Exposing academic dishonesty: prevalence and correlates at a small, Midwestern liberal-arts school

Jason Elliott
Duke University

John Deal
Manchester University

Matthew Hendryx
Manchester University

ABSTRACT

Using data collected from 481 students at a small, Midwestern liberal arts school, this study explored the relationship between academic dishonesty and a variety of demographic, situational, and attitudinal factors. The results indicate that 89% of the surveyed students admitted to committing at least one act of academic dishonesty in the previous academic year. The results of the estimation of a binomial logit model indicate that the most significant variables associated with a student's likelihood to cheat is the student's perception of the severity of punishment appropriate for various acts of academic dishonesty. Students who recommend more severe punishments are much less likely to cheat themselves. The findings also indicate that absence from class can increase the likelihood that a student will cheat. In addition, results support the hypothesis that there are substantial differences in the likelihood of cheating by class rank, though there exists a more complicated pattern than those found in many studies that indicate cheating diminishes as students matriculate through school. Finally, results indicate that students often cite the desire to help a classmate, the low likelihood of getting caught and punished, and the "excessive" material assigned by the professor as primary reasons for cheating.

Keywords: academic dishonesty, survey design, cheating, academic integrity, higher education

INTRODUCTION

Research indicates that academic dishonesty (cheating) occurs frequently and is pervasive throughout all levels of education (Anderman and Murdock, 2007). While not a recent phenomenon, cheating has become more prevalent and its presence is often justified by students and overlooked by faculty and administrators (Davis, Drinan, and Gallant, 2009). During November of 2010, academic dishonesty was again brought to public attention when 200 out of 600 students at the University of Central Florida were accused of cheating on the same exam (De Nies and Russo, 2010). Some educators may think that academic dishonesty would never occur in their classroom; however, a 1998 meta-analysis of 107 studies showed that around 70% of college students have admitted to committing acts of academic dishonesty (Whitley, 1998). In addition to research on the prevalence of academic dishonesty, researchers have also studied the determinants of academic dishonesty, including student demographic information, situational factors (such as class size and the existence of an honor code), competing time pressures (such as work and extracurricular activities), and students' views concerning the acceptability of academically dishonest activities.

In the fall semester of 2010, a survey was administered to 481 students (approximately 40% of the student body) at a small, Midwestern liberal arts college, where students were asked to identify which activities of academic dishonesty they had engaged in over the last academic year and the frequency of engagement. While the college does not have an honor code, faculty members are required to include a statement concerning academic dishonesty in the syllabi of all classes. In many cases, the statement defines acts of academic dishonesty and outlines penalties if a student commits an act, but some professors simply refer the student to the relevant section of the college handbook. While no data exists with regard to the emphasis placed on academic honesty by faculty and administrators at the school in this study compared to other schools, there is no reason to believe that less emphasis is placed on academic honesty at school in this study.

The results concerning the prevalence of academic dishonesty are consistent with that found in many other studies. The data indicate that 89% of the students surveyed admit to committing at least one act of academic dishonesty and 68% admit to committing four or more acts in the academic year preceding the survey. Further investigation show that 68% of students admit to cheating on an exam, 21% admit to plagiarizing a paper, and 85% admit to copying or letting another student copy a homework assignment. Although the results are restricted to acts of academic dishonesty related to exams, the results also indicate that there is extensive cheating on homework assignments and papers. The analysis looks at a number of factors (such as area of study, GPA, amount of time spent studying, and student views on appropriate punishments for acts of academic dishonesty) that could potentially influence the likelihood of committing an act of academic dishonesty.

One major issue in collecting data on a sensitive topic like cheating is the degree to which students can be expected to report dishonest behavior. This study uses self-reported data, as did most other studies, with Nowell and Laufer (1997) being a notable exception. To reduce the potential problem associated with self-reported behavior, the survey and delivery mechanism were carefully designed to assure the students of complete anonymity (see description of survey design and methodology in next section). Personal interviews with students after the survey was administered (and the extent of cheating reported by respondents) supported the perception that the survey design and delivery mechanism employed in this study accomplished the goal of accurate self-reporting of academic dishonesty.

The remainder of the paper is organized as follows. The next section provides a discussion of the relevant literature on the prevalence of academic dishonesty and its correlates. The third section contains a description of the survey and the method of survey delivery used in this study. The fourth section contains a discussion of the model employed in this study. The fifth section provides a summary and discussion of the results, while the final section summarizes the findings and outlines areas of future research.

LITERATURE REVIEW

The prevalence of academically dishonest behavior (i.e., cheating) has been documented across a wide spectrum of schools and over long periods of time. In a meta-analysis of 107 studies of academic dishonesty published between 1970 and 1996, Bernard Whitley found that approximately 70.4% of students reported acts of academic dishonesty, 43.1% reported cheating on exams, 40.9% reported cheating on homework assignments, and 47.0% reported plagiarizing an assignment (Whitley, 1998). In more recent studies, there seems to be little change in the incidence of cheating, with estimates ranging from 60% to 86% (Simkin and McLeod, 2010).

In 2005, Donald McCabe conducted a massive study that included over 80,000 students (71,071 undergraduate students and 11,279 graduate students). He found that within one academic year 21% of respondents admitted to engaging in at least one serious act of academic dishonesty on a test, 68% admitted to collaborating on homework assignments, and 63% admitted to plagiarizing a paper (McCabe, 2005). In addition to differences in schools and students, the extent of reported academic dishonesty varies due to differences in time frames (cheating in one semester vs. cheating during a college career) and the range of activities included in the survey (Lambert, et al., 2003). Harding et al. (2007) found that 28.7% of students admitted to cheating on an exam using data from one semester, while McCabe (1992) found that 67.4% of students reported cheating on an exam or major assignment during their college careers. Although prevalence varies across different studies and different time periods, the level and general trends of cheating should be worrisome to educators.

In addition to studying the prevalence of cheating, many researchers have studied the factors that may influence the existence and degree of academic dishonesty. These studies generally focus on demographic factors (e.g., age, gender), academic performance (e.g., grades), personality factors (e.g., personal moral code, type-A behavior), and situational factors (e.g., drinking behavior, membership in sorority/fraternity) (Crown and Spiller, 1998).

A majority of the studies found that younger students tend to cheat more than older students (Nowell and Laufer, 1997**;** Jordan, 2001; McCabe, 2005; Kisamore, Stone, Jawahar, 2007); however, some studies found that older students tend to cheat more than younger students (Passow, et al., 2006; Kerkvliet and Sigmund, 1999; Derting, 1997). Jordan (2001) found that freshmen and sophomores had higher mean cheating rates than juniors and seniors, but that there was only a statistically significant relationship with respect to freshmen. The incidence of cheating may decline with age (often proxied by class rank) for a variety of reasons, including the following: moral maturity as one ages (Davis, Drinan, and Gallant, 2009), the increased likelihood of juniors and seniors being academically stronger due to "weeding out" of weaker students during earlier years (Anderman and Murdock, 2007), or students becoming more invested in the subject matter of their selected major and wanting to learn the material. Of the studies that found that older students cheat more, the Passow, et al. and Derting studies asked students about their cheating history throughout their college career. Therefore, it can be

assumed that a senior with four years of college experience will have more opportunities to cheat than would a first-year student.

Gender is another highly studied correlate of academic dishonesty. Ten of the eighteen studies cited by Crown and Spiller (1998) found no statistically significant difference between men and women with regard to their likelihood of cheating. Since 1997, numerous studies found similar results (Nowell and Laufer, 1997; Kerkvliet and Sigmund, 1999; Wajda-Johnson, et al., 2001; Jordan, 2001). Of the studies that did find a significant difference, the majority found that men tend to cheat more than women (Whitley, Nelson, and Johns, 1999; McCabe, 1997 and 2005). Ward and Beck (1990) argue that women are socialized to obey rules (thus the higher incidence of cheating by men), but that women are able to "neutralize" this tendency by making excuses (i.e., rationalizing) for cheating before undertaking the activity (Ward and Beck, 1990). The few studies (e.g., Leming, 1980) that indicate that women cheat more than men fail to provide any theoretical basis for this result, though this could indicate that the differences in socialization have diminished or that the neutralization process is more pronounced.

One of the most consistent results in the literature is that students with higher GPAs tend to cheat less than students with lower GPAs (Crown and Spiller, 1998). This result could indicate that students with higher GPAs do not need to cheat to be successful or that they have more to lose if they are caught cheating. If grades are a positive function of study time, less time spent studying for a class and competing time pressures may increase the likelihood of cheating, particularly as they negatively impact grades. Few studies looked at the relationship between study hours and academic dishonesty. Two studies that did**,** Kerkvliet (1994) and Kerkvliet and Sigmund (1999), found no significant relationship between the amount of time devoted to studying and academic dishonesty.

A few studies found that students more involved in extracurricular activities tend to cheat more than students with fewer outside commitments (McCabe and Trevino, 1997; Nowell and Laufer, 1997, Pulvers and Diekhoff, 1999). On the other hand, Diekhoff et al, (1996) found a negative relationship between employment and academic dishonesty. Lambert et al. (2003) argued that both employment and extra-curricular activities reduce the time that could be spent on academics (and this could increase the incentive to cheat), but the differential impact of employment and extra-curricular activities on cheating could be a function of the social pressure to cheat associated with extra-curricular activities, particularly those with regard to sports teams and Greek organizations.

Researchers have also looked at the impact of field of study on the likelihood of cheating. Many studies found that students majoring in business, economics, engineering, or computer science tend to cheat more than students in other majors (Crown and Spiller, 1998; McCabe, 2005; Carpenter, Harding, and Finelli, 2006). On the contrary, Nowell and Laufer (1997) found no evidence that economics majors were more likely to cheat than other students, while Iyer and Eastman (2006) found that nonbusiness majors were more likely to cheat than are business majors. While the evidence seems to indicate that students in some majors, particularly those in more technical areas such as engineering and economics, cheat more than students in some others areas (e.g., literature and philosophy), the evidence is not conclusive. The tendency to find higher rates of cheating in some disciplines could be a result of the nature of the assessment tools used in each discipline. For example, economics courses often are exam-based and use mathematical problems and multiple choice questions, while literature assessments **are** most likely to take the form of essay questions or papers

One of the most consistently significant predictors of academic dishonesty is morality. Students with a personal moral code are less likely to cheat (Crown and Spiller, 1998; McCabe and Trevino 1993 and 1997; Passow, et al., 2006; Harding, et al., 2007). However, when there are outside influences, such as competition with peers or friends and family pressures, a student may disregard their moral views and cheat (or help someone cheat) to get a better grade. Peer pressure or pressure to help out a friend is cited as a reason for committing academic dishonesty (Derting, 1997; Stearns, 2001). Other reasons for cheating are the pressure of too much homework, competition for better grades, and perceived low chance of getting caught (Whitley, 1998).

DATA, MODEL, AND SAMPLING METHODOLOGY

The survey was administered to students at a small, Midwestern liberal arts school during September and October of 2010. The survey was designed to collect demographic information (such as year in college, gender, and division of study), academic performance (GPA or high school class rank), attitudinal and behavioral information (such as the primary goal when taking a class, attendance history, and how the student spends time outside of class), and academic dishonesty information (such as the student's opinion on appropriate punishment for acts of academic dishonesty, the student's history of academic dishonesty, and reasons for engaging in acts of academic dishonesty

Given the sensitive nature of the subject, the primary concern was to undertake all measures possible to ensure the student of anonymity. The choice not to conduct an online survey was made because students may be concerned that their survey answers could be tracked back to the computer's IP address. Instead, the decision was made to administer the survey in a classroom setting. Numbers were assigned to each class on a schedule of classes provided by the registrar's office and then a random number generator was used to select the classes to survey. While the classes were selected randomly, the students in those classes did not represent the campus-wide student demographics. Additional classes were added, with a selection criteria focusing on class rank and divisional representation, to compensate for the non-representative nature of the sample. Although the sampling procedure was not completely random (due to efforts to assure student anonymity), the final sample of students generally reflected the make-up of the population at the school, as indicated in Table 1 (Appendix).

After receiving faculty member approval (which was provided in all cases), students were given informed consent forms and then asked to read and sign the form if they were willing to take the survey. The consent form informed the students of the purpose of the study, guaranteed them complete anonymity, and informed them that their participation in the study was voluntary. In addition, assurances were given to the students that their lack of participation would have no bearing on their grade in the class. If they signed the form (less than 1% of the students declined), the consent forms were then collected and the surveys were distributed. The students were then asked to drop the surveys in a container that contained surveys from other classes, and the students were encouraged to intermingle their surveys with surveys from other classes to reinforce the assurance of anonymity. In addition to the care taken to assure the students anonymity while distributing and collecting the survey, questions in the survey were constructed so that the student could answer all questions by marking an "X" in the appropriate space. Therefore, students could feel more comfortable knowing that the researchers would not be able to trace handwriting back to any one individual. Since the school in this study has some majors

that have few students, the survey asked the student to identify the division instead of their major so that students in majors with few students could not be individually identifiable. As a result of the survey construction and delivery method, the student could be assured that the researchers could not connect an individual survey to any particular student or even a particular class.

A survey of 481 students at a small, Midwestern, private liberal-arts college was conducted during the fall semester of 2010. Table 1 (Appendix) shows the relationship between the survey distribution and the college's actual distribution of students by gender, class, and academic division. While the Humanities, Social Science, and Natural Science divisions are made up of the typical departments (for example, English is in the Humanities division), the Pre-professional division is made up of the Education, Accounting and Business, and Exercise and Sports Science departments.

While there are some slight variations between the sample and population means across the divisions, only the difference between the sample and population means for the Pre-professional and Natural Science divisions would seem to be large enough to present some concerns. With regard to committing acts of academic dishonesty in-class, the mean value for the Pre-professional division was 1.102, while the mean value for the Natural Science division was 0.837. With regard to committing acts of academic dishonesty outside of the class, the mean value for the Pre-professional division was 1.725, while the mean value for the Natural Science division was 1.653. In both cases, students from the Pre-professional division exhibited slightly higher incidences of academic dishonesty than did students in the Natural Science division. If more students from the Pre-professional division and fewer students from the Natural Science division had made up the sample, assuming that those students were similar to the students included in the sample, there would have been a higher prevalence of academic dishonesty than was found in the actual sample of students.

To ensure the anonymity of the students, survey questions were constructed so that the student could mark an "X' in the appropriate category. As a result, the variables were categorical in nature and the answers were assigned discrete numbers to represent the category. The variables used in the model and the description of the variables follow.

(1) AD_IC and AD_OC – instances of academic dishonesty committed in-class (IC) and out of class (OC), where instances of IC activities are using unauthorized notes, copying or letting someone copy An exam, and using unauthorized electronic devices on exam, and OC activities are the giving and receiving information on exams from another course section

(2) Gender - Male = 1, Female = 0

(3) Division of Study – Humanities (A), Pre-Professional (B), Natural Sciences (C), Social sciences (D), Undeclared (E), and Double Major (F)

(4) Class rank – Freshmen, Sophomore, Junior, Senior

(5) GPA - a ranking system for GPA on a 4.0 scale

(6) Absences – a ranking system of the number of classes a student misses in one week

(7) Extra_curricular activities (ExHours) - a ranking system of the number of hours spent in extra-curricular activities each week

(8) Work hours (WkHours) - a ranking system of the number of hours spent in work for pay each week

(9) Study hours (StdHours) - a ranking system of the number of study hours per week

(10) PrimGoal – the primary goal for the class expressed by the student – receive a good grade (PG_grade), receive credit for the course (PG_credit), gain transferrable skills (PG_skills), or learn the material in the course (PG_learn)
(11) Opinion – an average of student's opinions on severity of punishment for acts of academic dishonesty (1 - no punishment, 2 - fail exam/assignment, 3 - fail course)
(A) Opinion_IC – student opinions on the following acts of academic dishonesty committed in class: using unauthorized notes on exam, copying someone else's work on an exam, allowing someone to copy your work on an exam, using unauthorized electronic devices on an exam
(B) Opinion_OC – student opinions on the following acts of academic dishonesty committed outside of the class: giving information on exam to alter section or receiving information on exam from earlier section
(12) Reasons for Committing Academic Dishonesty

a. Reason A - Professors assign too much material, so I did not have time to do the work on my own.
b. Reason B – I am engaged in other activities (work, sports, etc.), so I did not have time to do the work on my own
c. Reason C – The course was not important to me, so I did not want to spend time on it.
d. Reason D - Since GPA is important to graduate schools and prospective employers; I wanted a higher grade that I could earn with my own work.
e. Reason E - I don't like to see other individuals who undertake these actions get a better grade than me.
f. Reason F - There was little chance of getting caught and, if caught, there was little change of receiving significant punishment.
g. Reason G – I don't want to let my parents down by making poor grades
h. Reason H - I felt a responsibility to help my friend(s) who were having difficulty with the course.
i. Reason I – Teachers and administrators do not make it clear that these actions are not acceptable forms of behavior

The summary statistics for the variables used in this study are included in Table 2 (Appendix).

The dependent variables used were the self-reported acts of academic dishonesty on exams that occurred in the classroom (AD_IC) and outside of the classroom (AD_OC). On the survey, a student selected the frequency of the activity (zero times, one time, or more than one time), which were represented with a 0, 1, and 2, respectively. A student who did not undertake any of the four (two) acts of in-class (out of class), they would be assigned a value of zero. If they undertook more than one act of academic dishonesty in each of the four in-class activities, they would be assigned a value of eight (see minimum and maximum values in Table 2 (Appendix). Dummy variables were also created for each dependent variables, where the variable were assigned a value of one if the student had committed any of the acts of academic dishonesty, and a value of zero otherwise. Students were asked if they had committed acts of academic dishonesty in the past year, so each class would have mostly likely reported acts from the previous academic year since the survey was conducted in the first two months of the fall semester.

The independent variables used in this model are reported in Table 2 (Appendix). They capture the demographic characteristics of the students (e.g., Gender), the level of academic

performance of the student (GPA), the study habits of the student (StdHours), time pressures outside of the classroom (e.g., WkHours), the goals for the course (e.g., PG_grade), and the attitudes toward academic dishonesty (e.g., Opinion_IC). Due to the concern over student anonymity, a number of the variables (e.g., GPA, StdHours, WkHours) were framed as ranges of values and the student signified in which range his/her answer fell. The mean values in each category were used as the value assigned to the student. For example, a student who chose the category of 1-2 study hours per week would be assigned a value of 1.5 hours. The following model was estimated for both in-class academic dishonesty (AD_IC) and out of class academic dishonesty (AD_OC).

$$AD\_IC = \alpha_0 + \alpha_{1i}\, Classrank + \alpha_2\, Gender + \alpha_3\, GPA + \alpha_4\, Absences + \alpha_{5i}\, Division + \\ + \alpha_6\, StdHours + \alpha_7\, ExHours + \alpha_8\, WkHours + \alpha_{9i}\, PrimGoal + \alpha_{10}\, Opinion\_IC + \varepsilon_i$$

The *i* subscript indicates a series of dummy variables for the categories associated with the variables. For example, respondents could choose one of four categories with respect to PrimGoal (grade, credit, learn, skills), with skills serving as the omitted dummy variable.

To capture a measure of the student's moral concerns with cheating, a question was included to solicit the view of the students toward the proper punishment for committing various acts of academic dishonesty. Their responses (1, 2, or 3) were assigned to each act of academic dishonesty relevant to the venue (inside or outside of the classroom) for cheating, the mean of the student's appropriate punishment responses over those acts of cheating were calculated, and those mean values were assigned to the individual students as their opinions concerning cheating. If a student thought that both acts of academic dishonesty outside of the classroom deserved to be punished by failure of the course, then the student would have a Opinion_OC value of 3 (6/2). The mean values ranged from 0.75 to 7 (with a mean of 1.89) for Opinion_IC and 1 to 3 (with a mean of 1.39) for Opinion_OC.

The equations were estimated using a binomial logit and an ordered logit model in STATA. As previously discussed, the data were collected in a way to allow us to make a distinction between committing a particular act (e.g., copying another student's exam) once or more than once. This creates an issue of data censoring since the student could have committed the act twice or five times; the survey did not allow that distinction to be made. While converting the data into a dummy variable (1 = commit, 0 = did not commit), no longer allowed the differentiation between students who committed the act once or more than once, the construction of the dummy variable eliminated the censoring issue. The results from both estimation techniques (ordered and binomial logit) were robust to the choice of technique. The results from the binomial logit model are presented in Table 3 (Appendix).

RESULTS AND DISCUSSION

The coefficient estimates, standard errors, and odds ratios from the binomial logit estimation of the in-class (AD_IC) and out of class (AD_OC) equations are reported in Table 3 (Appendix). Unlike studies that find a decrease in the occurrence of cheating as the students matriculates through his career, the findings of this study indicate a more complicated pattern, with both seniors and freshmen students being more likely to commit acts of academic dishonesty than juniors (the omitted category). The odds ratio for freshmen is 3.785, while the odds ratio for a senior is 3.187. This indicates that freshmen have approximately 3.8 times the

odds of cheating compared to the odds of a junior cheating, while seniors have approximately 3.2 times the odds of cheating compared to the odds of a junior cheating (holding other variables in the model fixed). Although there was no statistical difference between juniors and sophomores in the in-class (AD_IC) model, the results indicate that sophomores have a greater likelihood than juniors of cheating in the outside of the class (AD_OC) model.

As previously discussed, the students were asked to report acts of academic dishonesty in the previous year and only 6-8 weeks had elapsed in the semester when the survey was completed. It is likely that the high probability of cheating associated with freshmen students captured mostly high school cheating behavior. Another possible explanation for this pattern is that freshmen might have been attempting to test the consequences of cheating in college (e.g. the likelihood of getting caught and the severity of punishment). It is somewhat surprising that seniors reported having committed acts of academic dishonesty in the past year with greater frequency than other students. Since most of the instances of cheating probably occurred during the student's junior year, it may be that the pressures of adjusting to upper-level classes and an accumulation of competing pressures increased the likelihood of cheating.

Although the outside activities associated with extra-curricular activities (ExHours) and work (WkHours) had no significant impact on the probability of cheating, one of the most common reasons given for cheating centered on time related pressures (e.g., too many outside activities or professors assigning too much work). In addition, 34% of the students who cheated reported that "there was little chance of getting caught, and if caught, there was little chance of receiving significant punishment."
This impression would likely be more pronounced in upper-level students since they would have more time (and experiences) from which to form that opinion. Given the potential that the survey was primarily picking up cheating activities when the seniors were classified as juniors, this may explain the high level of cheating among seniors.

Most studies (e.g., Crown and Spiller, 1998) have found no significant difference in cheating behavior by gender, although a few (e.g., McCabe, 1997) have found that men tend to cheat more frequently than do women. The results of this study indicate no significant difference with regard to gender in acts of academic dishonesty in the classroom. On the other hand, males tend to cheat less outside of the classroom, but the coefficient estimate was not statistically significant (p-value of 0.107) at conventional levels. The results seem to indicate that there may be some difference in the cheating behavior of men and women that is contextual; women tend to be more likely to give and receive aid outside of the classroom than do men, at least with regard to exams. This does not appear to be consistent across other acts of academic dishonesty outside of the classroom since separate regressions on homework assignments and papers (not reported, but available upon request) indicate no difference in male and female cheating behavior.

The reason for taking the class (e.g. grade, credit, learn content) had no significant impact on the probability that a student would commit an act of academic dishonesty. This is somewhat surprising since approximately 54% of the respondents signified that receiving a good grade was their primary goal for the class, while only 35% indicated that learning the material in the class was their primary goal. The results seem to indicate that cheating behavior is independent of the reasons for taking the class. Although the reasons for taking the class may have little impact on cheating behavior, the results indicate that class attendance may have some impact. Students with a higher number of absences were more likely to cheat (at least inside of the classroom) than students with fewer absences. This pattern did not hold for outside of the classroom activities (i.e., giving or receiving information on an exam). Students with a high number of

absences may feel pressure to cheat on an exam inside of the classroom, but may be less likely to engender sympathy from fellow students when asking for information on the exam and less likely to be able to help other students when asked to provide information on the exam due to lack of familiarity with the material (even if they have taken the exam already).

There was no significant differences in the probability of committing acts of academic dishonesty between students in different divisions of study. While there are no differences across divisions, the possibility of differences within divisions cannot be ruled out. Other studies have found significant differences across majors, with business and economics students tending to cheat more frequently than other students. The business students in this sample were combined with students from the Education and Exercise and Sports Science departments into the Pre-Professional division, so any differences across majors may be eliminated due to the aggregation into divisions. As previously discussed, divisions were used instead of majors to ensure anonymity to students in small majors. In addition to no divisional differences, the uses of time had no significant impact on the probability of cheating; there was no statistically significant impact on academic dishonesty from the hours spent at work or on extracurricular activities. While these results fail to support the findings in some other studies (for example, McCabe and Trevino, 1997; Nowell and Laufer, 1997), it could be the case that more involved students may be forced to be better time managers and therefore may find less need to cheat.

Other studies have found that students with a personal moral code were less likely to cheat, and the findings of this study support these conclusions. This study attempted to capture the sense of morality related to academic dishonesty by including a question that asked the student to express their opinions on the appropriateness of punishment options for particular offenses. The results indicated a statistically significant negative relationship between the student's view of the appropriate severity of punishment and the likelihood that the student would commit an act of academic dishonesty in both inside and outside of the classroom venues. A student who believes that cheating should be punished more severely is much less likely to cheat himself. A one unit change (i.e., moving from "failing the exam" to "failing the course") in the opinion variable decreases the odds that a student will cheat on an exam by approximately 338% (odds ratio of 4.375) for in-class cheating activities and approximately 228% (odds ratio of 3.277) for outside of the classroom cheating activities.

Data were also collected with regard to the reasons for cheating for all students that admitted to committing one or more acts of academic dishonesty in the previous year. The description of the reasons are reported in Table 2 9Appendix). With regard to both inside and outside of the classroom acts of academic dishonesty, students most frequently cited the following as their primary reasons for committing acts of dishonesty: (1) they wanted to help their friends who were having difficulty in the course (Reason H), (2) they were engaged in many outside activities (Reason B), (3) professors assign too much material (Reason A), or (4) there was little chance of getting caught or punished significantly (Reason F). The least frequently cited reasons were concern over the cheating behavior of other students (Reason E) and that teachers and administrators do not make it clear that cheating is an unacceptable form of behavior (Reason I). Students appeared to cheat more frequently to help their classmates or if they perceived that teachers assigned too much material or were not diligent in efforts to catch and punish cheaters.

CONCLUSIONS

Academic dishonesty is a widespread epidemic that is affecting institutions of higher learning and potentially carrying over to the work place. In a survey of 481 students at a small, liberal-arts school, 89% of the respondents admitted to committing at least one act of academic dishonesty in the past academic year. This is higher than the average of 70% reported by Bernard Whitley in 1998; however, when creating and distributing the survey, many precautions were taken to ensure anonymity, which may have made students more comfortable being honest. A binomial logit model with a variety of explanatory variables was estimated. The explanatory variables in the model include class rank, GPA, division of study, time pressures (e.g., extra-curricular activities), primary reasons for taking the class, and opinions concerning the severity of punishment appropriate for a variety of acts of academic dishonesty.

A student's view on the severity of the appropriate punishment for acts of academic dishonesty was significantly correlated with their own behavior with regard to cheating. If students thought that the penalty should be severe (e.g., failing the class), then the student was much less likely to commit an act of academic dishonesty himself. The results indicated that there is a somewhat complicated relationship between class rank and academic dishonesty, with freshmen and seniors exhibiting higher likelihoods of cheating. Since students were asked to report any acts of academic dishonesty in the previous year, the results may include high school incidences of cheating for freshmen and transitions to the pressures of upper-level courses for seniors.

The results indicate no significant impact of division of study on the likelihood of cheating, but the aggregation of majors into divisions to ensure student anonymity may have failed to capture the differences in majors found in other studies. Although students who cheated cited time pressures as a primary reason for cheating, neither of the time pressure variables (work hours or extra-curricular hours) had any significant impact on the likelihood of cheating. Consistent with many other studies, this study found no differences in cheating behavior with regard to gender. Finally, absences were associated with a higher likelihood of cheating the in-class venue but had no impact on cheating in the outside of classroom venue.

A shortcoming of the current study is its focus on one institution. A possible avenue for additional research would utilize data from across institutions. Other studies have found differences across majors even though this study did not, probably as a result of the decision to aggregate majors into divisions. This raises the question of whether or not there are local cultural/environmental factors that influence cheating. One way to measure this effect would be to conduct a multi-institutional study of similar schools. If localized culture is a factor, one would expect it to differ among institutions, and thus the dummy variables identifying institutions would be significant.

REFERENCES

Anderman, E., & Murdock, T. (Eds.). (2007). *Psychology of Academic Cheating*. Burlington, MA: Elsevier Academic Press.

Burris, R., McGoldrick, K., & Schuhmann, P. (2007). Self-reports of student cheating: Does a definition of cheating matter. *Journal of Economic Education.* 38(1). Retrieved from http://www.tandfonline.com/doi/abs/10.3200/JECE.38.1.3-17#.VCimD_ldV8E

Carpenter, D., Harding, T., & Finelli, C. (2006). The implications of academic dishonesty in undergraduate engineering of professional ethical behavior. *Proceedings of the 2006 World Environmental and Water Resources*. Retrieved from http://deepblue.lib.umich.edu/handle/2027.42/55267

Crown, D., & Spiller, M. (1998). Learning from the literature on collegiate cheating: A review of Empirical Research. *Journal of Business Ethics,* 17(6). Retrieved from http://link.springer.com/article/10.1023%2FA%3A1017903001888

Davis, S., Drinan, P., & Gallant, T. (2009). *Cheating in school: What we know and what we can do*. United Kingdom: Wiley-Blackwell Publishing.

Derting, T. (1997). Undergraduate views of academic misconduct in the biological sciences. *The American Biology Teacher,* 59(3). Retrieved from: http://www.jstor.org/discover/10.2307/4450271

Diekhoff, G., LaBeff, E., Clark, R., Williams, L., Francis, B., & Haines, V. (1996). College cheating: Ten years later. *Research in Higher Education*. 379). Retrieved from: http://www.jstor.org/discover/10.2307/40196220

Greene, W. (2002). *Econometric analysis*. Upper Saddle River, New Jersey: Prentice Hall.

Harding, et al. (2007). The theory of planned behavior as a model of academic dishonesty in engineering and humanities undergraduates." *Research on Learning and Teaching North, Center for CRLT North.* Retrieved from http://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1035&context=mate_fac

Iyer, R. & Eastman, J. (2006). Academic dishonesty: Are business students different from other college students? *Journal of Education for Business*. 82(2). Retrieved from http://www.tandfonline.com/doi/abs/10.3200/JOEB.82.2.101-110#.VCioJ_ldV8E

Jordan, A. (2001). College student cheating: The role of motivation, perceived norms, attitudes, and knowledge of institutional policies. *Ethics & Behavior.* 11(3). Retrieved from http://faculty.mwsu.edu/psychology/dave.carlston/Writing%20in%20Psychology/Academic%20Dishonesty/Grop%204/norms.pdf

Karlins, M., Michaels, C., & Podlogar, S. (1988). An empirical investigation of actual cheating in a large sample of undergraduates. *Research in Higher Education.* 29(4). Retrieved from http://link.springer.com/article/10.1007/BF00992776

Kerkvliet, J. (1994). Cheating by economics students: A comparison of survey results. *Journal of Economic Education.* 25(2). Retrieved from http://www.jstor.org/discover/10.2307/1183278

Kerkvliet, J., & Sigmund, C. (1999). Can we control cheating in the classroom. *Journal of Economic Education.* 30(4). Retrieved from http://www.jstor.org/discover/10.2307/1182947

Kisamore, J., Stone, T., & Jawahar, I. (2007). Academic integrity: The relationship between individual and situational factors on misconduct contemplations. *Journal of Business Ethics*. 75(4). Retrieved from http://www.jstor.org/discover/10.2307/25124002

Lambert, G., Hogan, N., & Barton, S. (2003). Collegiate academic dishonesty revisited: What have they done, how often have they done it, who does it, and why did they do it? *Electronic Journal of Sociology*, 7(4) Retrieved from http://www.sociology.org/content/vol7.4/lambert_etal.html

Leming, J. (1980). Cheating Behavior, subject variables, and components of internal-external scale under high and low risk conditions. *The Journal of Educational Research*. 7492). Retrieved from http://www.jstor.org/discover/10.2307/27507244

Lyke, J., & Young, A. (2006). Cognition in context: Students' perceptions of classroom goal structures and reported cognitive strategy use in the college classroom. *Research in Higher Education*. 47(4). Retrieved from http://www.jstor.org/discover/10.2307/40197413

McCabe, D. (1992). The influence of situational ethics on cheating among college students. *Sociological Inquiry*. 62(3). Retrieved from https://www.researchgate.net/publication/227958361_The_Influence_of_Situational_Ethics_on_Cheating_Among_College_Students*

McCabe, D. (2005). Cheating among college and university students: A North American perspective. *International Journal of Educational Integrity.* 1(1). Retrieved from http://www.ojs.unisa.edu.au/index.php/IJEI/article/view/14

McCabe, D., & Trevino, L. (1993). Academic dishonesty: Honor codes and other contextual influences. *Journal of Higher Education.* 54(5). Retrieved from http://library.uvm.edu/~pmardeus/honors/honorcode.pdf

McCabe, D., & Trevino, L. (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. *Research in Higher Education.* 38(3). Retrieved from http://www.jstor.org/discover/10.2307/40196302

McCabe, D., Trevino, L., & Butterfield, K. (2001) Dishonesty in academic environments: The influence of peer reporting requirements. *The Journal of Higher Education*. 72(1). Retrieved from http://www.middlebury.edu/media/view/257517/original/Influence_of_Peer_Reporting.pdf

McCabe, D., Trevino, L., & Butterfield, K. (2001). Cheating in academic institutions: A decade of research. *Ethics & Behavior.* 11(3). Retrieved from http://www.middlebury.edu/media/view/257513/original/Decade_of_Research.pdf

Nowell, C., & Laufer, D. (1997). Undergraduate student cheating in the fields of business and economics. *Research in Economic Education.* 28(1). Retrieved from http://www.jstor.org/discover/10.2307/1183170

Passow, H., et al. (2006). Factors influencing engineering students` decisions to cheat by type of assessment. *Research in Higher Education*. 47(6). Retrieved from http://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1037&context=mate_fac

Pulvers, K., & Diekhoff, G. (1999). The relationship between academic dishonesty and college classroom environment. *Research in Higher Education.* 40(4). Retrieved from http://link.springer.com/article/10.1023%2FA%3A1018792210076

Simkin, M., & McLeod, A. (2010). Why do college students cheat? *Journal of Business Ethics*. 94(3). Retrieved from http://link.springer.com/article/10.1007%2Fs10551-009-0275-x

Stearns, S. (2001). The student-instructor relationship`s effect on academic integrity. *Ethics & Behavior.* 11(3). Retrieved from http://www.tandfonline.com/doi/abs/10.1207/S15327019EB1103_6?journalCode=hebh20#.VCisZvldV8E

Rettinger, D., & Kramer, Y. (2009). Situational and personal causes of student cheating. *Research in Higher Education*. 50(3). Retrieved from http://link.springer.com/article/10.1007%2Fs11162-008-9116-5

Wadja-Johnson, V., et al. (2001). Academic dishonesty at the graduate level. *Ethics & Behavior.* 11(3). Retrieved from http://www.tandfonline.com/doi/abs/10.1207/S15327019EB1103_7#.VCisfPldV8E

Ward, D., & Beck, W. (1990). Gender and dishonesty. *The Journal of Social Psychology*. 130(3). Retrieved from http://www.tandfonline.com/doi/abs/10.1080/00224545.1990.9924589#.VCiskPldV8E

Whitley, B. (1998). Factors associated with cheating among college students. *Research in Higher Education*. 39(3). Retrieved from http://link.springer.com/article/10.1023%2FA%3A1018724900565

Whitley, B. (2001). Gender differences in affective responses to having cheated: The mediating role of attitudes. *Ethics & Behavior.* 11(3). Retrieved from http://www.tandfonline.com/doi/abs/10.1207/S15327019EB1103_4?journalCode=hebh20#.VCisw_ldV8E

Whitley, B., & Keith-Spiegel, P. (2001). Academic integrity as an institutional issue. *Ethics & Behavior.* 11(3). Retrieved from http://www.tandfonline.com/doi/abs/10.1207/S15327019EB1103_9#.VCis3fldV8E

Whitley, B., & Keith-Spiegel, P. (2002). *Academic Dishonesty: An Educator`s Guide.* Mahway, New Jersey: Lawrence Erlbaum Associates.

Whitley, B., Bichimeier Nelson, A. & Jones, C. (1999). Gender differences in cheating attitudes and classroom cheating behavior: A meta-analysis. *Sex Roles.* 41(9/10). Retrieved from http://link.springer.com/article/10.1023%2FA%3A1018863909149

APPENDIX

Table 1
Comparison of Sample and Population Characteristics

	Sample	Population
Male	45.22%	47.80%
Female	54.78%	52.20%
Freshman	34.39%	33.40%
Sophomore	26.11%	26.30%
Junior	24.48%	25.8%
Senior	14.65%	14.50%
Other	_____	2.50%
Humanities	6.58%	9.00%
Pre-professional	41.61%	51.00%
Natural Science	29.93%	21.10%
Social Science	13.38%	14.40%
Other	1.70%	1.20%
Undeclared	2.34%	3.30%

Table 2
Descriptive Statistics

Variable	Mean	St. Dev.	Min.	Max.
AD_IC	0.873	1.592	0	8
AD_OC	1.673	1.662	0	4
Freshmen	0.334	0.472	0	1
Sophomore	0.263	0.441	0	1
Junior	0.258	0.438	0	1
Senior	0.145	0.353	0	1
Gender	0.463	0.499	0	1
GPA	3.277	0.484	1	3.75
Absences	0.221	0.592	0	5.5
StdHours	2.571	1.107	0.5	4.5
ExHours	8.940	8.214	0	45
WkHours	4.331	6.763	0	45
PG_grade	0.537	0.499	0	1
PG_credit	0.069	0.254	0	1
PG_learn	0.355	0.479	0	1
PG_skills	0.039	0.194	0	1
Opinion_IC	1.892	0.404	.75	7
Opinion_OC	1.393	0.516	1	3
Reason A	0.363	0.481	0	1
Reason B	0.426	0.495	0	1
Reason C	0.206	0.405	0	1
Reason D	0.264	0.441	0	1
Reason E	0.084	0.277	0	1
Reason F	0.342	0.475	0	1
Reason G	0.235	0.425	0	1
Reason H	0.624	0.485	0	1
Reason I	0.141	0.348	0	1

Table 3
Binomial Logit Results

	AD_IC			AD_OC		
Variable	β	SE	Odds Ratio	β	SE	Odds Ratio
Freshmen	1.331***	0.338	3.785	0.881***	0.308	2.413
Sophomore	-0.744	0.380	2.104	0.617**	0.300	1.853
Senior	1.159 ***	0.406	3.187	0.704**	0.349	2.022
Gender	0.140	0.236	1.150	-0.362	0.225	1.436
Absences	0.429**	0.182	1.536	-0.070	0.183	1.073
Division A	-0.350	0.443	1.419	-0.066	0.416	1.068
Division B	-0.082	0.276	1.085	-0.129	0.267	1.138
Division D	-0.265	0.366	1.303	-0.129	0.346	1.138
Division E	-1.149	0.847	3.155	0.048	0.716	1.049
Division F	-1.027	0.700	2.793	-0.634	0.526	1.885
StdHours	-0.745	0.111	2.106	-0.012	0.103	1.012
ExHours	0.008	0.014	1.008	0.003	0.013	1.003
WkHours	0.006	0.018	1.006	0.023	0.018	1.023
PG_grade	0.534	0.618	1.706	0.487	0.546	1.627
PG_credit	0.601	0.722	1.824	0.781	0.665	2.184
PG_learn	0.209	0.629	1.232	0.204	0.535	1.226
Opinion_IC	-1.476***	0.386	4.375			
Opinion_OC				-1.187***	0.212	3.277
Constant	2.235*	1.310	9.346	1.587	1.077	4.889
Observations	434			434		
LR χ2(18)	71.82***			48.43***		

*, **, *** indicates significance at the 90%, 95%, and 99% level, respectively.