UNDERSTANDING ACADEMIC INTEGRITY IN THE ONLINE LEARNING ENVIRONMENT: A SURVEY OF GRADUATE AND UNDERGRADUATE BUSINESS STUDENTS

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ABSTRACT
Increasingly, students are finding that taking courses online is a more convenient and flexible approach to earning a degree. For some, it is the only way to access desired degree programs and courses. As online education grows in popularity, how best to ensure academic integrity in the online learning environment becomes an important part of the dialogue surrounding the implementation of online instruction. Student surveys indicate that what constitutes academic integrity in the online learning environment is unclear. This study focuses on how business students view academic integrity in their online course work. Are the precepts of academic integrity the same in the online environment as in the classroom? To determine how students viewed the application of the principles of academic integrity in their course work, researchers surveyed three undergraduate and two graduate classes of business students in 2011-2012. Two of the undergraduate classes and one of the graduate classes were taught as partially online courses. One undergraduate and one graduate course were taught as fully online courses. The question was part of a broader survey of student satisfaction and use of social media to aid learning. There were statistically significant differences between males and females regarding perceptions of academic integrity, and between graduate and undergraduate students on the level of satisfaction with partially online courses. There were no statistically significant differences in the use of social media to enhance learning. The students were undergraduate business majors and MBA students at Robert Morris University in Pennsylvania.

INTRODUCTION
Robert Morris University (RMU) is a private nonprofit institution located in Western Pennsylvania with an enrollment of approximately 4,700 undergraduate and 400 graduate students. Founded in 1921 as the Pittsburgh School of Accountancy, RMU now offers degrees in business, communications and information systems, education, engineering, and nursing. Since its first online offerings in 1999, RMU has added more than 250 online and partially online courses. In 2011-2012, RMU offered 318 online courses, with a total enrollment of 4,438. Through its Office on Online and Off-Campus Programs, the University currently offers eight undergraduate and twelve graduate degree programs online, as well as ten online certificate programs.

In its 2009 report on faculty engagement in online learning, the Sloan Consortium noted that in the five years from 2002 to 2007, enrollment in online courses at colleges and universities had more than doubled, growing from 1.6 million students in 2002 to 3.94 million in 2007.

As more and more institutions of higher education become involved in online course delivery, preserving honesty and integrity in the learning environment takes on added significance because of the difficulty in controlling activity that occurs in cyberspace. The ability of educators to ensure academic integrity in their online courses is a major part of the discussion of effective online instructional design (Braun, 2008; Campbell, 2006; Grijalva, Nowell, & Kerkvliet, 2006; Wyatt, 2005). Additional concerns about ensuring academic integrity are raised with the emergence of Massive Open Online Courses (MOOCs). In his commentary on why MOOCs have not yet replaced traditional universities, Youngberg (2012) lists the ability to cheat as the number one reason.

As the recent experience at Harvard demonstrates (Christakis & Christakis, 2012), maintaining academic integrity is a problem in the classroom as well as in an online setting. Initial reports on the scandal at Harvard indicated that more than 50% of the undergraduate students in one course were suspected of cheating on a final exam. University representatives asserted that the incident was "unprecedented in its scope and magnitude" (Perez-Pena, 2012).

Academic dishonesty among college students is not a new phenomenon nor, as the Harvard case illustrates, is it solely the province of online learning. McCabe, Trevino and Butterfield (2001) researched ten years of cheating in academic institutions, finding that cheating was widespread. In some forms, cheating was increasing dramatically. In 2010, Gabriel reported similar findings: "In surveys of 14,000 undergraduates over the last four years, an average of 61 percent admitted to cheating on assignments and exams" (A15). Novotney (2011) cites several surveys of high school students, of undergraduates, and of college alumni, each group self- reporting high percentages of cheating and plagiarism. From the high school sample, 50% reported having cheated; one third said they had plagiarized. Two thirds of the college undergraduate sample reported having cheated. Among college alumni, the responses were even more dramatic. Eighty-two percent of those who responded to the survey reported cheating as undergraduates.

What can be done to maintain academic integrity? Albers (2007) cites a range of tactics to prevent cheating in online exams, from the most basic (instructor supervision) to the more sophisticated, a webcam with microphone coupled with fingerprint authentication and software that prevents the exam-taker from searching the internet. While incorporating technology such as webcams and microphones may be unrealistic for many (cost and student access), the question remains, will these stratagems stop cheating? As universities' experiences with verification of student identities in distance education programs demonstrates, monitoring online activity is difficult at best (Jortberg, 2010). The significance of the difficulty in monitoring online activity is underscored by the federal requirement that schools providing credit for online offerings verify that the same student who took the course receives the credit (Higher Education Opportunity Act of 2008; ACE, 2008).

Yet, as difficult as it may be to prevent unauthorized internet research in test-taking and plagiarism in the online environment, the online format does offer the instructor effective ways to detect and combat violations of academic integrity (Heberling, 2002). There are several software programs that can detect plagiarism and others that can enable the instructor to scramble test questions, randomize assignments and otherwise put obstacles in the way for students tempted to cheat.

What is academic integrity? Definitions vary, but the core premise is intellectual honesty. It is the professional code serving academia, including students, instructors, researchers and the institution itself. The International Center for Academic Integrity identifies five values which the term, "academic integrity" embodies: honesty, trust, fairness, respect and responsibility. For this study, researchers identified these five values as precepts of academic integrity, asking students whether they believed that these precepts applied equally in online and onground/classroom courses.

The purpose of this study was to determine the attitudes and perceptions of students toward issues of academic integrity in the online learning environment. The survey was designed to help establish a baseline for future research. A broader goal of the study is the development of instructional tools that may be used in e-learning that help to promote a culture of academic integrity.

As the University expands its offerings and more and more instructors and students become involved in online education, ensuring that a culture of academic integrity is maintained poses difficult issues for instructors as well as for the institution. Of particular significance is whether perceptions of what constitutes academic integrity differ between instructors and students and between different student populations.

This paper's focus on perceptions of what constitutes academic integrity in the minds of students results from a follow-up study to earlier surveys of student satisfaction with online instruction and their views of academic integrity (Cole, Shelley & Swartz, 2011; 2012). Going forward, these studies' findings will be used to inform the design and conduct of online courses.

THE STUDY
To advance research on academic integrity in the online learning environment, researchers in this study asked students in five business law classes a series of questions on how they viewed the precepts of academic integrity in their online courses as compared with their onground courses. The survey also sought information on how satisfied students were with online instruction and on their use of social media to help in learning course material.

RESEARCH QUESTIONS
(1) Do students think that academic integrity is the same in the online environment as it is in a classroom setting?
(2) How satisfied are students with online instruction?
(3) Do students use web-based applications to help them learn course material?

METHODOLOGY
Researchers used a web-based survey created in Vovici. Students in five business law classes were invited to participate in the study via an e-mail solicitation from the instructor. Survey results were transferred from Vovici and combined in SPSS for analysis. The survey was anonymous.

SAMPLE
The sample population included undergraduate business majors and MBA students at Robert Morris University. One hundred and one undergraduate students in three sections of Business Law (BLAW1050) participated in the survey in Fall, 2011. Sixty-one graduate students in two sections of Legal Issues of Executive Management (MBAD6063) participated in the same survey in Spring, 2012 for a total of 162 survey participants. The response rate in the undergraduate classes was 81% (101 of 124). The response rate in the graduate classes was 100% (61 of 61).

Researchers compared responses from the undergraduate and graduate student samples to the three research questions as well as by age group and gender.

To identify respondents according to age, researchers used the four categories identified by Simon (Recursos Humanos, 2010):
- Baby Boomers (1946-1960),
- Generation X (1961-1979),
- Generation Y (born after 1979) and,
- Traditional Workers (born before 1946)

Because of the limited response from students identifying themselves as belonging to the Baby Boomers (1) or Traditional Workers (0) categories, respondents from Generation X and Generation Y made up the study's sample population.

One hundred thirty-eight respondents (85.2%) self-identified as members of "Generation Y" (born after 1979). Twenty respondents (12.3%) classified themselves as members of "Generation X" (born between 1961 and 1979). One respondent self-identified as a "Baby Boomer"; three respondents said that they had been born in 1992. There were 109 male respondents (67.3%) and 53 female respondents (32.7%).

Students in each of the classes were offered extra credit for taking the survey. Credit was given based on notification to the instructor by the student. The same instructor taught each of the five classes.

PROCEDURE
A 12-question survey was developed to measure three constructs: students' attitudes toward behaviors associated with maintaining academic integrity in the learning process, students' satisfaction with online instruction, and students' use of social media to enhance learning.

The first question asked for information on the students' level of experience with online instruction. The second and third questions sought information on students' use of social media in their course work. The fourth and fifth questions addressed students' level of satisfaction with online learning.

Questions six through nine focused on academic integrity. Question six asked if the student thought the tenets of academic integrity applied equally in the online environment and in the classroom setting. Question seven was open-ended; asking, if the student thought there was a difference in the application of the tenets of academic integrity in the online environment, what the basis for the difference was. The eighth question asked whether certain activities, such as sharing papers, tweeting, or Googling during an exam, were more acceptable in one learning environment than in another. The ninth question asked for recommendations for improving online instruction and maintaining academic integrity.

Questions 10 and 11 were demographic questions on age and gender. The twelfth and last question was designed to identify which students were in fully online or partially online undergraduate or graduate courses at the time they participated in the survey.

Following approval from the University's Institutional Review Board, e-mails with the approved script and a link to the web-based survey were sent to the sample population, students enrolled in the three Fall, 2011 undergraduate business law courses (Legal Environment of Business) and

students enrolled in the two Spring, 2012 graduate business law courses (Legal Issues of Executive Management). One of the three undergraduate business law courses was fully online; two were partially online. One of the two graduate business law courses was fully online; the other was partially online. In the 89-day period from November 28, 2011 to February 25, 2012, 162 students took the survey online.

Data from the completed surveys were transferred from Vovici into SPSS. Independent samples t-tests were run on the sixth question, asking if participants felt that the precepts of academic integrity were different in online courses than in classroom-based courses; on the fourth question, rating the level of satisfaction with online and partially online courses; and on the second question, asking if students used social media to help learn course material. Responses from the undergraduate and graduate student samples, the Generation X and Generation Y samples, and from the gender samples were compared to determine if there were any statistically significant differences with regard to any of the three constructs: views of academic integrity in the online environment, satisfaction with online instruction, and use of social media to enhance learning.

RESULTS
In response to the first question, asking for students' experience with online or partially online courses, forty-one percent (67) reported having taken between two and four courses; thirty-two percent (51) had taken just one course. Almost ten percent (16) had taken between five and ten online or partially online courses. Four percent (7) of the respondents reported having taken more than ten courses. Twelve percent (26) of the respondents said they had not taken any online courses.

There was a statistically significant difference with regard to the level of satisfaction with partially online courses. Graduate students were more satisfied than undergraduates at the .01 level (.011, equal variances assumed). There were no statistically significant differences between the sample populations on the use of social media to enhance learning.

With regard to students' views of academic integrity online versus in the classroom, 104 respondents (64.6%) thought that the precepts of academic integrity (honesty, fairness, respect, responsibility and trust) were applicable to the same degree in the online environment as in the classroom when taking an exam, writing a paper, or developing a project. Fifty-seven respondents (35.4%) disagreed.

There were no statistically significant differences between the undergraduate and graduate sample populations on question six. A greater percentage (37%) of undergraduate students (37) than of graduate students (33% or 20 students) responded that the precepts of academic integrity did not apply equally in both the onground and online settings.

There were no statistically significant differences based on age with regard to perceptions of academic integrity. Of those responding to the question, a greater percentage (38%) of Generation Y students (52) than of students from Generation X (26% or 5 students) said that the precepts of academic integrity did not apply equally in both environments.

There was a statistically significant difference between male and female students at the .05 level (.015, equal variances not assumed) with regard to the question on academic integrity. A greater percentage (49%) of the female students responding (26) than of the male students responding (29% or 31 students) thought that the precepts of academic integrity were not the same online as in the classroom environment.

Question seven was directed to students who answered "no" to question six, asking if they thought the precepts of academic integrity applied equally in the online and classroom settings. There were forty-nine responses to question seven distinguishing the online from the classroom learning environment. Researchers grouped these into three categories defined by key words:
1. <u>access to information</u> is unlimited (20)
2. it is <u>easy to cheat</u> (19) and,
3. by virtue of its nature, is "<u>open-book</u>" (10).

Question nine was also an open-ended question asking students for their suggestions on how instructors could improve online instruction while maintaining academic integrity. Most of the 148 responses offered recommendations for improving online instruction, such as: use video lectures, post links that are enjoyable, and make the course more personable. Suggestions for maintaining academic integrity included:
- Checking cited work
- "Spying" on students using webcams
- Requiring "some online policy"
- Assigning more papers since they can be checked for plagiarism
- Using "comprehension" questions in place of those from the text
- Setting time limits
- Using Skype for oral exams
- Using different assignments for each student
- Conducting tests on campus
- Giving explicit instructions about what is and is not allowable
- Locking students out of internet sites during an exam
- Using full screen programs that prevent the student from minimizing the question in order to look up an answer
- Making exams more difficult and shortening the time to take them, but allowing the use of any and all resources
- Allowing students in onground courses the same freedom to use any and all material that may be available to the student in the online course, thus leveling the playing field

There were six students who replied that nothing could be done.

DISCUSSION
As reported above, three reasons were given which would distinguish academic integrity in the online environment versus in a classroom setting: (1) wide access to information, (2) ease of cheating and (3) a setting that encourages "open-book" test-taking. Arguably, each of the three could be subsumed under one umbrella: cheating is easier in online courses than in the classroom because the student is off-site, unsupervised and has access to multiple resources, such as the text, the web, and other people.

Interestingly, in response to this question on why academic integrity is different in the online environment, one student wrote:
"You have the internet at your fingertips, more help than a teacher could ever be when it comes to actually getting a good grade, and I think that's what we students truly care about anymore…getting a good grade is more important than learning anything anymore…because when you get to the work place, they teach you what you want to know, your diploma is just your foot in the door for the most part." It is possible that a prospective employer would not agree with the student's assessment, but the assessment does reflect the student's perception of what matters.

Also interesting was another student's response to question nine asking for suggestions: "Understand that in the real world the ability to track down existing information is a key skill. Information is so available these days that the standard of memorizing information rather than understanding the concepts is antiquated. True it's difficult to gauge a students [sic] performance in an untraditional environment, it would move things to a discussion group rather than a cram your brain and vomit the information on the test the next day practice of traditional students."

While some were more practical than others, the students' suggestions for creating an environment where cheating is made more difficult were consistent with the literature.

In her 2003 article on discussion-based online teaching, Bender suggested that one way to guard against violations of academic integrity in the online environment is to know the student's work. Speaking specifically about plagiarism, she recommended using the discussion board as a means to get to know the student and how the student thinks and writes. While the students in this study did not suggest that discussions could provide a way to detect academic dishonesty, they did refer to the use of discussion boards as a better way to learn what the instructor expected and as a way to ask questions. It would not be a stretch to see that Bender's approach could be effective, especially when evaluating a student's written work.

While timed tests and randomized questions have been used to help students to gain a general mastery of the material, increasingly, these tactics are being used to thwart students from looking for answers in the text and on the web during an exam. As noted before, verification of who is taking a test when off-site is difficult. Short of a proctored exam where the student is known to the proctor, there does not seem to be a foolproof method of insuring that whoever is taking the test is the student who should be taking it. There have been suggestions that instructors use more intrusive techniques such as fingerprint and retina scans, or webcams with microphones for their online courses.

Researchers in this study were taken aback somewhat by the responses to the questions on academic integrity. Students' perspectives on the use of resources in exams, sharing work with others and using material not expressly allowed by the instructor were unexpected. There seems to be an acceptance of 21st century technology as a legitimate and in some cases, necessary, part of the educational tool kit. Instructors and institutions may want to reevaluate how the tenets of academic integrity, that is, honesty, trust, fairness, respect, and responsibility are perceived by students and by instructors to acknowledge the realities of a cyber-world. It would seem that there are different views of how learning occurs. Should that prove to be the case, it would suggest that adjustments need to be made in how onground as well as online courses are designed going forward.

This was a three-pronged study. Its purpose was to add to previous studies of students' attitudes toward academic integrity in the online environment. The second objective was to build on earlier work on student satisfaction with online learning. A third objective was to determine how students were using technology, particularly social media, to enhance learning. The authors surveyed three undergraduate business law classes and two graduate business law classes. One undergraduate and one graduate course were online and the three remaining courses were offered onground with an online component. Responses to each of the three research questions were compared based on age, gender and educational level. There were statistically significant differences between males and females with regard to perceptions of academic integrity and between graduate and undergraduate students on the level of satisfaction with partially online courses. No significant differences were found between undergraduate and graduates, between different age groups or based on gender in the use of technology to enhance learning.

LIMITATIONS
This was a limited sample from three undergraduate business courses and two graduate business courses at one university.

CONCLUSION
Research on all aspects of online education is ongoing. Online course delivery appears to be thriving and as MOOCs gain acceptance in academia, the interest in making online instruction both valid and valuable will continue to demand researchers' attention. Since academic integrity lies at the core of the learning environment, how it can be maintained will continue to be of concern.

The responsibility for maintaining academic integrity in the classroom as well as in online learning settings is shared one. It begins with the institution's creating a culture where academic dishonesty is not tolerated. It is maintained by the instructor in the design of courses and follow-through when violations occur. In particular, instructors may want to incorporate in their courses and emphasize the principles of ethics and morality in the learning environment as they do the application of ethical principles and morality in the workplace. Of course, at the center is the student. As several respondents pointed out, when someone wants to cheat, they will find a way. Since it is unlikely that cheating will be eliminated, perhaps the best approach would be the provision of clear and student-friendly instructions on why and how to make academic integrity central to the learning process, coupled with the adoption of increasingly tough sanctions and support for instructors who find and report violations.

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