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An Examination of the Role of Attitudinal Characteristics and Motivation on the Cheating Behavior of Business Students

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This study examines cheating behaviors among 422 business students at two public Association to Advance Collegiate Schools of Business–accredited business schools. Specifically, we examined the simultaneous influence of attitudinal characteristics and motivational factors on (a) reported prior cheating behavior, (b) the tendency to neutralize cheating behaviors, and (c) likelihood of future cheating. In addition, we examined the impact of in-class deterrents on neutralization of cheating behaviors and the likelihood of future cheating. We also directly tested potential mediating effects of neutralization on cheating behavior.

Using structural equations modeling procedures, we conducted an assessment of the validity of a modified version of the K. J. Smith, Davy, Rosenberg, and Haight (2002) model of cheating behavior and its antecedents. The modified model included motivation as a potential predictor of cheating behavior. Results supported the differentiation of the theoretical constructs within the specified process model. Furthermore, tests of the aforementioned theoretical model indicated a significant positive relation between extrinsic motivation and prior cheating and a significant negative re-

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lation between both intrinsic motivation and academic performance, and prior cheating. Finally, prior cheating had a significant positive relation, whereas deterrents had a significant negative relation to likelihood of future cheating.

Keywords: cheating, motivation, attitudinal characteristics

A recent survey of nearly 50,000 undergraduate students on more than 60 campuses across the United States (McCabe, 2005) reveals that 70% admitted to some form of cheating. Among the respondents, one fourth admitted to serious test cheating in the past year, and half admitted to cheating on one or more written assignments. Furthermore, longitudinal comparisons reported significant increases in cheating on exams and nonsanctioned student collaboration. This report corroborates earlier studies that report an increased incidence of cheating among college students (Cizek, 1999; Davis, Grover, Becker, & McGregor, 1992) and a significant percentage of students who engage in some form of cheating on tests, quizzes, and assignments (Diekhoff et al., 1996).

The reported incidence of cheating among business students is particularly disturbing. Reports by Baird (1980) and McCabe and Trevino (1995) indicate that business students self-report cheating more than do their nonbusiness peers. Crown and Spiller (1998, p. 690) noted that business students seem to be more tolerant of unethical behavior than their nonbusiness peers. Moreover, McCabe (as cited in Timiraos, 2002) stated that

> Studies have found that business students are more prone to cheating. From what I've seen, a common mentality among business students is that "the important thing is to get the job done regardless of how you do it." The business mentality that the end result should be achieved by all necessary means often leads students to justify cheating.

The obvious concern is that these unethical behaviors will spill over into the workplace. This concern is justified given Ethical Research Center findings that one third of workers report regularly observing ethical misconduct in the workplace (Thompson, 2000). This is not too surprising in that prior research has shown that those who have cheated in the past are more like to cheat again (Davis & Ludvigson, 1995; Nonis & Swift, 1998) and that there is a link between cheating in college and subsequent dishonest behavior in the workplace (Crown & Spiller, 1998; Sims, 1993).

Jordan (2001) notes that the preponderance of academic dishonesty research over the past 3 decades has focused primarily on determining who cheats and how they can be stopped. However, attempts to examine the incidence of cheating and/or develop profiles of typical cheaters by examining personal characteristics such as age, gender, class standing, etc., have produced mixed results (e.g., see Whitley, 1998). Even those descriptive data that appear to be reliable across settings do not suggest viable intervention strategies, and thus a divide has developed

between our knowledge about the incidence of cheating and cheater profiles and what institutions do to reduce cheating occurrences (Jordan, 2001). Jordan also posits that more powerful intervention strategies may ultimately result from studies that examine "what factors motivate and sustain student cheating and can academic institutions influence these factors" (p. 234).

Motivation is of growing interest to researchers studying cheating behavior. Baker (2004, p. 189) noted that the concept of motivation can be addressed from various perspectives, but the self-determination theory work of Deci and Ryan (1985, 1991) is particularly relevant in the educational domain. Self-determination theory posits that behavior can be intrinsically motivated, extrinsically motivated, or amotivated. Conceptually Deci and Ryan (2000) view motivation as existing on a continuum anchored on the left by amotivation, followed by extrinsic motivation, and anchored on the right by intrinsic motivation.

Amotivation represents behaviors that are neither extrinsically nor intrinsically motivated. Fortier, Vallerand, and Guay (1995) argued that this construct is most similar to "learned helplessness" (Abramson, Seligman, & Teasdale, 1978, as cited in Fortier et al., 1995) in that the behaviors are not controlled by the person and as such they are nonregulated and nonintentional.

Extrinsic motivation is considered increasingly self-determined as it moves through a set of ordered categories from left to right (Deci & Ryan, 2000). These motivational categories are termed *external regulation, introjected regulation, identified regulation,* and *integrated regulation.* Behaviors that are externally regulated are intentionally directed at either obtaining a positive outcome (e.g., a test grade) or avoiding a negative outcome (e.g., a missed deadline). Of the four types of extrinsic motivation, external regulation is most similar to the concept of "extrinsic motivation" present in the literature (Fortier et al., 1995). Those that are classified as introjected are behaviors that are regulated internally. Rather than studying because of looming threat, students will study in an effort to avoid a sense of guilt should they not study. Introjected regulation is similar to external regulation because in neither case does the student attribute personal value to the behaviors, and it is different because introjected regulation represents a more self-determined form of control. Identified regulation entails one attributing personal value to a behavior while still extrinsically motivated. Finally, integrated regulation, although still a subtype of extrinsic motivation, is characterized by one fully endorsing the activity. Although similar to intrinsic motivation, integrated regulation is characterized by the activity being important for a valued outcome rather than pure interest in the activity for its own sake (Deci, Vallerand, Pelletier, & Ryan, 1991, as cited in Fairchild, Horst, Finney, & Barron, 2005).

Intrinsic motivation is the "drive to pursue an activity simply for the pleasure or satisfaction derived from it" (Fairchild et al., 2005, p. 332). Deci and Ryan (1985, 1991) conceptualized intrinsic motivation as a unified construct derived from the presumed innate psychological needs of competence and self-determination, that

might nevertheless be differentiated into more specific areas (Vallerand et al., 1992). Based on a review of the literature on motivation and educational outcomes, Vallerand et al. broke down this construct into three self-explanatory types of intrinsic motivation: (a) intrinsic motivation to accomplish (IMTA), (b) intrinsic motivation to experience stimulation, and (c) intrinsic motivation to know (IMTK). In the literature on motivation and educational outcomes, IMTK is the most frequently studied factor. Vallerand et al. argued that IMTK is closely related to constructs such as exploration, learning goals, and the intrinsic motivation to learn (Gottfried, 1985; Harter, 1981, as cited by Vallerand et al., 1992). Beyond the domain of education, Vallerand et al. argued that IMTK relates to the search for meaning and the need to know and understand. Behaviors that are motivated by IMTK can be understood as assisting one in the search for understanding or the fulfillment of the desire to acquire knowledge.

PURPOSE

The purpose of this study is to examine cheating behavior among students in business courses. Specifically, it will examine the influence of a number of attitudinal factors on prior cheating and likelihood of cheating behavior using structural equations modeling analysis. To facilitate these analyses, it uses a modified version of a model developed and tested by K. J. Smith et al. (2002), which simultaneously examined the influence of demographic and attitudinal factors on reported prior cheating and likelihood of cheating among accounting majors. However, our context is somewhat different from the referent study. First, this study concentrates on examining the influence of attitudinal, as opposed to demographic, factors on the above-mentioned cheating metrics in recognition that (a) prior research on the latter has produced inconsistent results and (b) even demographic data that are consistent across studies do not suggest particular intervention strategies (Jordan, 2001, p. 234). Second, this study expands on the referent work by addressing the issue of motivation as a potential predictor of cheating behavior. Several studies have found a relationship between motivation and cheating (see Jordan, 2001, p. 235, for a review), but none have done so within the context of a dynamic process model such as that to be examined herein. Figure 1 presents the theoretical model to be tested.

As discussed above, several studies have examined the relationship between motivation and cheating behavior. As Jordan (2001, p. 235) notes, these studies typically differentiate between intrinsic (mastery) goals, extrinsic goals, and performance goals, and research indicates that students who have a desire to master subject matter are more likely to be able to demonstrate that knowledge, reducing any need to cheat (Baker, 2004, p. 190). Those who are motivated to obtain valued outcomes or to avoid negative outcomes (external motivation) will see the poten-

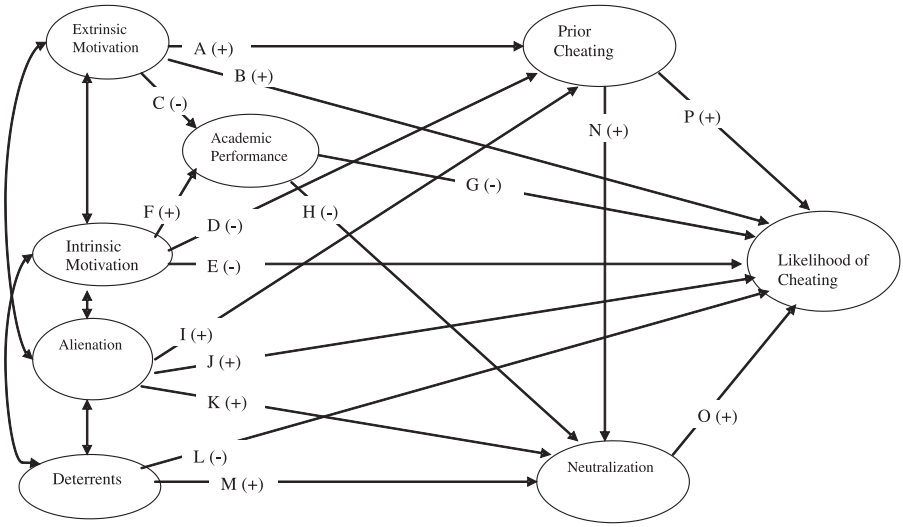

FIGURE 1 Theoretical model. *Note*: Paths with double-headed arrows represent covariances between independent latent variables.

tial for gain by engaging in unethical behaviors. At the same time, those motivated by a desire to learn or to engage in an activity (intrinsic motivation) are not helped in achieving these desires by engaging in unethical behaviors such as cheating. Although intrinsic motivation has been found to contribute positively to learning, there is evidence that extrinsic motivation impairs learning, resulting in poorer performance (Baker 2004, p. 190), increasing the need to cheat. Thus, Paths A and B predict that extrinsic motivation will have significant positive relations with the two cheating constructs, whereas Path C predicts a significant negative relation to academic performance. Conversely, Paths D and E predict significant negative relationships between intrinsic motivation and the two cheating constructs, whereas Path F predicts a significant positive relation to academic performance. In turn, the literature is replete with studies that document a negative relation between academic performance and cheating proclivities (see Crown & Spiller, 1998, pp. 686–687; Whitley, 1998, pp. 242–243). Thus, Path G posits that there is a negative relation between academic performance and likelihood of cheating.

Neutralization and alienation are two of the most often-cited attitudinal variables that potentially influence academic dishonesty (K. J. Smith et al., 2002). Sykes and Matza (1957) defined *neutralization* as the rationalizations and justifications for unethical/dishonest behavior used to deflect self-disapproval or disapproval from others. Those who neutralize profess to support a societal norm but rationalize to permit them to violate that norm. Nonis and Swift (1998, p. 190)

conjecture that this allows them to cheat without feeling that they are inherently dishonest, thereby eliminating a sense of guilt for the dishonest action, and report that students use neutralization to rationalize academic dishonesty. If one is not engaging in unethical behavior, there is no need to develop rationalizations to neutralize any sense of disapproval by oneself or others. Often-cited excuses for cheating involve the difficulty of the subject matter and time constraints (Daniel, Blount, & Ferrell, 1991). K. J. Smith et al. (2002) argued that individuals with less of a need to cheat have less of a reason to neutralize, supporting the proposition that those who perform better are less likely to engage in neutralizing behaviors (Path H).

Alienation is the state of psychological estrangement from a culture, which includes feelings of social isolation, powerlessness, and the absence of norms (Seeman, 1991), and is often manifested by deviant behavior. Students who feel more alienated are more likely to cheat (see Whitley, 1998, p. 250, for a review). Given cheating represents deviant behavior, Paths I and J predict that alienation will have significant positive effects on the cheating constructs. Because alienation tends to result in deviant behaviors, it is reasonable to expect increases in alienation will create a greater need to engage in neutralizing behaviors. K. J. Smith et al. (2002) provided empirical evidence indicating a positive relation between alienation and neutralization supporting the inclusion of Path K.

The role of in-class deterrents in reducing cheating behaviors is well documented (see Crown & Spiller, 1998, pp. 693–694; Nonis & Swift, 1998, p. 190). Typical in-class cheating deterrents include announcing penalties for cheating prior to exams, giving essay exams, monitoring students vigilantly during exams, and giving alternate forms of the exam to adjacent students (see Barnett & Dalton, 1981; Hill & Kochendorfer, 1969; Leming, 1980; Singhal & Johnson, 1983; Tittle & Rowe, 1973; Vitro & Schoer, 1972). K. J. Smith et al. (2002) noted that there has been debate on the relative effectiveness of reducing cheating by implementing deterrents as compared to moral development education (Davis & Ludvigson, 1995; Kohlberg, 1996; Leming, 1978). However, research documents the efficacy of various deterrents in reducing cheating behavior (for a review, see Crown & Spiller, 1998, pp. 693–694). Therefore, Path L predicts deterrents to have a significant negative influence on the likelihood of cheating. Moreover, it has been argued (K. J. Smith et al., 2002, p. 59) that deterrents have a significant positive influence on neutralization given the logical expectation that one will engage in a higher degree of rationalization for future cheating in the presence of deterrents. The existence of deterrents serves to emphasize that cheating is wrong, thus requiring greater levels of neutralization (Path M).

As discussed above, neutralization appears to be a means of justifying dishonest behavior (K. J. Smith et al., 2002, p. 49), thus prompting the prediction that there is a positive relation between prior cheating and neutralization (Path N). Furthermore, as K. J. Smith et al. (2002, p. 59) found, neutralization can be used as a rationalization for future behavior, thus having a positive influence on likelihood of

cheating and a mediating effect on the relation between prior cheating and likelihood of cheating (Path O).

To reiterate, prior cheating is a good predictor of future cheating (Davis & Ludvigson, 1995; Nonis & Swift, 1998). Thus, Path P predicts a positive relation between prior cheating and likelihood of cheating.

This study's posited relations have theoretical and empirical support in prior research. However, this study makes a twofold contribution to the cheating literature by expanding the work of K. J. Smith et al. (2002) to include motivation as a potential predictor of cheating behavior within a dynamic process model. First, the findings to date dealing with the unmediated effect of motivational factors on cheating behavior may have been subject to misspecification bias. This bias results from the omission of key variables that, in this case, might link motivation factors and cheating behaviors: the introduction of key mediating variables that are related to these constructs may reduce misspecification bias and enhance the explanatory power of motivation factors on outcome variables. Second, prior research that has examined the influence of motivation factors on cheating has primarily used correlation or multiple regression analyses as the means of analysis. As Williams and Hazer (1986) noted, these models are susceptible to the biasing effects of method variance and random measurement error, the effects of which can be to "attenuate estimates of coefficients, make the estimate of zero coefficients non-zero, or yield coefficients with the wrong sign" (p. 221). That is, the reported path coefficients and their significance using these methods may have been over- or underestimated. However, this study uses latent variables with multiple indicators to test the hypothesized relationships depicted in Figure 1. This is the approach strongly advocated for addressing the measurement error problems associated with the aforementioned traditional techniques used to study these relationships (Anderson & Gerbing, 1988; Bentler, 1995; Bollen, 1989; Byrne, 1994;). Therefore, the results of this study's simultaneous estimate of the direct effects of the predictor constructs, as well as the direct and mediating effect of academic performance, prior cheating and neutralization, should provide a more reliable estimate of each predictor's contribution to students' future cheating intentions.

METHODS

Sample

Business students from introductory economics classes at two Association to Advance Collegiate Schools of Business–accredited regional comprehensive universities, one on the East Coast and one in the Midwest, provided data for this study. Questionnaires were administered in classes, in the instructors' absence, and with the assurance of anonymity. This convenience sample generated 422 usable responses. Age ranged from 18 to 40 years, with a median of 20 (μ = 21.33, σ =

3.22), and more than 80% between the ages of 19 and 22 years. Nearly 40% were sophomores, 32% were juniors, and 22% were seniors. Male and female students composed 55% and 45% of the sample, respectively. Three hundred eighty-six (92%) of the respondents reported that they were unmarried.

Measures

To facilitate our assessment of the modified K. J. Smith et al. (2002) cheating model, we used their multiple indicator measurement instrument and confirmatory factor-analytic techniques. The confirmatory factor analyses were necessary to confirm the factor structure for the succeeding structural model tests. The measures taken were:

1. *Academic Performance.*[1] Each student's self-reported score on a) how he or she rated his or her overall academic performance on a 5-point scale ranging from 1 (*very poor*) to 5 (*very good*), and (b) how he or she rated his or her own academic performance as compared to that of their peers (perceived academic performance) on a 5-point scale ranging from 1 (*very poor*) to 5 (*very good*) (Nonis & Swift, 1998).
2. *In-Class Cheating Deterrents.* Twelve items were adapted from past studies (Davis et al., 1992; Singhal & Johnson, 1983) assessing the observed frequency of implemented in-class cheating deterrents. Students were prompted, "Think of all the exams you have taken in college. How frequently have you seen the following implemented by the instructor?" They then rated how often they observed each of the 12 deterrents on a 5-point Likert type scale that ranged from *never* to *very often*.
3. *Alienation.* An 18-item adaptation of Ray's (1982) 20-item General Alienation Scale was used. Students indicated their agreement with each of the statements on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).
4. *Neutralization.* This scale was developed by Ball (1966) and later utilized by Haines, Diekhoff, LaBeff, and Clark (1986). Students were asked to "Please indicate the extent to which you agree that a student is justified in cheating in each of the following circumstances." Responses were made on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) for each of the 11 items.
5. *Prior Cheating*. Twelve items adapted from Tom and Borin (1988) were used. Students were prompted, "Think of all the exams you have taken in

[1]Self-reported academic performance was used as a surrogate measure for grade point average as the data collection design (i.e., student anonymity) precluded the collection of objective GPA information on the sample.

college. How often have you participated in each of the activities during exams?" They then rated the frequency with which they engaged in each of the 12 cheating behaviors on a 5-point Likert type scale ranging from *never* to *very often*.

6. *Likelihood of Cheating.* Twelve items using the in-class cheating deterrents noted in Item 2 were used. These items were prefaced with, "You are taking a course that is difficult but important and there is a possibility that you may or may not make the desired grade if you do not cheat. Please indicate how likely or unlikely you are to cheat under the following conditions." Responses were made on the following scale: 1 (*very unlikely to cheat*), 2 (*unlikely to cheat*), 3 (*neither unlikely nor likely to cheat*), 4 (*likely to cheat*), and 5 (*very likely to cheat*).

K. J. Smith et al. (2002, pp. 53–54) illustrated the factor loadings for the Deterrents, Alienation, Neutralization, Prior Cheating, and Likelihood of Cheating scales as adopted for this study. Moreover they reported favorable results from testing the construct and discriminant validity of these six referenced measures (p. 56), thus prompting their adoption for the present study.

The Academic Motivation Scale (Vallerand et al., 1992), consisting of seven subscales, was used to obtain measures of extrinsic and intrinsic motivation. Each subscale represents a differential state along the motivational continuum ranging from amotivation to intrinsic motivation per Deci and Ryan's (2000) self-determination theory continuum. Recent evidence (Fairchild et al., 2005) does not fully support the scale's simplex structure along the self-determination theory continuum. However, Fairchild et al. reported that the relationships between the Extrinsic Motivation–External Regulation (EMER) subscale and the other subscales most clearly displayed a simplex pattern (p. 347). For that reason, coupled with the fact that it is the motivational state most distant from intrinsic motivation along the continuum, it was selected as this study's extrinsic motivation measure.

The selection of the IMTK subscale as the intrinsic motivation measure for this study deserves further elaboration. Fairchild et al. (2005, p. 346) noted that the three measured states of intrinsic motivation on the Academic Motivation Scale do not follow a continuum and are simply subtypes of intrinsic motivation. Thus, unlike the EMER subscale for extrinsic motivation, there was no equivalent anchor measure among the intrinsic motivation subscales. However, among the three intrinsic motivation subscales, IMTK appears to be the definitional equivalent to that of mastery motivation, i.e., the desire to learn or master a body of information for its own sake. Mastery motivation has been attributed to higher performance (Baker, 2004, p. 190) and, as reported above, lower cheating levels. In the context of this study, if a relationship exists between intrinsic motivation and cheating, we are assuming it will be most clearly revealed in the behaviors that are perceived to be directed at knowledge and learning, rather than those of accomplishment or stimulation. Empirically,

Fairchild et al. (2005) found (a) the IMTK subscale to have the highest positive correlation with the intrinsic motivation scale on the Work Preference Inventory (Amabile, Hill, Hennessey, & Tighe, 1994), an instrument designed to assess one's overall intrinsic versus extrinsic motivation for academic work (p. 351); and (b) the IMTK to tie (with IMTA) for the highest correlation with the Mastery Orientation subscale of the Work and Family Orientation Scale (Spence & Helmreich 1983), a scale designed to measure why individuals demonstrate various levels of achievement motivation (p. 349). Thus, the selection of the IMTK subscale as the intrinsic motivation measure for this study has both conceptual and empirical support.

The following motivation measures were used:

1. *Extrinsic Motivation*. The four-item EMER subscale of the Academic Motivation Scale (Vallerand et al., 1992). For each item, students are asked to "indicate the extent to which each response is similar to your own." Response were made on a 5-point Likert scale ranging from 1 (*does not correspond at all*) to 5 (*corresponds exactly*).
2. *Intrinsic Motivation*. The four-item IMTK subscale of Vallerand et al.'s (1992) Academic Motivation Scale. Response options were identical to those on the EMER subscale.

Procedure

We independently tested the construct and discriminant validity among the constructs represented by the measures by conducting a confirmatory factor analysis on the sample data. These tests determined whether the above-referenced factors would load on their respective underlying theoretical constructs with our data. The elliptical estimation procedure in EQS Version 6.1 (Multivariate Software, Inc., Encino, CA) was used to test the complete measurement model. Anderson and Gerbing (1988) prescribed that assessment of the measurement model is a critical first step that must be carried out before testing structural linkages. The items comprising each latent variable to be tested along with the mean score for each predicted latent variable appear in Table 1.

We next conducted EQS structural modeling tests to evaluate the Figure 1 theoretical model. Then, based on the output of Wald tests applied to the full theoretical model (Bentler, 1995), we dropped statistically nonsignificant parameters from the model.[2] Finally, we tested an a priori sequence of nested models against the re-

[2]The Wald test is a post hoc procedure that capitalizes on particular sample data, that is, it is not theory driven. To determine whether the relations uncovered in this study hold, replication with another sample is needed.

TABLE 1
Predicted Multi-Item Factors and Scale Items
for Measurement Model Tests

1. Academic Performance (μ = 3.445)
   AP Absolute performance on 5-point scale
   PAP Relative performance to other students on a 5-point scale
2. Deterrents
   D1 Admonitions (= 3.222)
      DET 2 Request that students do not cheat
      DET 1 Announce penalties for cheating prior to the test
      DET 3 Encourage students to report cheating incidents during exam
      DET 11 Announce that instructor is watching for cheaters but not detection method
   D2 Monitoring (μ = 2.816)
      DET 10 Constantly watch students during the exam
      DET 8 Walk up and down isles throughout the exam
      DET 12 Ask students to put all books and personal belongings away
      DET 7 Distribute different forms of the same test
      DET 9 Make sure there is an empty seat between each student
   D3 Format (μ = 2.239)
      DET 5 Have someone other than instructor proctor the exam
      DET 6 Give all essay-type exams
      DET 4 Assign seats to students
      3. Alienation
   A1 Political Alienation (μ = 3.128)
      AL 11 Most public officials are not really interested in the problems of the average person
      AL 9 For the most part, the government serves the interests of a few organized groups, such as business and labor, and isn't very concerned about the needs of people like myself
      AL 12 It is difficult for people like myself to have much influence on public affairs
      AL 10 In spite of what some people say, the lot of the average person is getting worse
   A2 Social Affiliation (μ = 2.709)
      AL 17 Our community is an easy and pleasant place in which to live (R^a)
      AL 18 We seem to live in a pretty rational and well-ordered world (R^a)
      AL 16 In this society most people can find contentment (R^a)
      AL 3 Human nature is fundamentally cooperative (R^a)
   A3 Social Alienation (μ = 2.748)
      AL 2 These days one doesn't really know whom he can count on
      AL 1 Beneath the polite and smiling surface of a man's nature is a bottomless pit of evil
      AL 14 No one is going to care much what happens to you, when you get right down to it
   A4 Social Optimism (μ = 3.711)
      AL 8 Delinquency is not as serious a problem as the newspapers play it up to be (R^a)
      AL 7 Considering everything that is going on these days, things look brighter for the younger generation (R^a)
      AL 6 The decisions of our courts of justice are as fair to a poor man as a wealthy man (R^a)
4. Neutralization
   N1 Difficulty (μ = 1.969)
      NEUT 2 He is in danger of losing a scholarship due to low grades.
      NEUT 3 One doesn't have time to study because he/she is working to pay for school
      NEUT 1 The course material is too hard. Despite study effort, he cannot understand material
      NEUT 5 The instructor acts like his/her course is the only one that the student is taking, and too much material is assigned

(continued)

TABLE 1 (*Continued)*

NEUT 11 The course is required for his degree, but the information seems useless. He is only interested in the grade.
NEUT 4 The instructor doesn't seem to care if he learns to material.
N2 Access (μ = 1.747)
NEUT 7 Everyone else in the room seems to be cheating
NEUT 6 His cheating isn't hurting anyone.
NEUT 8 Nearby students make no attempt to cover their answers, and he can see their answers
NEUT 9 The student's friend asks him to help him/her cheat and he can't say no
NEUT 10 The instructor leaves the room to talk to someone during the test.
5. Prior cheating
PC1 Overt (μ = 1.616)
CF 12 Took a test for someone else
CF 10 Exchanged papers (answers) during an exam
CF 8 Gave a false reason for missing an exam
CF 9 Changed answers to an exam and submitted it for grading
PC2 Covert (μ = 1.386)
CF 1 Looked at another student's test during an exam
CF 2 Allowed another student to look at your paper during an exam
CF 4 Gave answers to someone during an exam
CF 3 Obtained a copy of the test prior to taking it in class
6. Cheating Likelihood[b]
CL 1 (μ = 1.710)
C 9 Make sure that there is an empty seat between each student
C 2 Request that students do not cheat
C 4 Assign seats to students
C 8 Walk up and down the isles during the exam
C 11 Announce that the instructor is watching for cheaters but not announce the method of detection
C 1 Announce the penalties for cheating prior to the test
CL 2 (μ = 1.742)
C 7 Distribute different forms of the same test
C 10 Constantly watch the students during the exam
C 12 Ask students to put all books and personal belongings away
C 3 Encourage students to report cheating incidents during an exam
C 6 Give all essay-type exams
C 5 Have someone other than the instructor proctor the exam
7. Intrinsic Motivation to Know (μ = 3.339)
IMTK1 Because I experience pleasure and satisfaction while learning new things
IMTK2 For the pleasure I experience when I discover new things never seen before
IMTK3 For the pleasure that I experience in broadening my knowledge about subjects that appeal to me
IMTK4 Because my studies allow me to continue to learn about many things that interest me.
8. Extrinsic Motivation (External Regulation) (μ = 4.136)
ER1 Because with only a high-school degree I would not find a high-paying job later on.
ER2 In order to obtain a more prestigious job later on
ER3 Because I want to have "the good life" later on
ER4 In order to have a better salary later on

[a]Indicates that item was reverse scored. [b]The items on this scale loaded on a single factor. To facilitate the subsequent measurement model tests, the scale items were combined as shown onto two composite indicator variables using a procedure described by Bentler and Wu (1995, pp. 201–202).

duced theoretical model. The first sequential model constrained the path from Neutralization to Likelihood of Cheating to 0. The second sequential model constrained the path from Intrinsic Motivation to Prior Cheating to 0. The third sequential model constrained the path from Intrinsic Motivation to Academic Performance to 0. The fourth model constrained the path from Prior Cheating to Likelihood of Cheating to 0. The fifth model constrained the path from Deterrents to Likelihood of Cheating to 0. Finally, the sixth sequential model constrained the path from Extrinsic Motivation to Prior Cheating to 0. This nested sequence of models provided direct tests of the hypotheses that likelihood of cheating is related to neutralization, prior cheating, and deterrents; prior cheating is related to intrinsic motivation and extrinsic motivation; and deterrents have a significant role in discouraging future cheating. The nested sequence also allows for direct tests of the mediating effects of prior cheating between motivation and future cheating and the mediating effects of academic performance between motivation and likelihood of cheating and between motivation and neutralization.

We assessed model fit using a variety of fit measures described by Bentler (1990a). These include the goodness-of-fit chi-square, the normed fit index, the nonnormed fit index, the comparative fit index (CFI), the LISREL goodness of fit index, and the root mean square error of approximation. We assessed model fit using numerous measures, as there is no one definitive index of model fit (Fogerty, Singh, Rhoads, & Moore, 2000).

We used sequential chi-square difference tests and CFI difference tests to compare the nested structural models (Anderson & Gerbing, 1988). The sequential chi-square difference test generates a statistic representing the chi-square difference between two alternative models relative to the difference in degrees of freedom between the two models. A significant chi-square difference value indicates a significant loss of fit by constraining a path to 0, thus indicating that the path should be retained in the model (James, Mulaik, & Brett, 1982). A nonsignificant value indicates acceptance of the more parsimonious (i.e., more constrained) of the nested models. CFI differences between models exceeding .01 also indicate loss of fit in a nested model.

RESULTS

Measurement model tests indicated that the path coefficients from the latent constructs to their manifest indicators were significant ($p < .05$). The first test examined the fit of the full measurement model, i.e., the model that allowed all factors to covary with one another. The second test examined the reduced model in which statistically nonsignificant covariances were dropped. The results are presented in Table 2.

TABLE 2
Summary of Measurement Model Goodness of Fit Tests

Measure	*Full Model Values*	*Reduced Model Values*[a]	*Standard for Acceptance*
Chi-square	369.049	396.047	NA
df	202.000	218.000	NA
p	< .001	< .001	> .050
Chi-square/*df*	1.827	1.817	< 2.000
NFI	.918	.912	> .900
NNFI	.951	.952	> .900
CFI	.961	.958	> .900
LISREL GFI	.928	.922	> .900
RMSEA	.044	.044	< .100
90% CI	(0.037–0.051)	(0.037–0.051)	

Note. NFI = normed fit index; NNFI = nonnormed fit index; CFI = comparative fit index; GFI = goodness of fit index; RMSEA = root mean square error of approximation; CI = confidence interval.

[a]The reduced measurement model reflects the release of 16 factor covariances as determined by examination of the multivariate Wald test output from the test of the full model. The dropped covariances were 1) Deterrents – Alienation; 2) Deterrents – Performance; 3) Deterrents – Neutralization; 4) Deterrents – Prior Cheating; 5) Alienation – Prior Cheating; 6) Alienation – Cheating Likelihood; 7) Deterrents – Internal Motivation; 8) Alienation – Performance; 9) Alienation – Internal Motivation; 10) Alienation – Neutralization; 11) Prior Cheating – Internal Motivation; 12) Neutralization – Performance; 13) Neutralization – Internal Motivation; 14) Cheating Likelihood – Performance; 15) Cheating Likelihood – Internal Motivation; and (16) External Motivation – Performance. By dropping these covariances, the degrees of freedom increased from 202 for the full model to 218 for the reduced model.

The goodness-of-fit summary for the full model indicates that the data provide a good fit to the model. All of the fit indexes (normed fit index, nonnormed fit index, CFI, the LISREL goodness of fit index, and the root mean square error of approximation) are above the .90 minimum prescribed by Bentler (1990b) for well-fitting models. The root mean square error of approximation of .044 was well below the .1 upper bound for acceptable model fit specified by Fogerty et al. (2000, p. 48). Also, the chi-square/*df* ratio of 1.823 is below the threshold of 2.0 as prescribed by Wheaton, Muthen, Alwin, and Summers (1977).

As Table 2 notes, the multivariate Wald test output from the test of the full model indicated that 16 nonsignificant covariances could be dropped from the model. The goodness-of-fit indexes for the reduced model also indicate that the data provide a good fit to the model. With an acceptable measurement model in place, we then tested the referent cheating model.

Table 3 provides goodness-of-fit statistics for the tests of the theoretical model, reduced theoretical model, and the sequence of nested structural models. Panel A indicates that the full theoretical model adequately reconstructed the observed covariances of the data with the aforementioned indicators of good model fit ex-

ceeding the minimum specifications. The chi-square for this model was 376.097 (*df* = 208). The reduced theoretical model, reflecting the release of statistically nonsignificant parameters, as determined by multivariate Wald test output, also provided a good fit to the data as indicated by the aforementioned fit indexes. As there was no significant loss of fit between the full and reduced models, $\chi^2_{diff}(11) = 10.951$, $p = .447$, the reduced model was used in the subsequent nested model analyses.

Panel B indicates that the model which constrained the path from Neutralization to Likelihood of Cheating to zero, also generated acceptable goodness-of fit statistics, yet this path should remain as indicated by the χ^2_{diff} test result, $\chi^2_{diff}(1) = 2.778$, $p < .05$.

The third model constrained the path from IMTK to Prior Cheating to 0. In this case, the χ^2_{diff} test indicates that this path should remain, $\chi^2_{diff}(1) = 6.972$, $p < .05$. This difference indicates that this path should remain in the model. Each of the four successive constrained models (see Table 3, Panel B) also resulted in a significant loss of fit, thus indicating that the respective constrained paths should also remain in the model.

Figure 2 illustrates the standardized path coefficients for the accepted structural model. There is a significant positive relation between extrinsic motivation and reported prior cheating (.335) and a significant negative relation between intrinsic motivation and reported prior cheating (–.164). Students reporting higher levels of intrinsic motivation also report higher academic performance (.174). Higher academic performance, in turn, is associated with lower reported prior cheating (–.124). Prior Cheating has a significant positive effect on Neutralization (.792) and Likelihood of Cheating (.366). Deterrents have a significant negative influence on Likelihood of Cheating (–.170). Neutralization has a positive influence on Likelihood of Cheating (.212). The remaining hypothesized relationships were not supported.

DISCUSSION

Consistent with the hypotheses, extrinsic and intrinsic motivation had the posited relations with prior cheating, and intrinsic motivation had the predicted relation with academic performance. There was also a negative relation between academic performance and prior cheating. Further, extrinsic motivation had an indirect positive relation (through prior cheating) on likelihood of cheating and neutralization, whereas intrinsic motivation had an indirect negative relation (through prior cheating) on likelihood of cheating and neutralization. These results support the arguments that for those intrinsically motivated (e.g., wanting to learn the material) cheating will not meet their needs and, as a result, they are less likely to engage in those behaviors. And as a result, they have less of a need to engage in neutralizing

TABLE 3
Results of Structural Model Tests

Panel A: Goodness of Fit Summary

Measure	*Full Model Values*	*Reduced Model Values*[a]	*Standard for Acceptance*
Chi-square	376.097	387.048	NA
df	208.000	219.000	NA
p	< .001	< .001	> .050
Chi-square/*df*	1.808	1.767	< 2.000
NFI	.917	.914	> .900
NNFI	.952	.955	> .900
CFI	.961	.961	> .900
LISREL GFI	.926	.924	> .900
RMSEA	.044	.043	< .100
90% CI	(0.037–0.051)	(0.036–0.050)	

Panel B: Nested Model Comparisons[b]

Model	*NFI*	*NNFI*	*CFI*	*GFI*	*RMSEA*[c]	*df*	χ^2	χ^2/df	χ^2_{diff}
1. Reduced Theoretical Model	.914	.955	.961	.924	.043 (± .007)	219	387.048	1.767	
2. Neutralization to Cheating Likelihood	.914	.954	.960	.924	.043 (± .007)	220	389.826	1.771	2.778*
3. Intrinsic Motivation to Prior Cheating	.913	.953	.959	.923	.043 (± .007)	220	394.020	1.791	6.972**
4. Intrinsic Motivation to Academic Performance	.912	.952	.958	.923	.044 (± .007)	220	396.835	1.803	9.787**
5. Prior Cheating to Cheating Likelihood	.912	.952	.958	.922	.044 (± .007)	220	397.996	1.809	10.948***
6. Deterrents to Cheating Likelihood	.912	.952	.958	.923	.044 (± .007)	220	399.782	1.817	12.734***
7. Extrinsic Motivation to Prior Cheating	.908	.947	.954	.920	.046 (± .007)	220	416.968	1.895	29.920***

Note. NFI = normed fit index; NNFI = nonnormed fit index; CFI = comparative fit index; GFI = goodness of fit index; RMSEA = root mean square error of approximation; CI = confidence interval.

[a]The reduced model reflects the release of nonsignificant parameter estimates as determined by examination of the multivariate Wald test output from the test of the full model. The full model test specified covariances among all of the independent factors as depicted in Figure 1. [b]Comparisons to models with designated paths dropped (i.e., constrained to 0). [c]± measures represent the 90% CI for the RMSEA statistic.

*p = .1. **p < .01. ***p < .001.

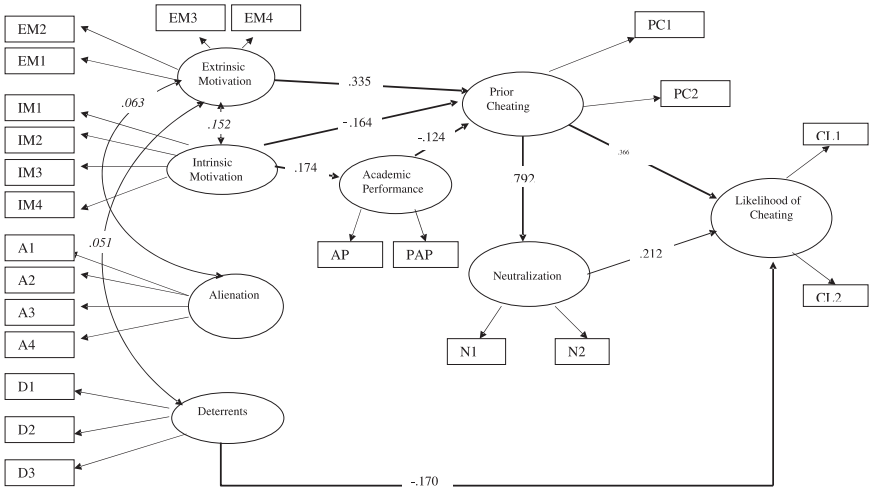

FIGURE 2 Accepted structural model. *Note*. All standardized path coefficients are statistically significant at $p < .05$, except the path from Neutralization to Likelihood of Cheating ($p < .1$). Italicized values represent statistically significant ($p < .05$) covariances among independent factors.

behaviors. On the other hand, those extrinsically motivated are focused on things like grades and class standing. If cheating is seen as a means of improving these types of outcomes, students are more prone to engage in cheating behaviors, which will require that they also engage in more neutralizing behaviors. These results suggest that although intrinsic motivation supports learning (e.g., academic performance), extrinsic motivation does not.

Prior cheating was also positively related to neutralization, further supporting arguments that the more individuals engaged in unethical/dishonest behaviors, the greater was their need to rationalize and justify those behaviors. Also consistent with previous research, prior cheating appears to be a good predictor of future cheating. Neutralization on the other hand has only a marginal positive relation with future behavior. Although previous research supports the notion of individuals using neutralization behaviors to justify and support future unethical behavior (i.e., behavior they feel they are likely to engage in), the results of this study are not so clear.

The hypotheses for deterrents were only partially supported. In-class deterrents did have a negative relation with likelihood of cheating. Thus the greater the number/intensity of in-class deterrents present, the less likely are students to cheat. We also argued that deterrents would also be related to neutralization. This path was not significant, refuting the argument that deterrents, which emphasize cheating is wrong, result in greater efforts to rationalize and justify cheating behavior. Together, these results suggest that in the presence of high levels of deterrents, students' abilities to successfully cheat and their inclination to cheat is reduced.

A surprising result was alienation had none of the posited relations. One possible explanation emanates from the covariance between alienation and extrinsic motivation. It is reasonable to argue that individuals who are more alienated would also be more likely to be externally motivated. Students who are psychologically estranged from school would seem to be less likely to be motivated by the desire to learn and understand the material. Their goals are more likely focused on getting out of that environment. Thus, they will look to external outcomes such as grades. As a result, the inclusion of external motivation in the model may have accounted for sufficient variance to as to negate the direct effects of alienation.

IMPLICATIONS AND CONCLUSIONS

Given the sensitive nature of the information solicited in the questionnaire, one might presume that the respondents underreported their neutralizing tendencies, actual cheating behaviors, and cheating proclivities. However, during the survey administration, proctors explained the nature of the data collection and tabulation process and how it would protect the participants' anonymity. More important, however, this study's focus was on the interrelationships among the posited constructs within the tested theoretical model, not the mean construct values. In addition, the data are cross-sectional, which limits our ability to make strong causal inferences. Longitudinal data are needed to do this.

The above limitation notwithstanding, a number of important implications for educators can be drawn from viewing the relationships depicted in Figure 2. Previous research has presented profiles of people who are more likely to cheat but has done little to suggest what can be done to reduce the incidence of cheating or, more important, the incentive to cheat. This study moves us toward that desired goal. The impact of motivation, specifically intrinsic and extrinsic motivation, on cheating behaviors is clearly significant. If we can increase the number of students who are intrinsically motivated, it is likely that we will reduce both the incidence and desire to cheat. Developing pedagogies that are based on classroom involvement and participation may be one such approach. Developing new methods by which students demonstrate their understanding of course materials rather than continue to rely on the typical testing format may be another. Computerized simulations may be one such method. Another promising method is the incorporation of student-led role-play simulations that transfer ownership of achieving the desired learning outcome from the faculty member to the students (e.g., see Catanach, Croll & Grinaker, 2000). It is incumbent upon educators to find ways to stimulate student interest in the subject matter as opposed to simply "getting their tickets punched" for a course. Strategies such as these aimed at facilitating intrinsic motivation to learn and understand in academic settings may potentially transfer to pro-

fessional settings with the long-term result of attenuating the need or desire to engage in unethical behaviors.

Affecting a shift from extrinsic to intrinsic motivation in students is an endeavor that is complicated by the fact that effective interventions must occur not just in one classroom but across the curriculum. Such interventions have a public good aspect, and in the absence of cooperative action by faculty will tend to be undersupplied. One mechanism that exists to reduce this problem is the accreditation movement in higher education. The call to develop programmatic learning goals and to implement these goals across the curriculum can serve as a vehicle for discussion and cooperation among faculty, as well as a way to document our progress toward our (implicit) goal of fostering the moral development of our students. However, as pointed out by Finn and Frone (2004), there is the risk that such accreditation efforts, to the extent they focus on performance goals, can actually create an environment where extrinsic motivation is encouraged, and by extension, the rewards of ethical behavior are reduced. To be effective, accreditation and the attendant discussion needs to consider not just the ethical component of the curriculum but also the impact of pedagogy on the ethical behavior of students.

Academic performance has an indirect negative influence on future cheating as evidenced by its negative relationship to prior cheating. To reduce the perceived need to cheat to succeed, educators should consider early intervention strategies such as tutorial assistance to struggling students. The tremendous emphasis on grades in our educational system and society as a whole may be serving to increase cheating behavior (Finn & Frone, 2004). Ultimately we need to go back to an emphasis on learning and being able to apply course materials. Grades do not always reflect these abilities.

For those who are or remain externally motivated, deterrents appear to be important. The direct negative influence of in-class deterrents on future cheating argues for our colleagues (who have not yet done so) to implement proven deterrents such as physically separating students during exams, announcing sanctions for cheating, using different forms of the same test, walking up and down the isles, and adding essay problems to exams. Educators might consider intensified efforts to educate students early in their academic careers as to the standards of conduct expected of all members of their respective professions as a means for developing professional attitudes that reduce the likelihood of future cheating. There is evidence that students' moral reasoning skills can be enhanced by discussing codes of ethics in class (Green & Weber, 1997; Luthar, DiBattista, & Gautschi, 1997). Future research into the relationship between additional behavioral and attitudinal intervention strategies on student cheating, such as an in-class emphasis on professional conduct, might yield valuable insights to both educators and professionals alike. For it is research into these relationships that offers the hope of stemming the tide of costly ethical lapses among members of the business community that have gained such notoriety in recent years.

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