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# Engineering Students' Perception of Academic Dishonesty at an American University in the Middle East

#### **Cover Page Footnote**

The authors would like to acknowledge the support provided by the university administration. The views reported in the paper reflect those of the authors, not the university.

#### Erratum

This article has been republished with the correct introduction.

# **Engineering Students' Perception of Academic Dishonesty at an American University in the Middle East**

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#### ABSTRACT

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This study surveys engineering students' perception of academic integrity at a private American university in the Middle East. The survey included questions on plagiarism, inappropriate collaboration, cheating on exams, copyright violations, and complicity in academic dishonesty. The study showed that more than one-third of the students were not aware that the university has a student academic integrity code. The gender appears to affect the students' perception of academic dishonesty, as the female students perceived more frequent cheating than males. Also, about 10% of the female students, compared to about 30% of the male students, see no relationship between morality and academic integrity. The main reason why students cheat was because they had little time to do the work without seeking unauthorized help and because they perceive cheating as a form of collaborative work. Students believed that one of the most effective ways in reducing incidences of academic dishonesty is using more proctors during exams.

#### Acknowledgment

The authors would like to acknowledge the support provided by the university administration. The views reported in the paper reflect those of the authors, not the university.

## Introduction

Academic integrity is a fundamental value upon which institutions of higher education are built. It provides the foundation for which a successful academic life rests. With regard to students, academic integrity requires a student to behave in an honest and responsible manner, and it forms the background by which a professional behaves in the workplace after graduation from college. Academic dishonesty is the opposite side of academic integrity. It is defined as any fraudulent actions or attempts by a student to use unauthorized means in connection with a formal activity. involves academic It cheating. plagiarism, deception, fabrication of data, and facilitating academic dishonesty. For learning and scholarship to thrive, academic communities cannot tolerate acts of academic dishonesty.

Most colleges and universities publish their student academic integrity code in their annual catalog. The code describes in detail the student's rights and responsibilities as a member of the academic community. Just as professionals are expected to know the rules of their line of work, students are expected to know what counts as misconduct.

#### **Literature Review**

Researching the literature on academic integrity showed a large body of work on the subject in the western world, but limited published research was observed elsewhere (McCabe et al., 2008). This is particularly true in the Middle East due to the fact that the subject is sensitive in such a culture; hence, many local universities are

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reluctant to publish data on the issue for fear of affecting their image and student enrollment.

Simon et al. (2001) surveyed about 600 students and 234 faculty members at the University of Nevada, Reno, to determine their knowledge and perceptions on various issues involving academic dishonesty. They found out that the most common type of dishonesty according to students involved the copying of lab assignments; and according to faculty involved unintentional plagiarism due to ignorance. The study also showed that many faculty members did not trust the administration in dealing with a formal charge impartially.

Harding (2001a) discussed useful techniques in preventing dishonesty in the classroom based on self-reported student cheating at a private university. He found out that one effective approach is the use of learning objectives for test construction. Other helpful techniques included discussing engineering ethics in class, permitting students to use reference sheets for closed-book tests, and having students work in cooperative learning groups on take-home assignments. In a companion study, Harding (2001b) used a student survey to show that the majority of students copy homework and passages from textbooks, are unlikely to report incidents of cheating that they witness to the instructor, and expect their friends to cheat more than twice as frequently as they do.

Methods to preclude cheating among engineering students were investigated by Carpenter et al. (2002a) using data collected from approximately 350 engineering and pre-engineering undergraduate students at 5 institutions in the US. The survey showed that students believe that the effective way to reduce cheating on exams is to provide equity in student preparation for exams (such as allowing reference sheets), assign fair exams, give study guides, have review sessions, and provide sample exams.

The effectiveness of the honor code in reducing incidences of cheating in higher education was discussed by Harding et al. (2002). Results indicate that the strongest predictor of increased

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cheating among engineering students was the sense that cheating was necessary to succeed. Other variables that made a significant impact were the presence of an honor code and membership in a fraternity or sorority. Overall, students at an honor code institution reported a significantly lower level of cheating compared to non-honor code institutions. In a recent study on the same subject, Konheim-Kalkstein et al. (2008) examined the effects of a classroom honor code by comparing a class with an honor code to a non-honor code class. He found that there was no difference in the number of cheating cases witnessed by students in the two classes. Also, students in the class with an honor code perceived the instructor to be more trusting of students, and to hold academic integrity higher than other instructors.

A comprehensive study involving more than 50,000 college students on more than 60 campuses in the US revealed that the problem of cheating and plagiarism is more serious than previously thought (McCabe, 2005). The findings of the study showed that close to 70% of students admit to some form of cheating, 25% admit to serious test cheating, 50% admit to serious cheating on written assignments during the past year, and 77% of students believe that cutting and pasting from the internet, without citation and only minor rewording, is not a very serious issue.

Etter, Cramer, and Seth (2006) researched the unethical use of Information Technology in cheating at two institutions. The students at a major research university did not consider cheating to be as offensive as the students at a private church-affiliated college. However, when the students were asked to rank academically dishonest behaviors, the ranking was similar. As expected, the survey results showed that the students who are typically more conservative rated cheating to be more serious.

Kisamore et al. (2007) considered a sample of 217 business students to examine the effects of integrity culture, demographic and personality on frequency, suspicions, consideration, and reporting of cheating. The results indicated that males perceived less frequent cheating than

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females, older students were less likely to consider misconduct and are more likely to report it, conscientious students who engage in misconduct less are likely to report others who engage in misconduct, and students who perceived higher levels of academic integrity culture estimated less frequent misconduct by others and suspected misconduct less often.

Among the few published work on academic dishonesty in the Middle East is the work of McCabe et al. (2008). This work examines the relationship between contextual factors and academic dishonesty at three private universities in Lebanon, and compares the results with seven large universities in the US. The study showed that there is a higher level of cheating among Lebanese students, compared students in the US. For example, the study indicated that the percentage of Lebanese students who admit to one or more incidents of academic dishonesty during an academic year was 80%, compared to 54% of the US students. The difference was even more remarkable for cheating on tests and exams where more than three times as many Lebanese students (66%) versus US students (21%) admit to at least one violation in a year time. However, the study mentioned that judging the cheating behavior of students in non-Western contexts using Western standards may be unfair because the Lebanese students' behavior is strongly influenced by the norms of the collectivist society in which they are raised as compared to the more individualistic society found in the US. In order promote academic integrity. it was to recommended that Lebanese Universities consider appropriate teaching strategies that emphasize and take advantage of the power of collaborative work.

# **Objectives, Scope and Approach**

The goal of this study is to determine students' perception of the frequency of dishonesty at a western-style private university located in the Middle East. The perception of the students with respect to their gender is considered. The research focused on engineering students since published literature indicated that such students are among the most likely to cheat compared to other disciplines (Harding et al., 2001; Harding,

Online Journal for Global Engineering Education 5.1 (2010) http://digitalcommons.uri.edu/ojgee 2001b). The scope of the research covered a sample of 135 engineering students in a variety of classes: freshman, sophomore, junior, and senior. A questionnaire, consisting of 11 multiple-choice questions, was developed on various issues related to student dishonesty. To ensure that the answers were spontaneous, the questionnaire was given to the students without prior notification. Since the university does not offer any online courses and does not have an honor code, no questions on the survey address these issues. It should be noted that the university has an academic integrity code, published annually in its catalogue. A hard copy of the catalogue is provided to the freshman students once they join the university and a soft copy is available on the university's web site.

To achieve the stated objectives, the research methodology addresses the following research questions: (1) Are students aware of the student academic integrity code? (2) What is the perception of male and female students about the percentage of students who commit various acts of academic dishonesty? (3) What are the perceived major factors affecting academic integrity? (4) Why do students commit acts of academic violations? (5) What do the students recommend to the university in order to reduce the number of incidences involving violations of academic integrity? To answer these questions, published surveys related to the subject have been reviewed (e.g. Carpenter et al. (2002b), McCabe et. al (2001), Pulvers and Diekhoff (1999)). Based on the surveys, 11 questions were developed to address the objectives of the study. The final survey questions with their potential answers are shown in Table 1.

## Results

Out of the 135 surveyed students, 26% were female students and 74% were male students. These percentages are consistent with student enrollment in engineering programs in the region. The gender issue is considered in this study since previous studies have indicated its influence on student perception (Kisamore et al., 2007). The class representation in the surveyed sample was 45% for freshmen, 21% for sophomores, 23% for juniors, and 12% for seniors. The answer to question 1 on the survey showed that 41% of the freshman students were not aware of the student academic integrity code, included in the annual university catalog, compared with only 30% of the remaining (sophomore, junior, and senior) students, as shown in Figure 1. However, students' responses on the survey did not show significant correlation between their awareness of the academic integrity code and their answers to the questions on the survey.

The second question on the survey addressed plagiarism, which was explained to the students in the question statement. Answers to this question indicated that the majority of the surveyed students perceive most students plagiarize on work conducted outside of the classroom, such as homework and projects, as shown in Figure 1. Specifically, about 70% of the male students and 80% of the female students believed that at least 25% of the students plagiarize on take-home assignments.

The survey also asked students about their perception of inappropriate collaboration on work, such as a paper, an oral presentation, a design project or a take-home exam. When students were asked about this issue, most of them agreed that the majority of colleagues commit inappropriate collaboration and the trend of the students' responses is similar to that of question 2, as illustrated in Figure 3. Again, female students' perceptions were more pessimistic than male students'.

Cheating on exams conducted in the classroom is addressed in question 4 of the questionnaire. Surprisingly, male and female students have different perceptions on this issue, as presented in Figure 4. A large majority (68%) of male students believed that less than 25% of the students normally cheat on exams. On the other hand, only 36% of the female students share the same opinion with the male students. A small percentage of both male and female students agreed that more than 50% of the students cheat on exams. This can be attributed to the fact that exams are always proctored by instructors, unlike take-home work. It should be noted that the university, where the survey has been conducted, requires in-class final exams for all undergraduate courses.

In this survey, students were asked about their opinion regarding violations of copyright laws, such as using illegal copies of books and software. Figure 5 shows that about 60% of the surveyed students indicated that more than 25% of the students do not adhere to copyright laws, although the female students were somewhat more optimistic than male students on this issue.

Complicity in academic dishonesty is related to helping another person commit an act of academic dishonesty. It is considered in question 6 on the survey. The trend in the students' responses for this question, shown in Figure 6, follows that of the answers to the question related to cheating on exams. This shows consistency in the students' answers as these two issues are somewhat related to each other.

Figure 7 shows the various reasons that students believe are the cause of academic integrity violations. On this question, students were given 4 specific answers, and were asked to select all applicable answers from the group. They were also provided with a space to specify other reasons not in the group. The results showed that the main reason why students cheat is the limited time available for them to complete their assignments and prepare for exams. Other reasons reported by students for committing academic dishonesty were lack of time management skills, peer pressure and the culture the students were brought in, which considers cheating as an obligation of friendship or a form of helping each other. This result is consistent with the findings of McCabe et al. (2008) which showed that Lebanese students behave exactly the way they were raised to behave-working together to navigate difficult tasks.

When students were asked if there is a correlation between morality and academic integrity, about 75% of the male students and 90% of the female students believed there is some kind of relationship between the two, as

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Online Journal for Global Engineering Education 5.1 (2010) http://digitalcommons.uri.edu/ojgee indicated in Figure 8. This finding is consistent with results of other studies on the subject (Etter et al., 2006).

Question 9 was intended to get feedback from students about the frequency by which the faculty members mention academic integrity in their classes. The results of this question, presented in Figure 9, showed that only 20% of male and female students stated that the faculty members rarely or never mention academic integrity in their classes.

When the students were asked about the frequency at which faculty members enforce penalties on students who commit acts of academic dishonesty, only about 15% of the male students and 25% of the female students selected "not at all" or "rarely". The majority of female students selected "sometimes", while the majority of male students selected either "all the time" or "most of the time". These results are shown in Figure 10.

The last question on the survey addressed the possible ways to reduce the violations of academic integrity. from the students' perspective, as shown in Figure 11. The question had 4 specific answers plus the choice of adding a different answer. The most common answers to this question that were selected by the male and female students were related to using more proctors in exams and educating the students on academic integrity. Reducing grade percentages on projects/homework and conducting exams in larger classrooms were among the other methods that the students recommended as efficient ways for reducing academic dishonesty.

# Analysis

The previous section provided a summary of the observations on the survey results. This section gives statistical analyses to check the significance of the differences in response received from the male and female students.

For questions 2 through 6, the survey results were numeric values that represent the percentage of students who are committing acts of academic dishonesty. For these five questions, a test of hypothesis was carried out to check the following:

Null Hypothesis : 
$$\mu_1 = \mu_2$$

Alternative Hypothesis:  $\mu_1 \neq \mu_2$ 

where,  $\mu_1$  is the weighted average of the male students' answers, and  $\mu_2$  is the weighted average of the female students' answers.

Using a 95% confidence level, the Z-value from the normal distribution curve is  $\pm 1.96$ . The normal distribution was assumed because the sample size is large. Table 2 shows the summary of the test of hypothesis analyses. The results indicate a statistically significant difference between the male and female students' answers to the survey questions.

In the previous section, some correlation between the answers to questions 4 and 6 was recognized. To examine the significance of this correlation between the answers to the two questions, a regression analysis was conducted on the answers of the two questions, as shown in Figure 12. The regression analysis shows a very high correlation between the answers of the two questions (R-squared = 0.998) when considering a linear relationship. This result confirms the observation mentioned in the results section.

Finally, for questions 7, 9, 10, and 11, the answers to the questions are qualitative. Therefore, a goodness of fit (Chi-square) test was carried out to check if the two groups of students (male and female) have the same trend of the answers or not. Since there are five answers to each question, the degree of freedom for the test was 3. The test was conducted at a 95% significance level and the  $\chi^2$  for the test is 0.35. The null hypothesis for this case is "the distribution of the answers is the same for male and female students" and the alternative hypothesis is "the distribution of the answers is the **different** for male and female students." The test results for questions 7, 9, 10, and 11 are shown in Table 3, which indicate statistically significant а

Online Journal for Global Engineering Education 5.1 (2010) http://digitalcommons.uri.edu/ojgee difference between the male and female students' answers to the survey questions.

No analysis for questions 1 and 8 because they have a small number of answers (2 answers for question 1 and three answers for question 8).

#### Summary, Conclusions and Recommendations

The study showed that one-third of the surveyed students were not aware that the institution has a student academic integrity code. There were significant differences between male and female students' perception of academic dishonesty, as the female students perceived more frequent cheating than males. Both male and female students agreed that the students are twice likely to commit acts of academic violations on takehome assignments than on work proctored by the instructor. The majority of the students, 65% of the male and 55% of the female students, identified having little time to do the work without seeking unauthorized help as the main reason for cheating. Having more proctors during exams is the first recommended way to reduce cheating as reported by about one-half of the female students and 40% of the male students.

When comparing the students' perception of the relationship between morality/religion and academic integrity, it was clear that the female students were more concerned about this issue than the male students. Only 10% of the female students saw either no relationship between morality and integrity, while about 30% of the male students reported the same answer. Most students believe that the majority of the faculty members are doing their share by often talking about academic integrity in their courses and penalizing students who are caught cheating.

According to the study, the most efficient methods in curbing incidents of academic dishonesty include using more proctors during exam times, educating students about the student academic integrity code, as well as warning them about the consequences of violating the code. Based on the findings of this paper, the following recommendations are relevant:

- a. The university may conduct workshops for new students to make them aware of the various types of academic dishonesty and inform them of their responsibilities.
- b. Faculty should inform the students at the beginning of each semester that academic dishonesty will not be tolerated and include such information in the course syllabus.
- c. Faculty may consider taking advantage of teaching strategies that emphasize collaborative student work, for example through team projects.
- d. Encourage the students to inform the instructors if they witness any violation of the university's academic integrity code.
- e. Make the students aware of the consequences of committing an act of dishonesty.

In order to make this study more comprehensive, the following future research may be considered:

- 1. Comparing the student perceptions over years (i.e. conduct the survey during different years and compare the results).
- 2. Survey students in different colleges rather than engineering students only.
- 3. Survey different groups of students from different universities in the region.
- 4. Conduct the survey on graduate students.

#### Table 1: Summary of questions included on the survey

No.	Question Statement					
1	Are you aware that AUS has a "Student Academic Integrity Code," published annually in the University's					
	Catalogue?					
	(a) Yes (b) No					
2	Plagiarism is to use the work of someone else without attribution and may involve using someone's wording					
	without quotation marks or misrepresenting the sources that were used. In your opinion, what is the percentage					
	of students at the university who plagiarize on homework and projects?					
	(a) None (b) Less than 25% (c) Between 25 and 50% (d) More than 50% (e) All					
3	Inappropriate collaboration involves working with someone else on a homework or project when the Instructor					
	specifically prohibits such activity. Based on your personal experience, what is the percentage of students at the					
	university who inappropriately collaborate on homework and projects?					
	(a) None (b) Less than 25% (c) Between 25 and 50% (d) More than 50% (e) All					
4	Dishonesty and cheating on exams and quizzes include unauthorized communication with students, consulting					
	books and notes, and obtaining unauthorized advanced knowledge of examination questions. Based on your					
	personal experience, what is the percentage of students at the university who cheat on exams?					
	(a) None (b) Less than 25% (c) Between 25 and 50% (d) More than 50% (e) All					
5	Copyright laws govern practices such as illegal photocopying of printed materials, unauthorized duplication of					
	computer software, and reproducing audio-visual works. Based on your personal experience, what is the					
	percentage of students at the university who violate copyright laws?					
(	(a) None (b) Less than 25% (c) Between 25 and 50% (d) More than 50% (e) All					
6	Complicity in academic distonestly consists of helping of attempting to help another person commit an act of					
	academic distionesty. It can include doing the nonework for another person, producing a project for another student, and willfully providing answers to a friend during an avam. Pased on your personal experience, what is					
	student, and winnuny providing answers to a mend during an exam. Based on your personal experience, what is					
	(a) None (b) Less than $25\%$ (c) Between 25 and $50\%$ (d) More than $50\%$ (e) All					
7	Based on your personal experience, what are the causes for some students at AUS to commit acts of academic					
'	violations (plagiarism inappropriate collaboration dishonesty on exams convright violations and complicity in					
	academic dishonesty)?					
	(a) peer pressure (afraid to lose a friend if you decline helping him/her)					
	(b) not having enough time to do all the assigned work without help					
	(c) lack of tough penalties by AUS professors against students who commit acts of academic violations					
	(d) the culture they were brought in (highschool behavior, people do not think this is serious, etc.)					
	(e) other, please specify:					
8	Based on your personal experience, is there a strong relationship between a student's morality/religion and					
	his/her academic honesty at the university? That is, do you think that students who are more religious in nature					
	commit less acts of academic violations?					
	(a) No relationship (b) weak relationship (c) strong relationship					
9	How often do engineering professors talk about honesty, integrity and ethics in their technical courses?					
10	(a) not at all (b) rarely (c) sometimes (d) most of the time (e) all of the time					
10	How often do engineering professors apply penalties on students who violate academic integrity and ethics rules					
	to preclude such acts from happening again? (a) not at all (b) recally (a) compatings (d) most of the time (a) all of the time					
11	(a) not at all (b) fallery (c) sometimes (d) most of the time (e) all of the time					
11	violations of academic integrity by students?					
	(a) Impose tougher penalties on students who commit violations					
	(a) impose longing penalties on students who commit violations (b) Provide workshops to students to educate them on the seriousness of academic integrity					
	(c) Catch more students cheating					
	(d) Eliminate the atmosphere that encourages violations (for example, have exams in larger rooms, use more					
	proctors on exams, etc.)					
1						

Question	Weighted	Weighted	Weighted St.	Weighted St.	Z <sub>test</sub>	Null
	Av. (Male)	Av. (Female)	Dev. (Male)	Dev. (Male)		Hypothesis
2	45.96	49.24	29.33	27.41	-3.72	Rejected
3	41.67	49.63	29.10	26.38	-7.46	Rejected
4	23.58	35.29	23.31	21.86	- 17.06	Rejected
5	40.18	32.42	40.18	32.42	8.03	Rejected
6	27.08	28.79	25.88	21.98	-2.37	Rejected

#### Table 2: Hypotheses Test for Questions 2 through 6

#### Table 3: Hypotheses Test for Questions 2 through 6

Question	$\chi^2$	Null
		Hypothesis
7	12.87	Rejected
9	4.86	Rejected
10	14.57	Rejected
11	20.49	Rejected

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Figure 1: Students' awareness of the academic integrity code



Figure 3: Students' perception on inappropriate collaboration



Figure 5: Students' perception of copyright violation

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# Figure 2: Students' perception of students on plagiarism



Figure 4 Students' perception on cheating on exams





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Figure 7: Main reasons for students to commit violations of academic integrity



Figure 9: Frequency of mentioning academic integrity by professors



Figure 11: Possible ways for reducing academic dishonesty







Figure 10: Frequency of penalizing students who violate integrity



Figure 12: Regression Analysis for the Answers of Questions 4 and 6

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