage the respondent to read all questions before the survey could be submitted. However a respondent concludes that a particular question does not relate to her / him, the respondent could provide a fuzzy response.

In order to avoid such false response, N/A option was included in the overall scale. Two out of three questions concerning past actions were open-ended and one had the option of eight responses. All the questions in the survey with the exception of questions regarding demographics had to be answered in order to submit the response.

Each variable is identified by a VAR code. The last two digits refer to the original question number in the survey. The number(s) before the last two digits refers to the variable the question represents.

Identification of Belief Sets

After gaining a clearer understanding of the TPB and methodologies used in numerous studies applying the theory, we reviewed each survey question for close fit with the three belief sets; we also reviewed each survey question for close fit with the intention to enact the behavior. As a result of this review, the most applicable questions were identified. The questions selected in each of the belief sets: 1) behavioral beliefs;2) normative beliefs; and 3) control beliefs are as follows:

Behavioral Beliefs (independent variable)
VAR 1201 How important is it for students to avoid plagiarism?
VAR 1203 How important is it for students to credit resources used in class work?
VAR1205 How important is for students to be punished for acts of intentional plagiarism?
VAR1208 How important is it for students to be punished for acts of unintentional?
VAR1237 The definition of plagiarism in the student handbook is adequate for students to understand expectations.
VAR 1238 Most students know when they are plagiarizing.
Normative Beliefs (independent variable)
VAR422 Generally, how much do you care about others regarding what you should do about suspected acts of student plagiarism?
VAR422A Care about what other faculty think (A)
VAR422B Care about what students think (B)
VAR422C Care about what university administration think (C)
VAR432 Most of my students think I should report all suspected acts of student plagiarism.
Control Beliefs (independent variable)
VAR514 How difficult is it for me to directly address suspect acts of student plagiarism? Reverse coded*
VAR515 Whether or not I directly address suspected acts of student plagiarism is completely up to me?
Intention Questions (dependent variable)
VAR 317 How likely am I to directly address suspected acts of student plagiarism (Target behavior #1).
VAR 321 I intend to report future suspected acts of student plagiarism to administration (Target behavior #2).
*the scale was reverse coded in order to seek uniformity in the response for all questions as the scale for all questions, except for 14, implied the most affirmative response to the question at the scale of 1 and the most negative at 5.

RESULTS

Demographics

In all, 109 faculty members responded to the survey for a response rate of about 31 percent. Population demographics were requested from the University's Institutional Research Department for comparison with the respondent demographics. Of the 109 total respondents, 106 answered the demographics about gender. There were 56 percent male respondents compared to a population demographic of 64 percent males; the 44 percent female respondents compare to a 36 percent population. The survey respondents fairly represented the population gender proportions. Moreover 84 percent of the respondents were full time faculty and the rest were part time. This breakdown is extremely close to the 87 percent full time faculty in the entire university.

Results - Significant Predictors of Target Behaviors

The data were analyzed using the statistical software SPSS®. The N/A option on the scale was considered as a no response. Respondents who selected N/A on any question were removed from the step-wise linear regression. The SPSS automatically selects the number of respondents who have answered all the questions in a given analysis. So the number of respondents for individual regression analysis for different belief sets varied depending on the selection of N/A by some of the respondents. Moreover, the frequency analysis in SPSS was accomplished separately for every question, which identified the number of respondents for each individual question and removed the ones who had N/A responses. The results were analyzed based on scale of 1 to 5. Questions pertaining to particular beliefs and attitudes were identified so that step-wise linear regression against dependent variable of intention (Target behavior #1 and target behavior #2) questions could be run.

All the questions in each belief set were grouped as independent variables and one intention question was set as a dependent variable to do step-wise linear regression. The regression, in addition to finding the correlation coefficient between dependent and set of independent variables, also omitted the non-significant independent variables from the set. The correlation coefficient represented by 'R' was given at a high level of significance represented by 'p-value'.

The results of the step-wise linear regression analysis are given in the following tables separately for different belief sets. Table 1 contains the R at a given level of significance (p-value) for each belief set regressed against target behavior #1 which is represented as VAR 317. This target behavior is the 'likely hood of directly addressing suspected acts of student

plagiarism'. Statistically significant belief variables have a direct correlation with target behavior #1.

Table 1 **FACULTY INTENTIONS** Correlation Coefficient of different belief sets with target behavior 1	
Variables	R (correlation coefficient) with VAR 317
Behavioral Beliefs • How important is for students to be punished for acts of intentional plagiarism? • How important is it for students to be punished for acts of unintentional? • Most students know when they are plagiarizing.	0.842*
Normative Beliefs • Generally, how much do you care about what university administration think regarding what you should do about suspected acts of student plagiarism? • Most of my students think I should report all suspected acts of student plagiarism.	0.812*
Control Beliefs • How difficult is it for me to directly address suspect acts of student plagiarism? Reverse coded* • Whether or not I directly address suspected acts of student plagiarism is completely up to me?	0.909*

*p = 0.000

Table 2 provides the results from regression analysis based on same belief sets but this time regressed against target behavior #2 which is represented as VAR 321. This target behavior is the 'intention to report future suspected acts of student plagiarism to administration'. Statistically significant belief variables have been identified with direct correlation with target behavior #2.

Table 2 **FACULTY INTENTIONS** Correlation Coefficient of different belief sets with target behavior 2	
Variables	R (correlation coefficient) with VAR 321
Behavioral Beliefs • How important is it for students to credit resources used in class work? • How important is for students to be punished for acts of intentional plagiarism? • Most students know when they are plagiarizing.	0.920*
Normative Beliefs • Generally, how much do you care about what university administration think regarding what you should do about suspected acts of student plagiarism? • Most of my students think I should report all suspected acts of student plagiarism.	0.938*
Control Beliefs • How difficult is it for me to directly address suspect acts of student plagiarism? Reverse coded* • Whether or not I directly address suspected acts of student plagiarism is completely up to me?	0.893*

*p = 0.000

Table 3 presents frequency analysis for both the target behavior questions.

Table 3 FACULTY INTENTIONS Target Outcome Behaviors – Response Percentages						
Target Behavior #1 How likely am I to directly address suspected acts of student plagiarism? *n=107*	Extremely likely 49.5	Likely 38.5	Somewhat likely 9.2	Unlikely	Extremely unlikely 0.9	N/A 1.8
Target Behavior #2 I intend to report future suspected acts of student plagiarism to administration. *n= 104*	Strongly agree 20.2	Agree 33.9	Somewhat agree 32.1	Disagree 6.4	Strongly disagree 2.8	N/A 4.6

Table 4 presents frequency analysis of behavioral belief variables which have been identified as significant predictors of both target behavior #1 and #2.

Table 4 FACULTY INTENTIONS Behavioral Beliefs- Significant Predictors of VAR317 and VAR321 Target Outcome Behaviors – Response Percentages						
How important is it for students to be punished for acts of intentional plagiarism? *n= 108*	Extremely important 59.6	Important 33.0	Somewhat 4.6	Not important 0.9	Extremely un-important 0.9	N/A
Most students know when they are plagiarizing. *n= 109*	Strongly agree 11.9	Agree 34.9	Somewhat agree 30.3	Disagree 20.2	Strongly disagree 2.8	N/A

Table 5 presents frequency analysis of behavioral belief variable that has been identified as significant predictors of target behavior #1.

Table 5 FACULTY INTENTIONS Behavioral Beliefs- Significant Predictor of VAR317 Target Behavior #1 – Response Percentages						
How important is it for students to be punished for acts of unintentional plagiarism is *n= 108*	Extremely important 8.3	Important 28.4	Somewhat 45.0	Not important 13.8	Extremely un-important 3.7	N/A 0.9

Table 6 presents frequency analysis of behavioral belief variable that has been identified as significant predictors of target behavior #2.

<table>
<tr><td colspan="7">Table 6
FACULTY INTENTIONS
Behavioral Beliefs– Significant Predictor of VAR321 Target Behavior #2 – Response Percentages</td></tr>
<tr>
<td>How important is it for students to properly credit the resources they use in class work products?
n= 109</td>
<td>Extremely important

89.1</td>
<td>Important

8.3</td>
<td>Somewhat

2.8</td>
<td>Not important</td>
<td>Extremely un-important</td>
<td>N/A</td>
</tr>
</table>

Table 7 presents frequency analysis of normative belief variables which have been identified as significant predictors of both target behavior #1 and #2.

<table>
<tr><td colspan="7">Table 7
FACULTY INTENTIONS
Normative Beliefs - Significant Predictors of VAR317 and VAR321 Target Outcome Behaviors – Response Percentages</td></tr>
<tr>
<td>Care about what university administration think*
n= 108</td>
<td>Very much

23.9</td>
<td>Much

20.2</td>
<td>Somewhat

30.3</td>
<td>A little

11.9</td>
<td>Very little

12.8</td>
<td>N/A

0.9</td>
</tr>
<tr>
<td>Most of my students think I should report all suspected acts of student plagiarism.
n= 93</td>
<td>Extremely likely

4.6</td>
<td>Likely

12.8</td>
<td>Sometimes

30.3</td>
<td>Rarely

24.8</td>
<td>Extremely unlikely

12.8</td>
<td>N/A

14.7</td>
</tr>
</table>

Note. The survey question (Generally, how much do you care about others regarding what you should do about suspected acts of plagiarism?) asked about several stakeholders.

Table 8 presents frequency analysis of control belief variables which have been identified as significant predictors of both target behavior #1 and #2.

<table>
<tr><td colspan="7">Table 8
FACULTY INTENTIONS
Control Beliefs - Significant Predictors of VAR317 and VAR321 Target Outcome Behaviors – Response Percentages</td></tr>
<tr>
<td>How difficult is it for me to directly address suspected acts of student plagiarism is
n= 107</td>
<td>Extremely difficult

7.3</td>
<td>Difficult

32.1</td>
<td>Somewhat

27.5</td>
<td>Not difficult

24.8</td>
<td>Extremely easy

6.4</td>
<td>N/A

1.8</td>
</tr>
<tr>
<td>Whether or not I directly address suspected acts of student plagiarism is completely up to me.
n= 107</td>
<td>Strongly agree

11.9.</td>
<td>Agree

32.1</td>
<td>Somewhat agree

20.2</td>
<td>Disagree

22.0</td>
<td>Strongly disagree

11.9</td>
<td>N/A

1.8</td>
</tr>
</table>

Table 9 presents basic statistics of mean and standard deviation for all belief based variables (behavioral, normative, and control) which have been identified as independent predictors of

target behavior 1 and 2. The table presents these statistics for both target behavior variables as well.

Table 9 **FACULTY INTENTIONS** **Mean and Standard Deviation of Identified Variables**		
Variables	Mean	Standard Deviation
Behavioral Beliefs		
How important is it for students to avoid plagiarism?	1.19	0.45
How important is it for students to credit resources used in class work?	1.13	0.40
How important is for students to be punished for acts of intentional plagiarism?	1.56	0.75
How important is it for students to be punished for acts of unintentional?	2.75	0.89
The definition of plagiarism in the student handbook is adequate for students to understand expectations.	2.52	1.14
Most students know when they are plagiarizing.	2.60	1.02
Normative Beliefs		
Generally, how much do you care about what other faculty thinks regarding what you should do about suspected acts of student plagiarism?	2.80	1.36
Generally, how much do you care about what students thinks regarding what you should do about suspected acts of student plagiarism?	2.67	1.42
Generally, how much do you care about what university administration thinks regarding what you should do about suspected acts of student plagiarism?	2.69	1.31
Most of my students think I should report all suspected acts of student plagiarism.	3.33	1.08
Control Beliefs		
*How difficult is it for me to directly address suspect acts of student plagiarism?	2.88	1.08
Whether or not I directly address suspected acts of student plagiarism is completely up to me?	2.90	1.24
Target Behavior #1		
How likely am I to directly address suspected acts of student plagiarism?	1.62	0.74
Target Behavior #2		
I intend to report future suspected acts of student plagiarism to administration.	2.35	0.98

*Reverse coded

The mean and standard deviation for the identified variables are based on response scale from 1 to 5, with 1 being absolutely affirmative to the question and 5 as negative. Response of 3 is neutral to the question, but skewed towards the affirmative side. Most of the respondents agree at least "somewhat" in their responses to all the questions except for VAR 432 that asked whether or not students want the cases of plagiarism to be reported. Questions pertaining to behavioral beliefs regarding importance of: avoiding plagiarism, crediting resources, and punishing intentional plagiarism had extremely positive responses with almost all respondents agreeing strongly with less scattered results evident from the low standard deviation. Respondents are less agreeable on questions regarding normative beliefs and control beliefs with some of the respondents choosing responses on the either side of scale. This is evident with the mean for all the normative belief and control belief questions to be close to 3 and standard deviation of more than 1. As for the target behaviors (#1 and #2), respondents agree to directly address and report cases of plagiarism in future.

DISCUSSION

Both target behaviors are evaluated through intention questions, which have high response rates with less than 4 percent respondents choosing not applicable (N/A). For target behavior #1, more than 97 percent of the responses are skewed positively which indicates the high likelihood of faculty's intention to directly address student plagiarism. As for the intention to report, target #2, more than 86 percent of the respondents are in agreement.

The significant predictors both the target behavior questions have high response rate (with less than 2 percent respondents selecting N/A) except for the question pertaining to normative belief regarding students' willingness to be reported by the faculty for plagiarism (about 15 percent of the respondents chose N/A).

Faculty beliefs regarding punishing intentional cases of plagiarism and that students know when they are plagiarizing (all plagiarism is intentional) are significant predictors for both target behavior questions. Faculty belief about punishing unintentional cases of plagiarism is a significant predictor for target behavior #1 question pertaining to faculty's intention to directly address student plagiarism. It suggests that the faculty members, who think punishment is an apt course for both intentional and unintentional plagiarism, are more likely to directly address student plagiarism. A belief that students should credit resources for all class work is a significant predictor for target behavior #2 of faculty's intention to report cases of student plagiarism. The faculty members, who take an all-encompassing approach to plagiarism by expecting students to credit resources for all class work, intend to take more formal course of dealing with plagiarism by reporting it to the concerned authorities.

Motivation to comply regarding caring about administration and the normative belief that most students expect the faculty to report plagiarism are significant predictors for both target behavior questions. Faculty's intention to directly address and to report plagiarism is highly correlated with these beliefs. Hence students play a major role of influencers on how faculty members deal with plagiarism. Moreover the concern about university administration, indirectly, suggests faculty's willingness to have an organizational policy in place to deal with student plagiarism. This notion is supported by responses to some of the questions in the complete survey questionnaire which were asked about having a university wide committee of students, faculty and administration to deal with cases of plagiarism. Collectively more than 70 percent of responses, for all the questions related to having a committee, were positively skewed expressing most of the respondents' willingness for having such a committee.

Future Research

Most research, including this study, does not establish a standard definition for the term plagiarism. Therefore, because of different definitions there could potentially be a wide variation

in how faculty perceives their role in addressing suspected student plagiarism (Flint, Clegg, & Macdonald, 2006). Also, because of different definitions there is likely variation even in what faculty identify as suspicious. Future research that calls for faculty selection from a list describing known varieties of faculty definitions of plagiarism (see Sutherland-Smith, 2005; Pickard, 2006; & Park 2003) could help identify biases in perception of plagiarism and suspected student plagiarism.

Sutherland-Smith (2005) describes the challenges faced in an unsuccessful attempt to come to agreement on a definition of plagiarism among 11 faculty members who teach English; this exemplifies the challenges of establishing institutional definition. Another study found that even having an institutional definition of plagiarism and a policy for addressing plagiarism, students and faculty alike found them unsatisfactory; this institution embarked upon a mixed methods study among administration, students and faculty, which led to the development of multiple tools and approaches with a goal of changing the institutional culture (Pickard, 2006). Students receive mixed messages from faculty about plagiarism and want a specific framework, definition, and training to understand what plagiarism is and how to avoid it (Ashworth, Freewood, & Macdonald, 2003). Future research is needed to measure the effects of faculty participation in defining plagiarism and consequences in the classroom (Hard, Conway, & Moran, 2006).

Limitations

This study was conducted at one university. The main goal was to get a picture of faculty perceptions of their role in addressing student plagiarism in order to contribute to the future revision and development of definitions, policies, and procedures for addressing student plagiarism at this institution.

Conclusions

Faculty who responded to the survey indicates they are extremely likely (49.5 percent) and very likely (38.5 percent) to address suspected acts of student plagiarism. Over 98 percent think is it important for students to properly credit resources used in coursework. Additionally, they overwhelmingly believe (over 90 percent) that students should be punished for intentional acts of plagiarism. Over 70 percent of the faculty care about what the university thinks about how they handle suspected acts of plagiarism.

Over 50 percent of the faculty has doubts about whether students actually know when they are plagiarizing, which may contribute to mixed responses on punishment for unintentional plagiarism. Two thirds of the respondents admit to having difficulty addressing suspected acts of student plagiarism.

These results support calls for better education of students about research methods in general and how to summarize and paraphrase the sources they find. Reference librarians are more qualified for this task than faculty. Additionally, each college, or in some cases individual departments, should standardize the style guide for each discipline so that students, faculty, and administration all have a baseline, which can be used to examine suspected acts of plagiarism.

These findings also support the concept of having a university-wide process to support faculty in addressing suspected acts of student plagiarism. This could help ease the difficulty faculty have with directly confronting students by providing faculty and students with clear guidelines.

Given the large number of respondents (nearly a third of the faculty) responded to this survey. This response level coupled with the results described here clearly indicate a high level of concern and interest among faculty about the challenge of student plagiarism.

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