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The Relationship between Moral Reasoning and Plagiarism in Accounting Courses: A Replication Study

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ABSTRACT: We investigate the relationship between moral reasoning and plagiarism by students in accounting courses. Using the Internet tool, turnitin.com (http://www.turnitin.com), we define plagiarism as the percentage of words copied from the Internet without proper acknowledgement of the source. We use writing assignments at the beginning and the end of the semester in three undergraduate and three graduate capstone accounting courses to hypothesize and find support for a significant inverse relationship between moral reasoning, as measured by the Defining Issues Test, and plagiarism. We also find evidence of significantly more plagiarism at the end of the semester than the beginning, and an inverse relationship between plagiarism and grade point average.

Keywords: plagiarism; moral reasoning.

Data Availability: Contact the authors.

INTRODUCTION

This study replicates, in part, the work of Ponemon (1993), who investigated the relationship between moral reasoning and unethical behavior. Thus, our study is in the tradition of replication studies as advocated by Lindsay (1995, 1997) who argues that ''Replication provides the crucial test of the reliability and validity of facts, hypotheses, and theories. It leads, when successful, to generalizeable and predictable results'' (Lindsay 1995, 35).

We investigate the relationship between moral reasoning and plagiarism in a realistic natural setting. After reviewing the relevant literature on cheating, West et al. (2004, 175) conclude that, ''actual behavior provides more validity than self-reports, but presents researchers with ethical challenges because of faculty members' reluctance to encourage cheating.'' Through an examination of term papers submitted as regular assignments in

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accounting courses, we were able to measure the extent of plagiarism by students without in any way encouraging them to cheat.

We extend the prior literature by comparing moral reasoning scores to behavior. Specifically, we collected two short papers that were regular assignments in three sections of an undergraduate capstone accounting course and three sections of a graduate capstone accounting course. One of the papers was collected at the beginning of the semester, and the other one was collected at the end of the semester. We submitted the papers to turnitin.com (http://www.turnitin.com) and documented the degree of copying from the Internet. We then adjusted the extent of copying for each student by deleting the passages for which students provided any acknowledgement of their source. We hypothesize and provide empirical evidence that the extent of plagiarism is inversely related to the students' level of moral reasoning as measured by the Defining Issues Test. We also investigate several demographic variables and find that, while age has no significant relationship with a student's degree of plagiarism, students tend to plagiarize more at the end of the semester than the beginning, and the degree of plagiarism is inversely related to students' grade point average (GPA).

The Importance of Investigating Plagiarism

The Council of Writing Program Administrators (2003, 1) defines plagiarism as ''the deliberate use of someone else's language, ideas, or other original (not common knowledge) material without acknowledging its source.''[1] Because plagiarism ''defeats the purpose of education for the student and violates the trust between faculty member and student as well as the trust that should coexist between students'' (Bentley College 2001), it is strongly prohibited by educational institutions. However, despite universal prohibition, plagiarism has become a widespread and growing problem on college campuses.[2] A recent study by the Center for Academic Integrity found that 70 percent of college students admit to some sort of academic cheating and 37 percent have used the Internet to plagiarize (NBC 2006). Reviews of other studies of cheating in colleges and universities indicate that ''academic dishonesty ... is endemic to the college and university campus'' (Pulvers and Diekhoff 1999, 487), particularly in business schools (Smyth and Davis 2004). McLafferty and Foust (2004) indicate that the emergence of massive databases on the World Wide Web has made plagiarism more widespread than ever before. The World Wide Web enables students to sort through thousands of published documents that they can then easily ''cut and paste'' into their own papers (Born 2003), a practice so rampant that it has its own name, ''cybercheat'' (Clement 2001).

It is important for educational institutions to combat plagiarism because widespread plagiarism defeats the purpose of learning. As Brady (2006) states, ''those who are copying are not learning. If only the small minority of students were at fault, I would not worry so much. But I think the problem is worsening rapidly. It's now possible to reach a tipping point: most of the class copying most of the time, so that not much is learned by the end

[1] Other authors argue that plagiarism can be unintentional. For example, Girard (2004, 13) argues that ''what people perceive to be original thoughts really may be opinions and ideas written down by others and subconsciously ingrained in people through the things people have read or seen. This is the dilemma of writers, for plagiarism can be intentional, but usually, it is unintentional.''

[2] In an ABC *20/20* report on November 19, 2004 called ''Big Cheats on Campus,'' Stossel (2004) reported that some students hire other students to write term papers for them, while others buy customized papers online. Many others copy significant passages directly from Internet sources. To combat this copying, many colleges and universities now subscribe to Internet services such as turnitin.com (http://www.turnitin.com). According to turnitin.com founder, John Barrie, schools submit 20,000–30,000 papers per day, and his company finds plagiarism in about 30 percent of those cases.

of the semester.'' To combat this worrisome situation, it is important to investigate the variables that are associated with plagiarism.

Studying plagiarism in accounting is also important from a public interest perspective. We argue that students' resorting to plagiarism in college may lead to them engaging in other types of unethical behavior in order to succeed in the accounting profession after graduation. Based on a survey of students from AACSB-accredited business schools where many students admitted to have engaged in cheating, including plagiarism, Premeaux (2005, 416) argues that the ''acceptance of unethical behavior in college, like cheating, may make unethical behavior in business easier to accept.'' Likewise, Lawson (2004) finds evidence that a large proportion of business students engage in unethical behavior, for they believe that they need to act unethically to advance their careers in the future.

These results suggest that there is a need for a better understanding of the factors related to plagiarism on college campuses. We investigate the relationship between moral reasoning and plagiarism. Kohlberg's (1981) cognitive moral developmental theory suggests, and empirical evidence supports (Rest et al. 1999), an inverse relationship, but the accounting literature (e.g., Ponemon 1993; Bay and Greenberg 2001; West et al. 2004) presents mixed results. In the following section we present a summary of the background literature pertaining to cognitive moral development and state the primary hypothesis investigated by this replication study. That section is followed by two sections discussing the research method and the results. The final section provides a summary and conclusions derived from the study.

BACKGROUND AND HYPOTHESIS

Moral reasoning is a complex construct to formulate and measure. A theory that has dominated the literature regarding this construct is Kohlberg's (1981) cognitive moral developmental theory. This theory posits that, in a manner similar to children's stages of cognitive development, moral reasoning also develops in stages.[3] Rest (1986) developed the Defining Issues Test (DIT) to measure this cognitive development. The DIT produces a metric called the principled score (P-score), which ranges from 1–99 (low to high) that measures a subject's level of principled reasoning in solving ethical dilemmas.[4] Because Kohlberg's cognitive developmental theory posits that people progress from lower stages to higher stages of moral development throughout life, the DIT P-score can be used to gauge changes that result from factors such as age and education.

Of particular importance to the current study is that the prior literature on moral reasoning as measured by the P-score suggests a positive relationship between moral reasoning and ethical behavior. Rest et al. (1999) and Thoma (1994) reviewed this literature and concluded that moral reasoning is positively related to ethical behavior (Rest et al. 1999, 183) and that, on average, moral reasoning explains 10–15 percent of the variation in ethical behavior (Thoma 1994, 201). For example, Malinowski and Smith (1985) studied cheating by students in a laboratory setting and found that 77 percent of the students had cheated, with an inverse relationship between level of moral reasoning and the extent of cheating.

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[3] For a detailed review of the cognitive moral developmental theory and the literature that has developed around it, see Rest (1994) and Rest et al. (1999).

[4] Other instruments used to measure moral reasoning are Kohlberg's (1981) Moral Judgment Interview (MJI) and Reidenbach and Robin's (1990) Multidimensional Ethics Scale (MES). Due to a number of deficiencies (e.g., subjectivity and inefficiency), these scales have not become widely accepted in the literature. Recently, researchers have introduced accounting-based (Thorne 2000) and auditing-based (Massey 2002) moral reasoning instruments. Because the primary purpose of our study is to investigate the relationship between generic moral reasoning and plagiarism, we use the generic DIT in our study.

Empirical results of studies investigating the relationship between moral reasoning and ethical behavior in accounting education have been mixed. For example, West et al. (2004) investigated the relationship between moral reasoning and student cheating and found the relationship to be insignificant. Other accounting studies of this relationship have reported mixed results. Ponemon (1993) investigated the relationship between accounting students' moral reasoning and free-riding behavior (i.e., picking up handouts at the copy center without paying for them). He found a quadratic relationship, where both low and high levels of the P-score were associated with greater levels of free-riding. Bay and Greenberg (2001) replicated Ponemon's (1993) study in the context of cheating in a trading game and found results that were generally consistent with those of Ponemon (1993).

In conclusion, prior empirical evidence of the inverse relationship between moral reasoning and unethical behavior among accounting students has been mixed (Ponemon 1993; Bay and Greenberg 2001) or insignificant (West et al. 2004). However, the broader ethics literature suggests that moral reasoning is inversely related to unethical behavior (cf., Bartlett 2003), and Thoma's (1994) review of a large number of studies suggests that, on average, moral reasoning explains 10–15 percent of the variation in ethical behavior. While this relationship has been judged to be generally weak, it is nevertheless statistically significant (Bartlett 2003, 225). This conclusion suggests a directional hypothesis as follows:

H1: There is a statistically significant inverse relation between moral reasoning and plagiarism.

Control Variables

A number of control variables may relate to plagiarism. According to Emery (2004) many students who cheat are at the lower end of the grade point average (GPA) spectrum. It is possible that these students cheat in order to improve their GPA. In addition, Shaub (1994) found that GPA is positively correlated with moral reasoning. Thus, we include GPA as a control variable and expect an inverse relationship between self-reported GPA and plagiarism.

Other control variables included in our study are age and timing during the semester (i.e., beginning or end of the semester). Age is included because the cognitive moral development literature indicates that the P-score generally increases with age, although this relationship may be more the result of education than age (Rest 1994). Thus, we include age as a control variable but do not specify an expected sign for its coefficient. Point of time during the semester is included as a surrogate for degree of pressure felt by students between the beginning and the end of the semester. Pressure is a difficult variable to study in accounting settings (see DeZoort and Lord [1997] for a review) and studies of the effects of pressure on ethical behavior in accounting are rare (cf., Jones et al. 2003, 93). We have included the beginning and end of the semester (Beg-End) as a surrogate for pressure, because we believe that this variable provides insight regarding a possible related variable: pressure. We argue that, due to increased pressure, students are more likely to plagiarize at the end of the semester than at the beginning.

Model Specification

Based on the hypothesis stated earlier and the control variables identified, we specify regression Model (1) as follows.

$$PL = \alpha + \beta_1 \text{P-score} + \beta_2 \text{GPA} + \beta_3 \text{Age} + \beta_4 \text{Beg-End} + \varepsilon \quad (1)$$

where:

PL = proportion of text plagiarized;
P-score = moral reasoning as measured by the DIT P-score;
GPA = grade point average;
Beg-End = dummy variable (0 if at the beginning of semester, 1 at the end);
Age = age in years; and
ε = error term.

RESEARCH METHOD

Subjects were drawn from graduate and undergraduate accounting capstone courses at two universities in the northeastern United States.[5] Overall, 78 graduate students (36 males and 42 females) and 58 undergraduate students (23 males and 35 females) completed all parts of the study.[6] The average age of all students was 25.90 years with a range of 19–51 years and insignificant differences in average age between males and females or graduate and undergraduate students. However, as expected, graduate students had significantly higher GPAs (3.60) than their undergraduate counterparts (3.21) ($t = 8.09$, $p = 0.000$).[7]

We assigned two five-page descriptive papers on Extensible Markup Language (XML) and Extensible Business Reporting Language (XBRL) for each class, which we submitted to turnitin.com to measure the degree of plagiarism. The XML paper was due during the first month of the semester. We required students to describe the XML language and explain its purpose. The second paper was due during the last month of the semester. We required students to describe the XBRL language, and also explain its purpose. In addition, students were required to identify five accounting-related XBRL application areas (e.g., financial reporting, internal auditing, and taxation). We also collected moral reasoning data from students using the Defining Issues Test (DIT), and demographic variables such as age and GPA at the beginning and the end of the semester.[8]

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[5] At the time we started this research, there was no requirement for its review at Bentley College where the research was initiated, unless researchers were seeking external funding, which they were not. Beginning in Summer 2004, Bentley's Institutional Review Board instituted a requirement in which behavioral studies for which sensitive information is collected must be reviewed. A very similar project involving collection of DIT and other data from students that one of the authors initiated in 2004 was approved as exempt from further IRB review.

[6] We use both beginning- and end-of-semester observations for analysis. This treatment is appropriate because it directly investigates the relationship between moral reasoning and plagiarism at the time of data collection while at the same time allows for analysis of the changes in plagiarism between the beginning and the end of the semester. Since this analysis requires each student to participate twice (i.e., beginning and end of semester), the responses from those who participated in only one of the tests or had any missing data were removed from analysis. Specifically, the initial number of students who participated in the study was 164, of whom eight were dropped due to missing papers at the beginning ($n = 6$) or end ($n = 2$) of the semester. Sixteen students were dropped because their DIT P-scores were purged by the Center for the Study Ethical Development at the University of Minnesota due to data reliability checks. Four more responses were deleted due to missing age ($n = 1$) or GPA ($n = 3$) data. Thus, the remaining sample with complete data for analysis was 136.

[7] We do not include student status in the regression model for two reasons. The first reason is to mitigate multicollinearity due to a high correlation between student status and GPA. The second is that GPA is a significant independent variable in the relationship between academic achievement and plagiarism regardless of student status.

[8] The term papers were routine assignments of the course. For providing the DIT and demographic information, students were assured of anonymity. They were told that participation was completely voluntary without any effect on their grades, and therefore they could leave any question unanswered or leave any time during the data collection session that was scheduled at the end of the class. Furthermore, the DITs were all submitted to the University of Minnesota for scoring in batch well after the semester ended. Thus, we did not know anything about student scores before the end of the semester when the final papers were collected, graded, and then submitted to turnitin.com.

Because students were required to submit the two papers electronically, we were able to use turnitin.com to identify copied passages. We then investigated whether the copied passages were cited in any way, even if citations were not properly formatted. For example, when students failed to place copied passages in quotation marks or in indentation, yet provided a general, albeit inexact reference, we did not classify these acts as plagiarism. The remaining copied passages were used to calculate the proportion of the text that we considered as plagiarized.

RESULTS

Multivariate Analysis and Test of Hypothesis 1

Table 1 presents the results of a simultaneous test of the main hypothesis as well as the control variables through Model (1).[9] The overall analysis of variance shown in the bottom of the table indicates that Model (1) is highly significant at the 0.000 level with an F-statistic of 6.71. This result indicates that a significant proportion of the variation (R^2 = 7.8 percent) in the dependent variable, Plagiarism, is explained by the independent variables included in the model. Also, consistent with H1, the P-score indicates an inverse and significant relationship with plagiarism (t-statistic = −1.97, p = 0.049).

TABLE 1
Regression Results
The Proportion of Text Plagiarized (PL) is the Dependent Variable

Predictor	Hypothesized Sign	Coefficient	t-statistic	Significance
Constant		42.86	4.33	0.000
P-score	−	−0.17	−1.97	0.049
Age	?	0.11	0.67	0.501
GPA	−	−9.11	−3.26	0.001
Beg-End	+	5.76	2.64	0.009

Model R^2 = 9.1 percent, Adjusted R^2 = 7.8 percent

Analysis of Variance: Source	DF	SS	MS	F	p-value
Regression	4	8674.2	2168.5	6.71	0.000
Residual Error	267	86255.7	323.1		
Total	271	94929.9			

P-score = moral reasoning as measured by the DIT P-score;
Age = age in years at time;
GPA = grade point average; and
Beg-End = dummy variable (0 if at the beginning of semester, 1 at the end).

[9] We prepared a correlation matrix between the dependent variable, plagiarism, and independent variables identified earlier in Model (1). Plagiarism was inversely and significantly correlated with the P-score (Pearson Correlation Coefficient = −0.180, p = 0.003). Plagiarism was also inversely and significantly correlated with GPA (Pearson Correlation Coefficient = −0.227, p = 0.000) and positively correlated with the Beg-End (Pearson Correlation Coefficient = 0.150, p = 0.013) variables. While, as expected, the P-score and GPA are also positively correlated (Pearson Correlation Coefficient = 0.291, p = 0.000), neither this correlation nor any other correlation between independent variables reach the critical 0.500 level to cause concern for a significant multicollinearity problem in Model (1).

The remaining variables in Table 1 were included as control variables. As shown, Age is not significantly associated with the degree of plagiarism, but as expected GPA and Beg-End variables are. The negative sign for the GPA coefficient indicates that students with higher GPAs engage in less plagiarism than those with lower GPAs (t-statistic = −3.26, p = 0.001). The Beg-End results indicate that students engage in more plagiarism at the end of the semester than the beginning (t-statistic = 2.64, p = 0.009).

Univariate Analysis of the Incidence and Extent of Plagiarism

Table 2 presents summary statistics on the percent of text plagiarized and the incidence of plagiarism (i.e., the number of students who plagiarized) at the beginning and/or the end of the semester. Also, the table provides associated P-scores. The data are analyzed using the matched-pair t-test to investigate their differences. Panel A presents the overall results, where averages for plagiarism and the P-score are compared between the beginning and the end of the semester, but the relationship between plagiarism and the P-score is not tested. This is done in Panel B, where the P-scores of those who plagiarized regardless of the timing of the semester are compared with those who did not plagiarize. More details

TABLE 2
Plagiarism and the P-score at the Beginning and End of Semester

Panel A: Mean (Std. Dev.) of the Text Plagiarized and the P-Score

Variable	Beginning of Semester (n = 136)	End of Semester (n = 136)	Matched Pair t-statistic (significance)
Percent of Text Plagiarized	8.26 (15.64)	13.86 (21.04)	3.25 (0.001)
Mean P-score (Std. Dev.)	36.15 (12.94)	36.12 (13.18)	0.03 (0.974)

Panel B: Observed Incidence of Plagiarism and Associated P-Scores

	Those Who Plagiarized	Those Who Did Not Plagiarize	Two-Sample t-statistic (significance)
Number (percent)[a]	167[a] (61%)	105[a] (39%)	
Mean P-score (Std. Dev.)	34.70 (11.87)	38.42 (14.47)	2.20 (0.029)

Panel C: Number of Students Plagiarizing, their Percentage of Text Plagiarized, and the P-Score at the Beginning and End of Semester

No. of Students Plagiarizing (percentage of text plagiarized)	n	Beginning of Semester P-Score	End of Semester P-Score	Matched Pair t-statistic (Significance)
None (0.00%)	30	40.57 (14.03)	39.46 (14.47)	0.72 (0.475)
Beg. of semester only (6.27%)	15	38.33 (10.82)	35.98 (15.85)	0.75 (0.467)
End of semester only (13.05%)	30	36.44 (14.50)	40.04 (13.67)	1.87 (0.072)
Both beg. (16.88%) and end (24.48%) of semester	61	33.30 (11.55)	32.59 (10.70)	0.55 (0.587)
F-statistic (Significance)		2.37 (0.074)	3.13 (0.028)	

[a] The total number of observations is 272 (136 subjects times two observations per subject).

of this comparison are provided in Panel C, where the P-Scores for students who did not plagiarize at all, those who plagiarized only at the beginning or the end of the semester, and those who plagiarized both at the beginning and the end of the semester are compared.

Panel A of Table 2 shows that the average proportion of the overall text plagiarized at the beginning of the semester was 8.26 percent. In comparison the average proportion of text plagiarized at the end of the semester was 13.86 percent, which was significantly more than the beginning (t-statistic = 3.25, p = 0.001). This result is consistent with that reported in the multivariate test of Model (1). Also, the matched-pair t-statistic results in Panel A indicate that the P-score was stable over the semester. Specifically, the mean P-score of 36.12 at the end of the semester was not significantly different from that of the beginning (36.15). This result provides support for the test/retest reliability of the P-score during the semester.

Panel B of Table 2 presents the number of observations out of the total of 272 (136 subjects × 2) who plagiarized and those who did not. The panel also provides the corresponding P-scores. We used zero tolerance as the criterion to classify students between those who plagiarized and those who did not. The data show that in 61 percent of observations, students plagiarized. Only 39 percent of the observations did not indicate plagiarism, and the P-score of those who plagiarized (34.70) was significantly lower than the 38.42 for those who did not plagiarize (t-statistic = 2.20, p = 0.029).

As Panel C of Table 2 shows, while 30 students did not plagiarize at all, 61 students plagiarized both at the beginning and the end of the semester. As presented in the last column of Panel C, the P-scores of neither group changed over the course of the semester (i.e., the Beg-End matched-pair t-statistics are not significant). However, consistent with H1, the P-scores of those who did not plagiarize were significantly higher than those who plagiarized both at the beginning (40.57 versus 33.30) and the end (39.46 versus 32.59) of the semester. The two-sample t-test (not tabulated) indicates that these differences are highly significant at 0.018 and 0.026 levels, respectively.

As expected from the multivariate results, the P-scores of the students who plagiarized once, either at the beginning (n = 15) or the end (n = 30) of the semester, were generally between the P-scores of those who did not plagiarize at all and those who engaged in plagiarism both at the beginning (F-statistic = 2.37, p = 0.074) and the end (F-statistic = 3.13, p = 0.028) of the semester. An exception is that the average end-of-semester P-score of those who plagiarized at the end (40.04) was among the highest, and higher than their beginning P-score of 36.44. The two-tailed matched-pair t-test indicated marginal significance (t-statistic = 1.87, p = 0.072) for the difference in these P-scores.

This unexpected finding shows that while these students did not plagiarize at the beginning of the semester, and also improved their P-scores during the course of the semester, they nevertheless engaged in plagiarism at the end of the semester. With respect to the multivariate results that show a significant Beg-End effect, this result may be due to the increased pressure students experience at the end of the semester as compared with the beginning. Consistent with this expectation, we also find that students who plagiarized both at the beginning and the end of the semester plagiarized more at the end (24.48 percent) than the beginning (16.88 percent), and this difference was statistically significant (one-tailed matched-pair t-statistic, not tabulated = 2.41, p = 0.009).

Sensitivity Analysis

Because Ponemon (1993) and Bay and Greenberg (2001) found a quadratic relationship between moral reasoning and unethical behavior by accounting students, we investigate this possibility in our study. Because the overall median of the P-score in our study is 35.00

(with a low of 11.67 and a high of 81.67), we use 30.01–40.00 as a medium level (n = 76), 30.00 or lower as low (n = 98) and 40.01 and higher as high (n = 98) P-score, and then use analysis of variance to investigate the differences in plagiarism based on these three categories of the P-score. Consistent with the multivariate results, we find an inverse linear relationship between plagiarism and the P-score. Specifically, the low level of the P-score is associated with the highest level of plagiarism (mean = 15.16 percent), while the medium P-score is associated with medium levels of plagiarism (mean = 9.63 percent) and high P-score is associated with low levels of plagiarism (mean = 8.07 percent). This relationship is statistically significant (F-statistic = 3.90, p = 0.021).

Ponemon (1993) and Bay and Greenberg (2001) analyzed their data for the possibility of a gender effect. While Ponemon's (1993) data indicated no significant gender effect, Bay and Greenberg's (2001) results appeared to be primarily driven by the behavior of male subjects. Female subjects showed an unexpectedly negative relationship between moral reasoning and ethical behavior. Specifically, they had a monotonically decreasing level of ethical behavior as the P-score increased. We do not find a significant gender effect. Specifically, we find the highest level of plagiarism (14.09 percent for males and 16.07 for females) to be associated with low P-scores, the medium level of plagiarism (8.30 percent for males and 10.71 for females) to be associated with medium P-scores, and the lowest level of plagiarism (6.84 percent for males and 8.82 percent for females) to be associated with high P-scores. Thus, our results are inconsistent with the evidence of a quadratic relationship in Ponemon (1993) and Bay and Greenberg's (2001) studies. We note that our sample size of 136 students with 272 observations is larger than the 126 subjects in Ponemon (1993) and 45 in Bay and Greenberg (2001).

SUMMARY AND IMPLICATIONS

We investigated the relationship between students' degree of plagiarism on assigned term papers and their level of moral reasoning as measured by the DIT P-score. Our findings show that, on average, students had P-scores of 36.14 and plagiarized 11.06 percent of their papers. The most significant finding of our study is that moral reasoning is inversely and significantly correlated with plagiarism. We also find plagiarism to be significantly greater at the end of the semester than the beginning and inversely related to GPA. Because graduate students' GPAs were higher than undergraduate students (3.58 versus 3.21), the latter finding indicates that, overall, graduate students' proportion of text plagiarized is less than undergraduate students (8.99 percent versus 13.85).

The finding indicating greater degree of student plagiarism at the end of the semester than the beginning is interesting in the sense that it may be the result of students experiencing increased pressure at the end of the semester. In particular, students who did not plagiarize at the beginning of the semester, but did so at the end of the semester, had P-scores that were actually higher at the end of the semester than the beginning. For these students, pressure may have particularly contributed to committing plagiarism. However, we did not use an elaborate methodology to manipulate levels of pressure to directly investigate its effect on plagiarism. Future studies are needed to directly investigate this relationship.

A limitation of our study may be the definition of plagiarism we used. While we adopted what we considered to be a generic definition, the literature suggests that students may define plagiarism differently than we do. For example, in a study of British psychology students, Newstead et al. (1996, 232) reported that plagiarism such as ''copying material for coursework from a book or other publication without acknowledging the source'' was rated only moderately as a cheating behavior. This evidence indicates that there may be a

need for educating students on exactly what constitutes plagiarism, and how serious it is as a cheating behavior. Accounting faculty might benefit from future research investigating whether such training has significant effects on reducing the level of plagiarism in various courses.

Another limitation of our study relates to the DIT P-score. The relationship between moral reasoning and ethical behavior depends on the effectiveness of the DIT P-score as a predictor of ethical behavior. Critics (e.g., Marnburg 2001) argue that the DIT P-score may be limited as a predictor of ethical behavior, and the mixed results of limited studies in accounting are consistent with this argument. Specifically, while our results show a significant inverse relationship between the DIT P-score and students' degree of plagiarism, other empirical studies (Ponemon 1993; Bay and Greenberg 2001; West et al. 2004) of the relationship of ethical reasoning and behavior in accounting have produced mixed results. The relatively large sample size in our study provides a measure of comfort over prior studies with smaller sample sizes, and suggests opportunities for more refined replication studies with larger sample sizes to investigate this relationship further.

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