Summer 2018

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The Review of Higher Education, Volume 41, Number 4, Summer 2018, pp. 549-576 (Article)

Published by Johns Hopkins University Press
DOI: *https://doi.org/10.1353/rhe.2018.0025*

The Review of Higher Education
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Abstract: Though numerous studies have identified factors associated with academic misconduct, few have proposed conceptual models that could make sense of multiple factors. In this study, we used structural equation modeling (SEM) to test a conceptual model of five factors using data from a relatively large sample of 2,503 college students. The results indicated that there is a significant direct association between students' reported lack of self-control and academic misconduct. The association between these two variables was

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This work was supported by a grant (No. 0060) from the Templeton World Charity Foundation (TWCF). TWCF had no further role in study design, in the data collection and analysis, writing of the report, or decision to submit the paper for publication. Correspondence concerning this article should be addressed to Hongwei Yu, *yu@cccse.org*, 352/226–9197 (cell)

Acknowledgements: We are grateful for the financial support from the Templeton World Charity Foundation (TWCF). The ideas expressed in the study do not necessarily reflect the views of TWCF. We also appreciate the insightful comments and suggestions from anonymous reviewers.

also mediated by students' degree of academic preparation, their involvement in structured and non-structured leisure activities, their perception of opportunities to cheat, and their attitude toward academic misconduct.

Keywords: academic misconduct, attitude toward academic misconduct, lack of self-control, academic preparation, structural equation modeling

Empirical studies suggest that a majority of students cheat. Longitudinal studies over the past six decades have found that about 65–87% of college students in America have admitted to at least one form of nine types of cheating at some point during their college studies (McCabe, Butterfield, & Treviño, 2012). McCabe et al. (2012) noted that over this time some types of cheating have decreased while others have increased, an uneven pattern which may lead to different phases and forms of moral panic about cheating (Bertram-Gallant, 2008). For example, the number of students admitting to "working on the same homework with several students when the teacher does not allow it" increased from 14% in 1962 to 51% in 2000. In contrast, students who "turned in papers done entirely or in part by other students" declined from 20% in 1962 to 8% in 2000 (McCabe et al., 2012, p. 53). Overall though, the consistently high level of reported academic misconduct over six decades leads McCabe et al. (2012) to conclude: "the prevalence of self-reported cheating is high enough for all of us—students, faculty, and administrators—to be seriously concerned" (p. 71).

Their concern is understandable. While scholars debate the reasons that create a culture of cheating (Bertram-Gallant, 2008; Lang, 2013), no scholar questions that the pervasive practice of academic misconduct threatens the core mission of the university. A pervasive culture of cheating hinders institutions of higher education from affirming that their graduates have actually mastered the learning and skills they certify. Moreover, the practice of academic misconduct has been found to relate to other negative behaviors that extend beyond higher education (Biswas, 2014). Those who are engaged with academic misconduct are more likely to display deviant behaviors such as shoplifting (Beck & Ajzen, 1991), harmful substance abuse (Blankenship & Whitley, 2000), vandalism and assault (Rutherford & Olswang, 1981), as well as unethical work behaviors (Harding, Carpenter, Finelli, & Passow, 2004). In other words, college students who cheat more often become citizens who cheat or engage in unhealthy habits.

In order to address cheating, over the last half century scholars have studied a whole range of individual and contextual factors related to academic misconduct. As a result, we know quite a bit about them. For instance, researchers have found that individual factors such as gender (Bowers, 1964; Genereux and McLeod, 1995; Gibson, Khey, & Schreck, 2008; McCabe & Treviño, 1993; McCabe et al., 2012), age (Klein, Levenburg, McKendall, & Mothersell, 2007;

McCabe & Treviño,1997; Mustaine & Tewksbury, 2005), extracurricular involvement (McCabe & Treviño,1997), participation in athletics (McCabe & Treviño,1997; Mustaine &Tewksbury, 2005), major (Harding, Mayhew, Finelli, & Carpenter, 2007), and the expression of ethically desirable traits (Bloodgood, Turnley, & Mudrack, 2008; Bolin, 2004) have some significant relationship to cheating practices. Moreover, scholars have also determined that contextual factors such as "peers' cheating behavior, peers' disapproval of cheating, a student's perception of the culture of academic integrity on campus, and the perceived severity of penalties of cheating" are even more likely to be related to students' reported academic misconduct (McCabe et al., 2012, p. 113; McCabe & Treviño, 1997). In comparison to the extensive number of studies identifying influential individual and contextual factors, however, fewer scholars have proposed conceptual models to explain how some of these variables work together to influence academic misconduct (Bolin, 2004; McCabe et al., 2012; Sieman, 2009; Simkin & McLeod, 2010). Moreover, some scholars that do propose theoretical models have utilized smaller samples from a small number of colleges or universities (Harding et al., 2007; Mayhew, Hubbard, Finelli, Harding, & Carpenter, 2009; Simkin & McLeod, 2010).

The purpose of this study is to strengthen our knowledge of how various factors relate regarding academic misconduct. First, we propose a hypothesized conceptual model based on prior studies predicting or explaining academic misconduct. We then use structural equation modeling (SEM) with a relatively large sample of 2,503 college students to test the validity of the empirical model. Finally, we present the parameter estimates and offer some implications for research and practice.

Conceptual Framework

The first important challenge to address concerns the matter of definition, since past researchers have often used different definitions and terms when studying cheating (Eve & Bromley, 1981; Haines, Diekhoff, LaBeff, & Clark, 1986; Jendrek, 1989; McCabe et al., 2012). In our study, we use the terms *academic cheating* and *academic misconduct* interchangeably. We define them both generally as "behaviors that undermine academic integrity because they do not comply with [faculty or university] rules, norms, or expectations" (Bertram-Gallant, 2008, p. 10). The specific behaviors we have in mind are the nine behaviors identified and used in past survey research of cheating (Bowers, 1964; McCabe et al., 2012): 1. Copying a few sentences of material without footnoting it in a paper; 2. Padding a bibliography or including sources in a bibliography that the student did not use in the paper or project; 3. Plagiarizing from public materials on papers; 4. Obtaining questions or answers from someone who had already taken the exam; 5. Working on the

same homework with several other students when the teacher does not allow it; 6. Turning in papers done entirely or in part by other students; 7. Giving answers to other students during an exam; 8. Copying off of another student during an exam; 9. Taking unauthorized material, such as notes, into an exam.

Second, we should note that we did not attempt to address the whole range of individual and contextual factors when building our framework. We decided to focus upon those student characteristics and contextual factors that educational leaders could possibly influence. One simple reason for this focus is that, as scholars have pointed out (McCabe et al., 2012), studies focusing on individual differences that administrators have little influence upon are not as helpful.

To construct the conceptual framework we relied upon a variety of past theories. Given academic misconduct is one type of deviant behavior, researchers have drawn upon deviant behavior theories when studying various factors linked with academic misconduct (Arneklev, Grasmick, Tittle, & Bursik, 1993; Bolin, 2004). Thus, to begin, we drew upon one general theory of crime (Gottfredson & Hirschi, 1990) that contends that lack of self-control is believed to be one of the major predictors of all deviant behaviors, including academic misconduct. Based on this theory, although individuals may recognize that cheating is morally problematic, it is reasonable to expect that some individuals who lack self-control are more prone to be engaged in academic misconduct when encountering opportunities to cheat. Consequently, another important factor associated with students' engagement in academic misconduct is perceived opportunity to cheat (Ajzen, 1991; Bolin, 2004; Harding et al., 2007; McCabe, Treviño, & Butterfield, 1999). When presented with opportunities, individuals with little self-control cannot resist the temptation to cheat (Bolin, 2004; Vowell & Chen, 2004).

Moreover, one's lack of self-control also plays a role in another way. Dweck, Walton, and Cohens (2014) found that self-control predicts student academic success because students' academic success needs a strong commitment to academic preparation and not excessive involvement in non-academic activities (e.g., involvement in structured and non-structured leisure activities). For instance, a high level of academic performance often requires students to focus on their academic tasks and put aside non-academic activities that might "distract or tempt them in the short term" (Dweck et al., 2014, p. 12). Thus, it is reasonable to posit that a student's locus of self-control is associated with academic preparation and level of involvement in structured and non-structured leisure activities. In contrast, less academic preparation (e.g., studying under poor conditions and less study time; Haines et al., 1986; Whitley, 1998) and too much involvement in structured and non-structured leisure activities (e.g., gaming, fraternity and sorority activities) will be closely related to academic misconduct (Haines et al., 1986; McCabe et al., 2012; McCabe & Treviño, 1997; Whitley, 1998; Williams & Janosik, 2007).

Yet, lack of self-control and perceived opportunities to cheat do not fully explain all the cases of academic misconduct because a significant portion of variance is left unexplained even after accounting for self-control and perceived opportunity to cheat (Grasmick, Tittle, Bursik, & Arneklev, 1993). What these two factors fail to address are students who engage in deliberate or pre-planned forms of cheating. According to rational choice theory, individuals are also rational actors whose behavior is based on evaluation of anticipated costs and utility (Tibbetts, 1999, 1997). Students without strong moral convictions about cheating will assess the costs (e.g., being detected) and utility (e.g., potentially high grades) before committing academic misconduct. If students perceive that the cost is minimal but the reward is large, they are more likely to be engaged in academic misconduct (Murdock & Anderman, 2006; Tibbetts, 1999, 1997; Whitley, 1998). For example, in Bolin's (2004) study of 853 survey responses from university students across the U.S., he identified attitudes toward academic misconduct as an important mediating variable between lack of self-control and actual academic misconduct behaviors (Bolin & Heatherly, 2001; Davis, Grover, Becker, & McGregor, 1992; Piquero & Tibbetts, 1996). This research finding is consistent with the theory of planned behavior (TPB), which states that one's attitude correlates with one's behaviors (Ajzen, 1991; Harding et al., 2007).

If faculty and staff take academic misconduct seriously and design classroom assignments to promote learning and reduce cheating, there will be fewer perceived opportunities to cheat (Lang, 2013). Yet, if faculty and staff are reluctant to make those changes or avoid enforcing consequences with students who commit academic misconduct, academic misconduct will be much more appealing for students who lack self-control or those who are making a rational, calculated decision to cheat. As such, similar to attitudes toward academic misconduct, perceived opportunity to cheat also serves as an important mediating variable between lack of self-control and academic misconduct (Bolin, 2004).

Based on the above-mentioned theories, we formulated a research question and developed an empirical model that might predict student academic misconduct (Figure 1). The central research question was: How do lack of self-control, academic preparation, involvement in structured and non-structured leisure activities, attitude toward academic misconduct, as well as perceived opportunities to cheat interact and work together to explain student self-reported academic misconduct during college? The following literature review addresses the relevant extant research related to the proposed question and model.

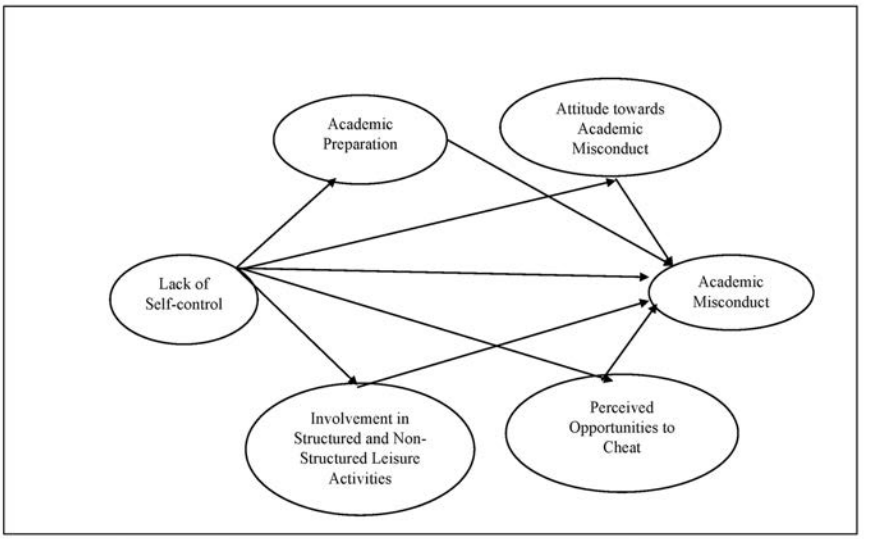

Figure 1. Hypothesized conceptual model pricing predicting academic misconduct

LITERATURE REVIEW

A significant amount of research addresses the areas of self-control, academic preparation, involvement in structured and non-structured leisure activities, attitudes toward academic misconduct, and perceived opportunities to cheat. While most studies focus upon only one of these issues at a time, some studies have examined the relationship between a few of these influential variables.

Lack of Self-Control

As mentioned above, researchers have documented the association between lack of self-control and deviant behaviors (Arneklev et al., 1993; Gottfredson & Hirschi, 1990). In particular, scholars have suggested that lack of self-control is associated with academic misconduct (Bolin, 2004; Eve & Bromley, 1981; Gottfredson & Hirschi, 1990; Vowell & Chen, 2004). In addition to Dweck et al.'s (2014) study associating academic performance and self-control, Vowell and Chen's (2004) data analysis also provides moderate support for the self-control theory (lack of self-control is associated with academic misconduct). Yet, some studies have reported that self-control has little or no association with students' intention to cheat and with academic misconduct (Tibbetts, 1997; Tibbetts & Myers, 1999).

Attitudes toward Academic Misconduct

Unsurprisingly, academic misconduct has also been found to be associated with a student's attitude toward cheating (McCabe et al., 2012). Students who

held more favorable attitudes toward academic misconduct were more prone to be engaged in academic misconduct than students who held less favorable attitudes toward academic misconduct (Harding et al., 2007; Sieman, 2009). For instance, Sieman (2009) offered empirical evidence that students' attitudes toward academic misconduct are strongly associated with academic misconduct among first-year college students. Bolin (2004) also argued that attitude toward academic misconduct should be taken into consideration when understanding the relationship between academic misconduct and lack of self-control. In light of this suggestion, our study seeks to explore the nature and magnitude of the relationship between lack of self-control, attitudes toward cheating, and academic misconduct.

Perceived Opportunities for Academic Misconduct

Bolin (2004) also reported an association between perceived opportunity to cheat and academic misconduct. Others have also found that the perceived chance of being detected and punished exerts influence on the likelihood of student academic misconduct (Bisping, Patron & Roskelley, 2008; McCabe, Treviño, & Butterfield, 2002). Scholars suggest that to reduce academic misconduct students should not only be informed about academic misconduct and the possible consequences (Broeckelman-Post, 2008) but also be made aware that the chance of being detected and punished is high (Bisping et al., 2008; McCabe et al., 2012).

Involvement in Structured and Non-structured Leisure Activities, Academic Preparation and Academic Misconduct

A number of studies have found that students involved in excessive extracurricular activities (structured leisure activities) self-reported higher incidences of academic misconduct (Bowers, 1964; Haines et al., 1986; McCabe et al., 2012; McCabe & Treviño, 1997; Mustaine & Tewksbury, 2005; Whitley, 1998). In particular, researchers over the past few decades have discovered that students involved in both athletics and Greek life are more likely to self-report academic misconduct (Bowers, 1964; Haines et al., 1986; McCabe & Treviño, 1997; Mustaine & Tewksbury, 2005; Storch & Storch, 2003; Williams & Janosik, 2007). In addition, socialization with friends (non-structured leisure activities) is also linked with academic misconduct as researchers identified peer influence as one important predictor for academic cheating (McCabe, Trevino, & Butterfield, 2001; McCabe et al., 2012). Logically, frequent involvement in leisure activities often means students have little time to study, which increases students' pressure to be engaged in academic misconduct (Ma, McCabe, & Liu, 2013). For example, Davis (1993) found one of the primary reasons for academic misconduct is that students often admit they "usually do not study" (p. 26). Dweck et al. (2014) concluded that to achieve academic success, students need to prepare for the exam and

refrain from being involved in too many non-academic activities (e.g., sports, fraternities or sororities, and partying).

Overall, while a significant amount of literature supports the importance of these factors, it remains unclear how these factors interact together. The theoretical model we set forth offers one possible explanation that we sought to test.

METHOD

Sample

Data were drawn from the Gallup daily tracking sample that is a nationally representative sample of U.S. adults aged 18 or older conducted by Gallup every day, 350 days per year. Interviews were conducted with these respondents on landline telephones and cellular phones. Landline and cellular telephone numbers were selected using random-digit-dial methods. Landline respondents were chosen at random within each household on the basis of which member had the most recent birthday. All U.S. adults with access to a cellphone or landline device have an equal and non-zero probability of selection. The sample is stratified by time zone within region to ensure the sample is representative of individuals throughout the U.S. The sample weights were created to minimize bias in the survey-based estimates. The weighting process involved corrections for unequal probability of selection of the sampled cases, non-response adjustments, and double coverage of landline and cellphone users in the two sampling frames (Gallup, 2015; Yu, Glanzer, Sriram, Johnson, & Moore 2016). Additional information is available on the Gallup website (*http://www.gallup.com/185468/gallup-daily-trackingwork.aspx?utm_source=METHODOLOGY&utm_medium=topic&utm_campaign=tiles*)

Respondents who agreed to be recontacted and were of the sample ages between 18 and 23 years old were recontacted and recruited to participate in the study during spring of 2014 (Yu et al., 2016). The final sample includes a total of 2,503 college students. The sample size is relatively large compared to many prior studies that relied upon relatively small samples taken from either a single campus or a few college campuses (e.g., Bloodgood et al., 2008; Burton, Talped, & Haynes, 2011; Devries & Ajzen, 1971; Huelsman, Piroch, & Wasieleski, 2006; Michaels & Miethe, 1989; Perrin, 2000; Rettinger & Jordan, 2005; Smith, Ryan, & Digging, 1972). Among these students, 1,451 of them (58%) were male students, while 1,052 of them (42%) were female students. In our selected sample, male students were overrepresented. Across the nation, female students accounted for 56% of total enrollment while male students accounted for 44% of total enrollment in the fall 2014 (the time of our survey;NCES, 2014). Of these students, 1,578 (63.0%) were White, 402 (16.1%) were Hispanic Americans, 300 (12.0%) were African Americans, 171

(6.8%) were Asian Americans, 33 (1.3%) were others that include American Indian or Alaska Native and Native Hawaiian or Pacific Islander, and 19 were missing this information. In our selected sample, Whites were overrepresented while other racial-ethic categories seemed to be close to the national averages. Nationally speaking, among 17.3 million college students across the nation in 2014, 9.6 million students (55.49%) were White, 3.0 million students (17.34%) were Hispanic American, 2.4 million students (13.87%) were African American, 1.0 million students (5.78%) were Asian American, and 0.2 million students (1.16%) were American Indian/Alaska Native, and Pacific Islander in the fall 2014 (NCES, 2014). In our sample, 553 (22.1%) attended public two-year institutions, 35 (1.4%) were enrolled at private two-year institutions, 1,319 (52.7%) attended public four-year institutions, and 596 (23.8%) attended private four-year institutions (see Table 1). Again, the profile of the selected sample is little bit different from the national profile of undergraduate students. According to the report from the National Center for Education Statistics (NCES, 2014), 61% of undergraduates were enrolled in four-year institutions whereas 39% of college students were enrolled at two-year institutions in the year 2014 . Therefore, students at two-year institutions were underrepresented, whereas students at four-year institutions were over represented in the selected sample.

Measurement of Constructs

Lack of self-control is the exogenous variable we hypothesized to be predictive of the following endogenous variables: academic preparation, involvement in structured and non-structured leisure activities, attitude toward academic misconduct, perceived opportunity to cheat, and academic misconduct.

To measure *academic misconduct*, we asked students about nine types of academic misconduct behaviors which were also asked by Bowers (1964) and McCabe et al. (2012). We did make one change to the question that asked students whether they had "used crib notes during an exam" (McCabe et al., 2012, p. 62). We updated this language so that students were asked whether they had "taken unauthorized material, such as notes, into an exam." Respondents were asked to self-report the frequency of their engagement with nine types of academic misconduct incidents on a four-point Likert scale (Very Often = 4, Often = 3, Rarely = 2, Never = 1). Items included: 1) *Copied a few sentences of material without footnoting it in a paper;* 2) *Padded a bibliography or included sources in a bibliography that you did not use in the paper or project;* 3*) Plagiarized from public materials on papers;* 4) *Gotten questions or answers from someone who had already taken the exam;* 5) *Worked on the same homework with several other students when the teacher did not allow it;* 6) *Turned in papers done entirely or in part by other students;* 7) *Given answers to other students during an exam;* 8) *Copied off of another student during an exam;*

TABLE 1.
DEMOGRAPHIC CHARACTERISTICS (N = 2,503)

Variable Name	*Category*	*Frequency*	*Percentage*
Gender	Male	1,451	58.00%
	Female	1,052	42.00%
Race	White	1,578	63.00%
	African American	300	12.00%
	Hispanic	402	16.10%
	Asian American	171	6.80%
	Other Race/Ethnicity	33	1.30%
	Missing Values	19	0.80%
Institution Attended	Public 2-year college	553	22.1%
	Private 2-year college	35	1.4%
	Public 4-year college	1319	52.7%
	Private 4-year college	596	23.8%
Year in College	First Year	326	13.00%
	Second Year	692	27.60%
	Third Year	729	29.10%
	Fourth Year	747	29.80%
	Missing Values	9	0.40%
*Family Financial Situation	Above Average	722	28.80%
	Average	1376	55.00%
	Below Average	405	16.20%

Note: *The categories are derived solely from the students' self-perception and not a particular dollar amount (e.g., estimated household income). The actual question read, "Generally speaking, how would you describe your family's financial situation. Would you say your family is above average, average, or below average financially?" We made sure to make this point clear in the document.

9) *Taken unauthorized material, such as notes, into an exam.* The reliability coefficient, Cronbach's α for these items is .77, indicating good reliability.

Similarly, with regard to *lack of self-control*, we used a previously created instrument, the *Brief Self-Control Scale*, to measure students' level of self-control (Tangney, Baumeister, & Boone, 2004). The authors developed a 36-item *Total Self-Control Scale*, which they used to make a shorter 13-item scale that measured the same latent variable as their original scale. The *Brief Self-Control Scale* focused on thought, emotion, and impulse control, as well as habit breaking and performance regulation as the primary measures of self-control. Respondents were asked to rate their level of agreement on the survey items using a five-point Likert scale (from strongly disagree = 1 to strongly agree = 5). Items included: 1*) I am good at resisting temptation;* 2) *I have a hard time breaking bad habits;* 3) *I am lazy;* 4) *I say inappropriate things;* 5) *I do certain things that are bad for me, if they are fun;* 6) *I refuse things that are bad for me;* 7) *I wish I had more self-discipline;* 8) *People say that I have iron self-discipline;* 9) *Pleasure and fun sometimes keep me from*

getting work done; 10) *I have trouble concentrating;* 11*) I am able to work effectively toward long-term goals;* 12) *Sometimes, I can't stop myself from doing something, even if I know it is wrong;* 13) *I often act without thinking through all of the alternatives.* The reliability coefficient Cronbach's α is .80, indicating good reliability for these items.

The *attitudes toward academic misconduct* construct was measured by one five-point Likert scaled item (Jordan, 2001; Whitley, 1998). Students responded (from strongly agree = 5 to strongly disagree = 1) to the item, *Cheating is necessary to keep up*.

The construct, *perceived opportunities to cheat*, was measured by three items that all used a five-point Likert scale (from strongly agree = 5 to strongly disagree = 1; McCabe et al., 2012). The first two items gathered students' perception of faculty and staff attitudes toward cheating by asking their response to two items: 1) *Faculty and staff at your school take cheating very seriously*; 2) *Faculty and staff go above and beyond to prevent students from cheating*. Both of these items were reverse coded. The third item inquired about the perceived risk of being caught for cheating by asking students to respond to the prompt: *Cheating is very easy to get away with at your school.* The reliability coefficient (Cronbach's α) was .60, indicating minimally acceptable reliability.

The construct *academic preparation* was measured by one survey items: *Time devoted to preparing for class, including: studying, reading, writing, and other academic activities*.

Informed by widely cited studies conducted by Bartko and Eccles (2003), and Fletcher, Nickerson, and Wright (2003), we examined students' involvement in structured (extracurricular activities) and non-structured leisure activities (socializing with friends). The construct, *involvement in structured and non-structured leisure activities,* was measured by two survey items: 1) *time devoted to attending events on campus or participating in extracurricular activities such as sports, fraternities, or sororities*; 2) *time devoted to socializing with friends*. The reliability coefficient Cronbach's α was .34, indicating poor reliability. The mean, standard deviation, and Cronbach's α for each latent construct was summarized in Table 2.

Analysis

We utilized structural equation modeling to analyze the data. M*plus* 7.3 was used to test the validity of the hypothesized model. SEM goes beyond traditional regression analysis by estimating the magnitude of interrelationships between theoretical constructs that are indicated by multiple observed variables (Lei & Wu, 2007; Mayhew et al., 2009; Yu, 2015). Through the usage of SEM we were able to understand how these latent variables interact and influence self-reported academic misconduct among college students.

TABLE 2.
DESCRIPTIVE STATISTICS FOR LATENT VARIABLES (N = 2, 503)

	Cronbach α	*Mean (SD)*	*Lack of Self-Control*	*Academic Preparation*	*Involvement in Structured and Non-Structured Leisure Activities*	*Attitude toward Academic Cheating*	*Perceived Opportunities*	*Academic Cheating*
Lack of Self-control	.80	33.83 (8.16)	1.00					
Academic Preparation	NA	27.70 (16.70)	-.096***	1.00				
Involvement in Structured and Non-Structured Leisure Activities	.34	16.09 (15.92)	-.142**	.240***	1.00			
Attitude toward Academic Cheating	NA	1.36 (0.80)	.139***	.021	.170***	1.00		
Perceived Opportunities	.60	6.24 (2.50)	.311***	-.082**	.194***	.251***	1.00	
Academic Cheating	.77	12.03 (3.31)	.339 ***	-.098***	.268 ***	.301***	.371***	1.00

Note: * <.05 **<.01 *** <.001

We utilized the two-step model identification rule to identify the SEM model. The first step of SEM analysis was to define and measure multidimensional latent variables: lack of self-control, academic misconduct, attitudes toward cheating, academic preparation, involvement in structured and non-structured leisure activities, and perceived opportunity to cheat. Since these constructs are latent variables, these variables were measured by a set of observed variables. The second step was to fit the data using structural equation modeling to investigate the decline in model fit. Analytical results based on the hypothesized model can only be interpreted if the model fit is within an acceptable range. Except for *attitude toward cheating* and *academic preparation* that have only one indicator each, error terms of observed indicators (*lack of self-control*, *involvement in structured and non-structured leisure activities*, *perceived opportunities to cheat*, and *academic cheating*) within each latent construct were correlated to improve the model fit. The missing values in the dataset were marked as -9. There is a total of 19 (0.80%) cases who did not provide demographic information regarding race/ethnicity. The MISSING option in M*plus* was used to identify these missing values and to treat them as missing or invalid. We noted the latent variable academic dishonesty was highly skewed. We utilized the listwise deletion technique within M*plus* to handle the missing data. In addition, we utilized (MLR) estimator within M*plus* package to address non-normality data (Muthén & Muthén, 2012, p.23). Table 3 presented factor loadings for various latent constructs.

Results

Several model fit indices were utilized to test whether the hypothesized model fit the data (Hu & Bentler, 1999; Rosser & Townsend, 2006). The most widely used SEM model fit indices include comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) (Hu & Bentler, 1999).

Measurement Model

As indicated in Table 4, the CFI was .963 and the TLI was .951. The standardized root mean square residual (SRMR) was .031, which is smaller than .09 (SRMR ≤ .09). In addition, the Root Mean Square Error of Approximation (RMSEA) was .023. The criterion for good model fit is RMSEA ≤ .06. As such, the proposed model fits the data adequately (Hu & Bentler, 1999).

Structural Equation Model

We then proceeded to assess the model fit decline as we employed a nested SEM model to fit the data. As documented in Table 4, model fit indices remained unchanged. SRMR was .031 and RMSEA was .023. The CFI and TLI

TABLE 3.
FACTOR LOADINGS FOR CONSTRUCTS USED IN MODEL CONSTRUCTION

Variable	*Factor Indicators*	*Factor Loadings*
Academic Cheating	*Copied a few sentences of material without footnoting it in a paper;*	.497
	Padded a bibliography or included sources in a bibliography that you did not use in the paper or project;	.443
	Plagiarized from public materials on papers;	.522
	Gotten questions or answers from someone who had already taken the exam;	.557
	Worked on the same homework with several other students when the teacher did not allow it;	.547
	Turned in papers done entirely or in part by other students;	.445
	Given answers to other students during an exam;	.520
	Copied off of another student during an exam;	.598
	Taken unauthorized material, such as notes, into an exam.	.537
Lack of Self-control	*I am good at resisting temptation;*	.596
	I have a hard time breaking bad habits;	.414
	I am lazy;	.555
	I say inappropriate things;	.416
	I do certain things that are bad for me, if they are fun;	.578
	I refuse things that are bad for me;	.374
	I wish I had more self-discipline;	.596
	People say that I have iron self-discipline;	.417
	Pleasure and fun sometimes keep me from getting work done;	.532
	I have trouble concentrating;	.526
	I am able to work effectively toward long-term goals;	.464
	Sometimes, I can't stop myself from doing something, even if I know it is wrong;	.528
	I often act without thinking through all of the alternatives.	.441
Attitude toward Academic Cheating	*Rationale or Justification about Cheating;*	1.000

Perceived Opportunities	*Perceived risk of getting caught for cheating;* *Perception of faculty and staff attitude toward cheating;* *Perception of faculty and staff action toward cheating.*	.704 .324 .520
Academic Preparation	*Time devoted to preparing for class, including studying, reading, writing, and other academic activities*	1.000
Involvement in Structured and Non-Structured Leisure Activities	*Time devoted to attending events on campus or participating in extracurricular activities such as sports, fraternities, or sororities;* *Time devoted to socializing with friends.*	.441 .509

TABLE 4.
MODEL FIT INDICES FOR MEASUREMENT AND STRUCTURAL EQUATION MODELING

Model	*SRMR*	*RMSEA*	*CFI*	*TLI*
Measurement Model	0.031	.023	.963	0.951
SEM Model	0.031	.023	.963	0.951

were .963 and .951 respectively. Therefore, the proposed SEM model fit the data sufficiently (Hu & Bentler, 1999) and we were able to summarize the direct and indirect effects of exogenous variables on endogenous variables, and the direct and indirect effects of endogenous variables on endogenous variables respectively. Model fit indices from both the measurement model and structural equation model validate our usage of the proposed conceptual framework for predicting self-reported academic misconduct among college students. Overall, the proposed model explains about 26.8% of the variance in academic cheating. Lack of self-control accounts for 2% of the variance in attitude toward cheating, 10% of the variance in perceived opportunities to cheat, 1% of the variance in academic preparation, and 2% of the variance in involvement in structured and non-structured leisure activities (Table 5).

Direct and indirect effects of lack of self-control on academic misconduct. As reported in Table 5, lack of self-control had significant direct association with academic misconduct (.208, $p <$. 001). One standard deviation increase in lack of self-control was associated with a .208 standard deviation increase in students' academic misconduct. In addition, lack of self-control was also indirectly associated with self-reported academic misconduct. The indirect effects (.130, $p < .001$) were through attitude toward academic misconduct (.026, $p < .001$), perceived opportunities to cheat (.066, $p < .001$), academic preparation (.011, $p < .01$), and involvement in structured and non-structured leisure activities (.027, $p < .05$). Results revealed that attitude toward academic misconduct served as an important mediating variable between self-control and academic misconduct. Similarly, perceived opportunities also mediated the relationship between self-control and academic misconduct. In addition, this study found academic preparation and involvement in structured and non-structured leisure activities mediated the association between self-control and student academic misconduct, although such mediations were relatively small.

Direct effects of endogenous variables on academic misconduct. Students' attitude toward academic misconduct was positively associated with academic misconduct. Specifically, students who held more favorable

Table 5.
Structural coefficient estimates: MLR estimates and standard errors (in parentheses)

	Academic Preparation		*Involvement in Structured and Non-structured Leisure Activities*		*Direct Effects Attitude toward Academic Cheating*		*Perceived Opportunities*		*Academic Cheating*	
Exogenous/ Endogenous Variables	*b*	*β*	*b*	*β*	*b*	*β*	*b*	*β*	*b*	*β*
Lack of Self-control	-.096*** (.024)	.096*** (.024)	.144** (.047)	.142** (.045)	.141*** (.023)	.139*** (.023)	.327*** (.037)	.311*** (.032)	.243*** (.040)	.208*** (.033)
Academic Preparation									-.128** (.032)	-.110** (.027)
Involvement in Structured and Non-structured Leisure Activities									.222*** .058)	.192*** (.049)
Attitude toward Academic Cheating									.217*** (.040)	.188*** (.033)
Perceived Opportunities to Cheat									.237*** (.043)	.213*** (.038)
R2	1%		2%		2%		10%		26.8%	

Table 5, cont.

		Indirect Effects	
Exogenous Variable	Mediator Variables	b	β
Lack of Self-control	Attitude toward Academic Cheating	.031***	.026***
		(.008)	(.006)
	Perceived Opportunities to Cheat	.078***	.066***
		(.017)	(.014)
	Academic Preparation	.012**	.011**
		(.004)	(.003)
	Involvement in Structured and Non-structured Leisure Activities	.032*	.027*
		(.013)	(.011)

Note: *< .05, **< .01,***< .001; (s) represent unstandardized structural coefficient estimates while (s) stand for standardized structural coefficient estimates

attitudes toward academic misconduct were more prone to be engaged in academic misconduct than students who held less favorable attitudes toward academic misconduct. A standard deviation increase in attitude toward academic misconduct was positively associated with a .188 standard deviation ($p < .001$) increase in self-reported academic misconduct. Secondly, involvement in structured and non-structured leisure activities such as partying was more likely to be related to academic misconduct. A standard deviation increase in involvement in structured and non-structured leisure activities was positively associated with a .192 standard deviation ($p < .001$) increase in academic misconduct. College students' academic preparation was also negatively associated with students' academic misconduct. One standard deviation increase in academic preparation was associated with a .110 standard deviation ($p < .01$) decrease in academic misconduct. Finally, students' perceived opportunities to cheat were positively associated with students' academic misconduct. One standard deviation increase in perceived opportunities to cheat resulted in a nearly .213 standard deviation increase in incidences of academic misconduct.

Direct effects of lack of self-control on endogenous variables. As indicated by Table 5, college students who exhibited low levels of self-control were more likely to hold a favorable attitude toward academic misconduct. One standard deviation increase in students' lack of self-control resulted in a .139 standard deviation ($p < .001$) increase in a student's favorable attitude toward academic dishonesty. Students who exhibited a low level of self-control were more likely to be involved with involvement in structured and non-structured leisure activities. One standard deviation increase in students' lack of self-control was associated with a .142 ($p <. 001$) increase in student involvement in structured and non-structured leisure activities. In addition, students with low self-control were less likely to be academically prepared (-.096, $p < .001$). More importantly, college students who reported low self-control were more likely to perceive cheating opportunities (.311, $p < .001$).

Limitations

As is usually the case with student surveys of academic misconduct, we suggest readers interpret the results with caution since the level of academic misconduct was derived from respondents' self-reports (e.g., Davis, Drinan, & Bertram-Gallant, 2009), which might be influenced by social desirability bias. Yet, prior literature did indicate self-reported questionnaires can serve as a useful alternative for objective data, in general (Crockett, Schulenberg, & Petersen, 1987), and the "most valid measure of student beliefs, attitudes, feelings and opinions" in particular (Korb, 2011, p.8). Measuring behaviors through self-reports does present limitations, however. In addition, our ability to make causal claims is limited by the cross-sectional design of the

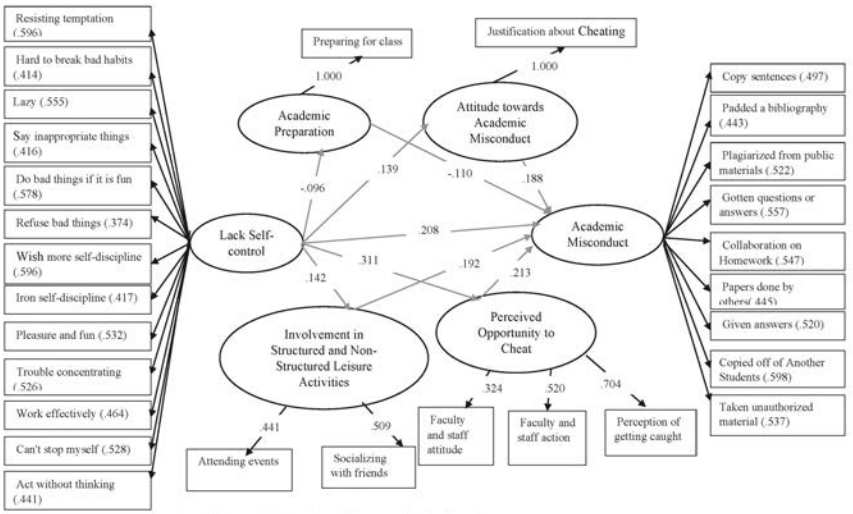

Figure 2. Hypothesized conceptual model pricing academic misconduct

study. We did not include demographic variables in the SEM model as we believe the conceptual framework does not differ across demographic groups. Analytical results might differ if more reliable measures of involvement in structured and non-structured leisure activities and academic preparation are utilized. In particular, both Bartko and Eccles (2003) and Fletcher et al. (2003) included several items to define involvement in structured and non-structured leisure activities. Future studies should consider using these types of items to better define the construct.

Since the original survey focused on the relationship between academic honesty, purpose, and self-control, the survey was designed to include validated measures of those concepts. The shortest validated measure of self-control was the 13-item instrument we used. It would have been helpful to include additional items for attitudes toward academic misconduct and involvement in structured and non-structured leisure activities. Other well-known studies such as those designed by the Higher Education Research Institute (HERI) have used these short questions as measures. Our future research will incorporate more items per factor, and we believe that will also help improve internal reliability.

IMPLICATIONS

Our findings regarding our conceptual model support the need to create a culture of academic integrity, such as that suggested by McCabe et al. (2012),

which could influence all five of the factors mentioned above. Their complex approach provides a helpful outline college leaders could use to address formal systems (those such as administrative leadership, the selection system, the codes and policies, the orientation and training, the reward system, etc. that are created and maintained by the university culture) and informal systems (those elements such as rituals, stories/myths, language, informal norms, and role models that emanate from the university as a result of or response to the formal systems that are not managed by university pFirst, changing students' attitudes toward cheating could be addressed through establishing positive ideals, possibly through an honor code system (McCabe et al., 2012; McCabe & Treviño, 1993). Even without an honor code, academic leaders and student affairs professionals can attempt to promote role models, rituals, language, and myths/stories within the informal culture to attempt to alter freshman attitudes regarding previous academic misconduct behaviors (e.g., Whitley, 1998) and/or high school peers' influence (e.g., McCabe et al., 2012). In training, institutions could present information about how students' peers view academic misconduct and the reasons students frequently engaged in academic misconduct. Such an exercise has been shown to shape students' perceptions and attitudes (Jordan, 2001; Mayhew et al., 2009). In addition, students could be encouraged to play an important role in "defending and enforcing" academic integrity policies and rules. Prior studies reveal that when students take ownership of the responsibilities of their behaviors as well as their peers', they are more likely to develop a right attitude toward academic cheating (McCabe et al., 2012).

Second, with regard to perceived opportunities to cheat, establishing an honor code within a rich moral culture would also likely prove effective, since research has also shown that honor codes influence faculty attitudes and behavior (McCabe, Butterfield, & Tervino, 2003). In addition, faculty members can construct the learning environment and make academic integrity an important component of their courses through instruction strategies and academic assignments, which can effectively reduce opportunities to cheat and alter student's favorable attitude toward cheating (Lang, 2013). Various initiatives supported by research include faulty discussions of cheating, plagiarism, and source attribution; using multiple versions of an exam; scrambling test questions; using essay exams; test monitoring; and randomizing or spacing seating (Bernardi, Baca, Landers, & Witek, 2008; Broeckelman-Post, 2008; Genereux & McLeod, 1995; Levitt & Lin, 2015).

Third, our findings suggest that while the university might engage in direct ways of creating a culture of academic integrity (e.g., building a rich honor code culture and system), there are a number of indirect ways to address this matter. Our model reveals that part of building a culture of academic honesty should include strengthening both formal and informal systems that both prize self-control and enhance students' sense of self-control (Bo-

lin, 2004; Peterson & Seligman, 2004). In other words, while creating a rich honor code tradition directly addresses the issue, establishing a culture that prizes the virtue of self-control/self-regulation or encourages activities that indirectly help develop this quality (Ramdass & Zimmerman, 2011) would also enhance that outcome.

Fourth, another indirect method institutional leaders and faculty can use to increase academic honesty is to focus upon improving academic engagement or preparation. Given that academic engagement/preparation is adversely related to academic misconduct, leaders and faculty should seek ways to help students make timely academic progress and prepare for studies. For instance, one of the costs of admitting underprepared students may be a decrease in the institutional culture of academic honesty. Once on campus, increased efforts to make underprepared students aware of student services, such as mentoring and tutoring, could reduce academic misconduct on campus. Moreover, what high-risk students believe about their abilities can have profound effects upon their academic behaviors, and interventions can change both the beliefs and behaviors of high-risk students (Sriram, 2013).

Finally, our findings also indicate that student involvement in structured and non-structured leisure activities increases the likelihood that students will commit academic misconduct. A simplistic interpretation of this finding is that extracurricular activities (structured leisure activities) should not be promoted by institutions of higher education. A more nuanced interpretation of this finding, however, acknowledges that every campus has extracurricular activities that aim to promote learning, as well as activities that have no learning goals. Our recommendation is for divisions of student affairs to continue to emphasize learning in programs, services, and environments offered (Keeling, 2004). Student affairs professionals can and should create interventions that complement and enhance the student learning experience that occurs in the classroom (Shushok, Henry, Blalock, & Sriram, 2009; Shushok, Scales, Sriram, & Kidd, 2011; Shushok & Sriram, 2010). Since the latent construct, involvement in structured and non-structured leisure activities, has low reliability, we suggest readers interpret this research finding with caution.

Conclusions

Overall, this study's data analysis of a relatively large sample of college students confirmed the proposed conceptual framework and revealed how selected variables interact with each other to explain student academic misconduct. Consistent with past research, we found that college students who lacked self-control held favorable attitudes toward academic misconduct and perceived cheating opportunities. Those students who have too much

involvement in structured and non-structured leisure activities were more likely to exhibit academic misconduct. In contrast, students who were academically prepared were less likely to be engaged in academic misconduct. Moreover, our conceptual model suggests lack of self-control has both direct and indirect associations with academic cheating. The indirect association is through all four variables under discussion: attitude toward cheating, perceived opportunities to cheat, academic preparation, and involvement in structured and non-structured leisure activities. Both the direct and indirect associations are statistically significant. In particular, most effect sizes (standardized coefficients) of direct associations are around .20, indicating substantive importance. These variables should be taken into consideration when designing and implementing educational interventions that aim to address academic cheating among college students.

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