Deviant Reactions to the College Pressure Cooker: A Test of General Strain Theory on Undergraduate Students in the United States

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Abstract

Anonymous surveys administered to approximately 500 undergraduate students in the United States provided the data for this investigation. The study examines whether academic stressors increased the likelihood of cheating. Overall, the findings offer partial support for Agnew's general strain theory. Frustration related to blocked goals and cumulative stress were significant predictors of exam cheating and plagiarism; however, measures of negatively valued stimuli and the removal of positive stimuli were inconsistent predictors. Additionally, a theoretically unexpected finding was produced as perceived injustice decreased academic dishonesty. Implications of the findings are discussed.

Keywords: General Strain Theory, Academic Dishonesty, Plagiarism.

Introduction

Pursuing a college degree presents a pivotal investment in a student's future. Much is at stake at this critical juncture of life. Internal and external pressures to perform, academically, are amplified by stiff competition for well-paying jobs or limited seats in medical, law, or graduate school. For many, the college degree is perceived to be a passport needed to enter the leisurely middle or upper-class lifestyle and the pressure to succeed may lead to academically dishonest behaviors when this aspiration is jeopardize.

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Cheating is not a new problem as concerns with integrity can be traced back to ancient China where, for example, officials took extraordinary precautions to prevent cheating on civil service tests. Proctors thoroughly searched exam-takers for unauthorized materials before entering an isolated cubicle for the three-day test. Both examinee and examiner were threatened with an extremely harsh punishment, execution, if cheating was detected. Nevertheless, despite the severity of the penalty, cheating still occurred (Brickman, 1961).[5]

Since the 1950s, scholastic dishonesty has garnered a considerable amount of attention from the academic community and popular media (e.g., Avent, 1990; Becker & Madsen, 1966; "Cheating in college is widespread," 2010; "Cheating in colleges," 1976; Gordon, 1990; Mano, 1987; Rosenberg, 1973; Selwall, Drake, & Lee, 1980; Weinstein, 1953). The research literature on college student cheating is quite extensive with nearly every contribution emanating from two disciplines: education and psychology. With some notable exceptions (*see* Agnew & Peters, 1986; Bonjean & McGee, 1965; Eskridge & Ames, 1993; Eve & Bromley, 1981; Gibbs & Giever, 1995; Gibbs, Giever, & Martin 1998; Harp & Taietz, 1966; Lanza-Kaduce & Klug, 1986; Liska, 1978; Michaels & Miethe, 1989; Mustaine & Tewksbury, 2005; Stannard & Bowers, 1970; Smith, 2004; Smith, Rizzo, & Empie, 2005; Tittle & Rowe, 1974), academic integrity has been largely ignored by the field of criminology. Arguably, this oversight might be due to misguided perceptions of harm; that is, academic dishonesty is innocuous conduct.

However, the literature finds that cheating is consequential as the behavior, positively reinforced in a college environment, is employed in other contexts such as work simply because it has been successful or rewarded in the past (*see* Graves, 2008; Michaels & Miethe, 1989; Nonis & Swift, 2001). For example, Sims' (1993) study of MBA students found a strong association between cheating in college and dishonesty at work including embezzlement, stealing company property, and time theft. Additionally, academic dishonesty could possibly endanger the public's health, too, if the lack of integrity carries over from medical school (Sierles, Hendrickx, & Circle, 1980) or engineering programs (Passow, Mayhew, Finelli, Harding, & Carpenter, 2006) to a workplace context. Allowing structural engineers, for example, who cheated through a degree program to design bridges or high-rise buildings would certainly be a dangerous proposition if their unethical behavior in college were not extinguished upon graduation.

Given the potentially harmful effects of academic dishonesty, it is imperative that researchers investigate theories from a broad range of disciplines. Theoretical criminology seems to be particularly well suited for this task as the field offers many explanations of deviant behavior and, therefore, would make a substantive contribution to the academic integrity literature. Agnew's general strain theory is one such criminological explanation, among many, that can be logically applied to cheating behavior and is the focus of this investigation.

[5] An ancient cribbing outfit concealing 520,000 characters assembled into 720 Confucian essays can be found at Princeton University's Gest Oriental Library (Brickman, 1961, p. 412; "For the exam hurdle," 1960, p. 17-T).

Theoretical Overview

Robert Agnew (1985, 1992) advanced Merton's theory (1938) by expanding the concept of strain to include additional sources of stress or frustration beyond the traditional disjuncture between economic aspirations and expectations. In simple terms, deviance is generated by an inability to cope, in legitimate ways, with noxious events that produce negative emotions such as anger. Agnew's general strain theory identified three deviance-producing sources of strain:

Strain produced from a failure to achieve positively valued goals

Agnew described three strain-producing subtypes under this deviance-producing pathway. First, in agreement with the traditional view of the strain concept, stress can occur when a wide gulf exists between an individual's aspirations and expectations. Agnew expanded the classic view of strain, a focus on idealistic goals, to include more immediate goals that do not necessarily involve monetary success. In addition, a failure to achieve personal goals can occur because of blocked opportunities or personal inadequacies such as poor study habits or a learning disability. Second, strain can be produced when a wide gap occurs between one's expectations and actual achievement. When an individual fails to achieve a goal that they realistically expected to accomplish than frustration, anger, and disappointment may occur. For example, a student who reasonably expects to achieve an "A" on a midterm examination but receives a disappointing grade instead may be driven to cheat on subsequent tests. Third, strain occurs when an individual perceives an outcome to be unjust or unfair. A person may compare themselves to others and come to a determination that an inequity exists. That is, compared to others, they believe the outcome to be unequal to the effort expended.

Strain produced by the removal of positively valued stimuli

Strain can occur when an individual anticipates or actually experiences the removal of something personally valued. Distressing events such as the death of loved family member or friend, a move to a new neighborhood, and a breakup with a boyfriend or girlfriend produces stress. Individuals may react to this traumatic event in a variety of ways to cope with the loss or to restore the positive stimuli.

Strain caused by the presence of negative stimuli

When individuals confront noxious situations, a tremendous amount of strain might occur. For example, abused children may react in a variety of ways to cope with the noxious situation including running away to avoid the negative stimuli or use of violence to extinguishing the negative stimuli.

Review of Literature

Agnew's general strain theory has been empirically tested on a wide gamut of deviant behaviors including *delinquency* (Agnew, Brezina, Wright, & Cullen, 2002; Aseltine, Gore, & Gordon, 2000; Eitle, 2010; Hays & Evans, 2006; Hoffman & Miller, 1998; Hollist, Hughes, & Schaible, 2009; Jennings, Piquero, Gover, & Perez, 2009; Lee & Cohen, 2008; Mazerolle, Burton, Cullen, Evans, & Payne, 2000; Moon, Blurton, & McCluskey, 2008; Moon, Hays, & Blurton, 2009; Piquero & Sealock, 2000; Sigfusdottir, Farkas, & Silver, 2004), *crime* (Baron, 2004; Broidy, 2001; Botchkovar, Tittle, & Antonaccio, 2009; Capowich, Mazerolle, & Piquero, 2001; Froggio & Agnew, 2007; Froggio, Zamaro, &

Lori, 2009; Hoffman, 2010; Rebellon, Piquero, Piquero, & Thaxton, 2009; Robertson, Stein, & Schaefer-Rohleder, 2010), *substance abuse* (Agnew & White, 1992; Baron, 2004; Froggio et al., 2009; Slocum, 2010), *aggression* (Brezina, 2010; Jennings et al., 2009; Moon et al., 2009), and *white-collar crime* (Langton & Piquero, 2007). Additionally, while most studies examine samples from the United States a growing number of investigations of non-American populations have been undertaken in *Canada* (Baron, 2004), *China* (Bao, Haas, & Pi, 2007), *Greece* (Botchkovar, Tittle & Antonaccio, 2009), *Iceland* (Sigfusdottir et al., 2004), *Italy* (Froggio & Agnew, 2007; Froggio et al., 2009), *Russia* (Botchkovar & Broidy, 2013; Botchkovar, Tittle & Antonaccio, 2009), *South Korea* (Moon, Blurton & McCluskey, 2008), and the *Ukraine* (Botchkovar, Tittle & Antonaccio, 2009).

Table 1. Empirical Tests of General Strain Theory (n = 31)

	Findings			
	Blocked Goals	*Remove + Stimuli*	*Negative Stimuli*	*Cumulative Stress*
Agnew et al. (2002)	--	Yes (z)	Yes (z)	Yes (z)
Agnew & White (1992)	Yes (z)	Yes (y)	Yes (y)	Yes (y)
Aseltine, Gore, & Gordon (2000)	--	Yes (x)	Yes (x)	Yes (x)
Bao, Haas, & Pi (2007)	--	--	Yes (z)	--
Baron (2004)	--	Yes (y)	Yes (y)	--
Botchkovar & Broidy (2010)	No	--	Yes (y)	Yes (y)
Botchkovar, Tittle, & Antonaccio (2009)	Yes (y)	Yes (y)	Yes (y)	--
Brezina (2010)	--	--	--	Yes (y)
Broidy (2001)	No	Yes (y)	Yes (y)	--
Capowich, Mazerolle, & Piquero (2001)	--	--	--	Yes (y)
Eitle (2010)	--	--	Yes (y)	Yes (y)
Froggio & Agnew (2007)	Yes (z)	Yes (x)	Yes (x)	--
Froggio, Zamaro, & Lori (2009)	--	--	--	Yes (y)
Hay & Evans (2006)	--	--	Yes (z)	--
Hoffman (2010)	--	--	--	Yes (z)
Hoffman & Miller (1998)	--	--	--	Yes (z)
Hoffman & Su (1997)	--	--	--	Yes (z)
Hollist, Hughes, & Schaible (2009)	--	--	Yes (z)	--
Jennings et al. (2009)	--	--	Yes (z)	--
Langton & Piquero (2007)	--	--	--	Yes (x)
Lee & Cohen (2008)	--	Yes (y)	--	--
Mazerolle & Piquero (1998)	Yes (x)	No	No	Yes (x)
Mazerolle et al. (2000)	--	--	--	Yes (y)
Moon, Blurton, & McCluskey (2008)	Yes (x)	Yes (x)	Yes (y)	--
Moon, Hays, & Blurton (2009)	Yes (x)	Yes (x)	Yes (y)	--
Paternoster & Mazerolle (1994)	Yes (y)	Yes (z)	Yes (z)	Yes (z)
Piquero & Sealock (2000)	--	--	--	Yes (z)
Rebellon et al. (2009)	Yes (z)	--	Yes (z)	
Robertson, Stein, & Schaefer-Rohleder (2010)	--	Yes (z)	Yes (z)	Yes (z)
Sigfusdottir, Farkas, & Silver (2004)	--	Yes (z)	Yes (z)	--
Slocum (2010)	--	--	Yes (y)	Yes (y)
	% Total	*% Total*	*% Total**	*% Total*
(No) No support	20.0%	7.1%	4.8%	0.0%
(x) Weak or limited support	30.0%	28.6%	9.5%	16.7%
(y) Mixed or partial support	20.0%	35.7%	42.9%	44.4%
(z) Moderate to strong support	30.0%	28.6%	42.9%	38.9%

* May not equal 100% because of rounding

Table 1 above provides a list of empirical studies that could be located in the published literature. As is apparent, most investigations do not attempt to test all three pathways, but, instead, lean towards employing measures of negatively valued stimuli and cumulative stress. Additionally, among the deviance-producing pathways, presentation of negatively valued stimuli is tested the most frequently followed by removal of positively valued stimuli and blockage of goals.

In terms of the empirical evidence, a majority of studies generate findings that are partially, moderately, or strongly supportive of general strain theory. Among the four types of measures tested, cumulative stress has received the most empirical support. Interestingly, not a single study has failed to find any support for this measure although several investigations do report weak or limited support (*see* Aseltine et al., 2000; Langton & Piquero, 2007; Mazerolle & Piquero, 1998). Among the three distinct types of deviance-producing strain, the research finds the most support for negatively valued stimuli followed by the removal of positively valued stimuli and the blockage of goals.

Hypotheses

General strain theory should be capable of explaining a wide variety of deviant behaviors including academic dishonesty. Students experiencing strain would be more likely to cheat in response to pressures a college environment may present. The current study aims to assess, in part, general strain theory with a test of the following hypotheses:

Strain produced by the blockage of positively valued goals

A failure to achieve academic and professional aspirations because of personal inadequacies or perceived injustices in educational and employment competition will increase the likelihood of academic dishonesty in the following manner:

- Hypothesis 1: Personal academic shortcomings will increase the likelihood of cheating.
- Hypothesis 2: Students that believe cheaters have an unfair competitive advantage in the job market or being admitted into post-baccalaureate programs, such as medical or law school, are more likely to cheat.

Strain caused by the presence of negative stimuli

Students exposed to negative educational experiences will have an increased likelihood of academic dishonesty in the following manner:

- Hypothesis 3: The likelihood of cheating increases if students are placed on academic probation.
- Hypothesis 4: The likelihood of cheating increases if students find classes to be uninteresting and meaningless.

Strain produced by the removal of positively valued stimuli

Students who are threatened with losing, or have actually lost, positively valued stimuli will have an increased likelihood of cheating in the following manner:

- Hypothesis 5: The likelihood of academic dishonesty will increase if students are threatened with the prospect of losing their academic scholarships if they do not meet minimum academic standards.
- Hypothesis 6: The likelihood of scholastic dishonesty will increase if student athletes are threatened with academic ineligibility to participate in varsity sports.

Cumulative stress

Students who experience many academically stressful situations will be more likely to cheat on exams and plagiarize than those who experience relatively fewer stressful stimuli in the following manner:

- Hypothesis 7: The likelihood of cheating will increase as the number of academic stressors increases.

Methodology

Tool and Procedure

An anonymous self-report questionnaire was administered to a convenience sample of 24 undergraduate classes offered at a private college. Classes selected represented a wide spectrum of disciplines including English, Spanish, French, economics, computer science, history, humanities, nursing, philosophy, political science, psychology, sociology, and criminal justice. Nearly 500 surveys were administered, however, only 94.1% of respondents (n = 461) provided all of the necessary information on the questionnaire to be considered usable for this study.

Measures

Table 2. Variable List (n = 461)

Variable	Description	Min/Max	Mean	SD
Control				
MALE	Gender (0=Female, 1=Male)	0-1	.41	.49
CLASS STANDING	Class standing (1=Freshman, 2=Sophomore, 3=Junior, 4=Senior	1-4	2.33	1.04
GPA	Current GPA	0.00-4.00	2.62	.49
Blocked Goals				
SHORTCOMING SCALE	5 Item Personal Academic Shortcoming Scale	5-20	11.93	2.64
INJUSTICE SCALE	2 Item Perceived Injustice Scale	2-8	5.68	1.30
Present Negative Stimuli				
ACADEMIC PROBATION	Placed on academic probation? (0=No, 1=Yes)	0-1	.15	.36
INSIPID CLASSES	Most classes I have taken are meaningful and interesting to me	0-1	.28	.45
Remove Positive Stimuli				
LOSE SCHOLARSHIP	Actual or threatened with loss of scholarship (0=No, 1=Yes)	0-1	.07	.25
LOSE ATHLETIC ELIGIBILITY	Actual or threatened with loss of athletic eligibility (0=No, 1=Yes)	0-1	.03	.16
Cumulative Stress Index				
CUMULATIVE STRESS INDEX	11 Item Cumulative Stress Index	0-11	3.75	1.72
Dependent Variables				
EVER CHEAT ON EXAM	Ever cheated on examination? (0=No, 1=Yes)	0-1	.50	.50
EVER PLAGIARIZE	Ever used work written by another? (0=No, 1=Yes)	0-1	.30	.46
CHEATING FREQUENCY	Frequency of exam cheating and plagiarism	0-45	2.83	4.25

Control Variables

A number of questions were employed as control variables -- male, class standing, and current GPA. Current GPA was measured as a continuous level variable (0.00-4.00).

Male was measured as a binary variable where 0=*Female*, 1=*Male*. Class standing was measured by the following coding scheme: 0=*Freshman*, 1=*Sophomore*, 2=*Junior*, 3=*Senior*.

General Strain Variables

The following general strain concepts are measured in the current study: (1) blockage of positively valued goals, (2) removal of positively valued stimuli, (3) presence of negatively valued stimuli, and (4) cumulative stress.

Blockage of Positively Valued Goals: Two variables were created to measure stress related to personal academic shortcomings and stress related to perceptions of unfair competition. The *personal academic shortcoming scale* was measured by the responses to five questions utilizing a 4-point Likert scoring technique (1=*Strongly Disagree*, 2=*Disagree*, 3=*Agree*, 4=*Strongly Agree*):

- "I am a poor test-taker."
- "I tend to be a procrastinator when it comes to school work."
- "For some reason I have a problem with class attendance."
- "I have a problem paying attention to lectures in class."
- "I have a short attention span which interferes with my academic life."

All five items were summed to create a personal academic shortcoming scale. Low scores indicate absence of self-perceived academic shortcomings while high scores indicate the presence of perceived impediments to academic achievement.

Perceived injustice was measured with two questions that asked students whether they agree or disagree with the following statements (1=*Strongly Disagree*, 2=*Disagree*, 3=*Agree*, 4=*Strongly Agree*):

- "Students who cheat have an unfair competitive advantage in the job market because employers might use GPAs to make initial hiring decisions."
- "Students who cheat have an unfair competitive advantage getting into graduate or professional schools (for example: medical, law, MBA programs, et cetera)."

Both questions were added to form a single measure with low scores corresponding with the perception that "cheaters do not prosper" while high scores indicate a perception that students unfairly benefit by cheating.

Presence of Negatively Valued Stimuli: Two variables measure stress related to being dismissed for poor academic performance and an academic experience that is insipid. The threat of being dismissed for poor academic performance is measured by asking respondents the following question: "Have you ever been placed on academic probation?" (0=*No*, 1=*Yes*). Insipid academic experience was measured with the following question: "Most classes I have taken are meaningful and interesting to me" (0=*Yes*, 1=*No*).

Removal of Positively Valued Stimuli: Two variables were created that measure stress related to losing an academic scholarship or losing athletic eligibility because of poor grades (0=*No*, 1=*Yes*):

- "Have you ever been threatened with losing or actually lost your scholarship because of poor grades?"
- "Have you ever been threatened with or have actually been declared academically ineligible to participate in your intercollegiate sport because of poor grades?"

Cumulative Stress: An 11-item cumulative stress additive scale was constructed from the items employed to measure the deviance producing stressors described above. Items measured with a 4-point Likert score were recoded as a dichotomous variable where "0"

represents the absence of stress and "1" represents the presence of stress. For example, respondents who selected *strongly agree* or *agree* to the question, "Students who cheat have an unfair competitive advantage getting into graduate or professional schools" were scored as "1" and those scored as "0" selected either *disagree* or *strongly disagree*.

Dependent Variables

Academic dishonesty was measured by the self-reported responses to nine methods of cheating during the student's entire college career. The cheating index covers two general types of academic dishonesty, viz., cheating on in-class tests and plagiarism. Many items were taken directly or partially modified versions of questions derived from Ferrell and Daniel's Academic Misconduct Scale (1995) or Stern and Havlicek's (1986) study. Cheating questions, presented in Table 3 below, were measured using the following response set (0=*Never*, 1=*Once*, 2=*Twice*, 3=*Three Times*, 4=*Four Times*, 5=*More than Four Times*). All items were summed to compute an overall cheating frequency variable with a range of values from 0 to 45 respectively. In addition to cheating frequency, separate dichotomous variables measuring the prevalence of exam cheating and plagiarism were constructed. For example, students who marked "never" on all three plagiarism questions listed below were scored as a "0=*No"* for the ever plagiarize variable. All other values greater than 1 were scored as "1=*Yes*." Table 3 below presents descriptive statistics for the cheating scale.

Table 3. Descriptive Statistics for Cheating Scale Items (n = 461)

Type of Academic Dishonesty	Min./Max	Mean	SD	Prevalence	More Than Once
CHEATING ON TESTS SUBSCALE	0-30	2.06	3.28	49.7%	36.9%
Copied another student's test answers.	0-5	.91	1.49	37.1%	23.2%
Used a cheat sheet, viewed notes previously written on the desktop or on your hand.	0-5	.62	1.26	27.1%	16.1%
Secretly looked at your notes.	0-5	.33	.91	16.1%	8.5%
Left the room to look at hidden notes.	0-5	.08	.38	5.6%	1.7%
Received answers from another using a prearranged signal system.	0-5	.06	.36	3.5%	2.0%
Changed a response after a test was graded, then reporting that there had been a misgrade and requested credit for your altered response.	0-5	.06	.32	3.9%	1.5%
PLAGIARISM SUBSCALE	0-15	.77	1.62	29.7%	18.0%
Submitted a term paper or homework assignment completely written by another student.	0-5	.19	.70	10.0%	3.9%
Copied or modified a term paper or assignment written by another student.	0-5	.57	1.14	27.3%	15.0%
Purchased and submitted a term paper written by a business that sells research papers.	0-5	.02	.17	1.1%	< 1%
TOTAL CHEATING FREQUENCY SCALE	0-45	2.83	4.25	58.6%	45.3%

0=Never, 1=Once, 2=Twice, 3=Three Times, 4=Four Times, 5=Five or More Times

Table 3 above finds that a majority of respondents (58.6%) have either cheated on a test or plagiarized at least once during their college career. In addition, 45.3% have admitted to cheating more than once. The most common type of academic dishonesty is exam cheating (49.7%) followed by plagiarism (29.7%). Copying another student's test answers during a closed book test (37.1%), copying or modifying a term paper or assignment written by another student (27.3%), and using a cheat sheet or notes written on a desktop or hand (27.1%) were the most prevalent methods of cheating. The least common methods were purchasing a term paper written by a business that sells research papers (1.1%), receiving answers from another student using a prearranged signal system during a closed book test (3.5%), and changing a response after a test was graded then requesting credit for an altered response (3.9%). In summary, the figures in table 3 suggest that the majority of students in this study have cheated and many have done so repeatedly.

Results

Bivariate

Table 4. Bivariate Correlation Matrix (n = 461)

	01	02	03	04	05	06	07	08	09	10	11	12	13
01. MALE	--												
02. GPA	-.23**	--											
03. CLASS STANDING	-.04	.07	--										
04. SHORTCOMING SCALE	.10*	-.53**	-.11*	--									
05. INJUSTICE SCALE	-.24**	.13**	-.11*	-.11*	--								
06. ACADEMIC PROBATION	.14**	-.35**	.14**	.30**	-.06	--							
07. INSIPID CLASSES	.23**	-.27**	-.11*	.27**	-.11*	.10*	--						
08. LOSE SCHOLARSHIP	.01	-.03	-.14**	-.01	.00	-.06	.03	--					
09. LOSE ATHLETIC ELIGIBILITY	.17**	-.25**	.03	.18**	-.20**	.35**	.02	-.04	--				
10. CUMULATIVE STRESS INDEX	.01	-.46**	-.16**	.77**	.31**	.43**	.24**	.09*	.24**	--			
11. EVER CHEAT ON EXAM	.26**	-.24**	.04	.22**	-.15**	.09	.13**	-.08	.14**	.12*	--		
12. EVER PLAGIARIZE	.13**	-.28**	.13**	.30**	-.14**	.17**	.20**	-.03	.22**	.24**	.26**	--	
13. CHEATING FREQUENCY	.28**	-.29**	.12**	.32**	-.29**	.19**	.20**	-.08	.29**	.18**	.58**	.55**	--

* p < .05 ** p < .01

Table 4 presents the results of a bivariate correlation analysis. Except for one correlation coefficient between class standing and ever cheat on exam, the control variables were significant predictors of cheating. Males were significantly more likely to have ever cheated than females; moreover, males were significantly more likely to cheat frequently as well. In terms of self-reported grades, there is a significant relationship with cheating as

GPAs increase the likelihood and frequency of cheating decreases. Apparently, cheaters do not necessarily prosper by inflating their grades. Class standing was also a significant predictor of plagiarism and the frequency of cheating but not a significant predictor of exam cheating.

The general strain variables were statistically significant predictors of all three cheating measures for 17 of the 21 cells. However, three of these significant relationships were in an *unexpected* direction. Students who strongly believe that cheaters have an unfair competitive advantage in the job market or admission into graduate or professional schools were *less likely* to cheat. Finally, in terms of predicting the frequency of cheating, the strongest associations in the theoretically predicted direction are observed for strain measures from each deviance-producing pathway: (a) Shortcoming scale by cheating frequency ($r = .32$, $p < .01$); (b) Lose athletic eligibility by cheating frequency ($r = .29$, $p < .01$); and (c) insipid classes by cheating frequency ($r = .20$, $p < .01$).

Multivariate

Logistic Regression

Table 5 below reports the results of a logistic regression on the *ever cheat on exam* variable. The first model tests only control variables while the second model includes controls as well as variables from all strain pathways and the final model includes controls and the cumulative stress index.

Table 5. Logistic Regression on Examination Cheating (n =461)

	Model 1			Model 2			Model 3		
	b	SE	Odds Ratio	b	SE	Odds Ratio	b	SE	Odds Ratio
CONTROLS									
Male	.93***	.20	2.52	.90***	.22	2.45	.95***	.21	2.59
GPA	-.89***	.21	.41	-.57*	.25	.57	-.79**	.24	.45
Class Standing	.14	.09	1.15	.15	.10	1.17	.15	.10	1.17
BLOCKED GOALS									
Shortcoming Scale				.13**	.05	1.14			
Injustice Scale				-.09	.08	.91			
PRESENT (-) STIMULI									
Academic Probation				-.44	.33	.65			
Insipid Classes				.09	.24	1.10			
REMOVE (+) STIMULI									
Lose Scholarship				-.74	.41	.48			
Lose Athletic Eligibility				1.37	1.10	3.95			
CUMULATIVE STRESS									
Cumulative Stress Index							.06	.07	1.06
Intercept	1.62**	.61	5.06	-.17	1.21	.84	1.08	.83	2.94
Model Chi-Square (D.F.)	50.77(3)***			67.24 (9)***			51.69 (4)***		
-2 Log Likelihoods	588.29			571.83			587.37		
Nagelkerke R^2	.139			.181			.141		

* p < .05 ** p < .01 *** p < .001

Logistic regression results indicate that model 1 is statistically reliable in distinguishing between those who have ever cheated on exams and those who did not (χ^2 (3) = 50.77, p < .001), explaining a modest amount of variance in the dependent variable (Nagelkerke R^2 = .139). Controlling for all other variables in the model, males were significantly more likely to have ever cheated on a test than females (b = .93, p < .001). The odds of cheating on an exam are 2.52 higher for males than for females. GPA was also a statistically significant predictor of having ever cheated on an exam (b = -.89, p < .001) with increases in grades decreasing the odds of exam cheating.

With the introduction of the independent variables from each strain producing pathway in model 2 -- blocked goals, presence of negatively valued stimuli, and removal of positively valued stimuli -- the amount of explained variance increases by 4.2% (Nagelkerke R^2 = .181). Among the strain measures, only one variable, the *shortcoming scale* (b = .13, p < .01), was a significant predictor of exam cheating while controlling for all other variables. The odds ratio suggests that as scores on the personal academic shortcoming scale increases then the likelihood of cheating increases. Finally, model 3 analyzes the control variables and cumulative stress. Controlling for all other variables in the model, the *cumulative stress index* did not achieve statistical significance in the prediction of exam cheating (b = .06, p > .05).

Table 6. Logistic Regression on Plagiarism (n =461)

	Model 1			Model 2			Model 3		
	b	SE	Odds Ratio	b	SE	Odds Ratio	b	SE	Odds Ratio
CONTROLS									
Male	.33	.22	1.40	.16	.25	1.17	.43	.23	1.54
GPA	-1.41***	.25	.24	-.65*	.30	.52	-.99***	.28	.37
Class Standing	.36**	.11	1.43	.42***	.11	1.53	.41***	.11	1.50
BLOCKED GOALS									
Shortcoming Scale				.20***	.05	1.22			
Injustice Scale				-.09	.09	.91			
PRESENT (-) STIMULI									
Academic Probation				-.25	.34	.78			
Insipid Classes				.58*	.25	1.79			
REMOVE (+) STIMULI									
Lose Scholarship				.00	.45	1.00			
Lose Athletic Eligibility				2.38*	1.11	10.82			
CUMULATIVE STRESS									
Cumulative Stress Index							.24**	.07	1.27
Intercept	1.73*	.68	5.66	-2.41	1.38	.09	.42	.95	.66
Model Chi-Square (D.F.)	52.13(3)***			85.32 (9)***			63.41 (4)***		
-2 Log Likelihoods	508.86			475.68			497.58		
Nagelkerke R^2	.152			.240			.183		

* p < .05 ** p < .01 *** p < .001

Table 6 above presents the findings of logistic regression on the *ever plagiarize* variable replicating the same analytical procedures employed in Table 5. In terms of explained variance, the variables in all three models were slightly better predictors of this form of academic dishonesty than exam cheating. Similar to the logistic regression analysis of exam

cheating, GPA is a significant predictor of plagiarism in all models. As GPA increases, the odds of plagiarizing decrease. Unlike the exam cheating analysis, however, gender is not a significant predictor of this form of academic dishonesty. Additionally, class standing is a significant predictor of plagiarism in all models but not a significant predictor of exam cheating (*see* Table 5).

Model 2 finds support for strain variables in each pathway. Similar to the findings in Table 5, assessments of personal academic shortcoming is a statistically significant predictor of plagiarism (b = .20, p < .001) controlling for all other variables in the model. In addition, the *insipid classes* and *lose athletic eligibility* variables are significant predictors of plagiarism. If students believe their classes are uninteresting or meaningless then the likelihood of plagiarizing increase (b = .58, p < .01). Additionally, those who are threatened with or have actually lost eligibility to participate in intercollegiate sports because of poor grades increases the likelihood of plagiarizing as well (b = 2.38, p < .05). Finally, in contrast to the null findings from logistic regression on exam cheating, model 3 finds the *cumulative stress index* to be a significant predictor of plagiarism (b = .24, p < .01). The odds of plagiarizing increases by 1.27 for every one unit increase in the *cumulative stress index*.

OLS Regression

Table 7. OLS Regression on Cheating Frequency (n =461)

	Model 1			Model 2			Model 3		
	b	SE	β	b	SE	β	b	SE	β
CONTROLS									
Male	1.93***	.38	.22	1.39***	.38	.16	2.04***	.38	.24
GPA	-2.14***	.38	-.25	-.63	.44	-.07	-1.66***	.43	-.19
Class Standing	.62**	.22	.21	.59**	.17	.14	.68***	.18	.17
BLOCKED GOALS									
Shortcoming Scale				.34***	.08	.21			
Injustice Scale				-.51***	.14	-.16			
PRESENT NEGATIVE STIMULI									
Academic Probation				-.34	.56	-.03			
Insipid Classes				.81*	.41	.09			
REMOVE POSITIVE STIMULI									
Lose Scholarship				-.96	.68	-.06			
Lose Athletic Eligibility				4.78***	1.19	.18			
CUMULATIVE STRESS									
Cumulative Stress Index							.29*	.12	.12
Intercept	6.22***	1.12		1.10	2.08		3.68*	1.53	
R^2	.153***			.266***			.164***		

* p < .05 ** p < .01 *** p < .001

Table 7 reports the results of an Ordinary Least Squares Regression on *cheating frequency*. Consistent with the findings from the logistic regression analyses, the control variables are significant predictors of the frequency of plagiarism and test cheating,

explaining 15.3% of the variation in the dependent variable in model 1. When strain variables from each pathway are introduced in model 2, the amount of explained variance increases by 11.3% and GPA is no longer a significant predictor (β = -.07, $p > .05$). Regarding the key independent variables, the analysis finds four of the six strain measures, viz., *shortcoming scale, injustice scale, insipid classes* and *lose athletic eligibility* are significant predictors of the frequency of cheating. However, consistent with the findings of the bivariate analysis, the *injustice scale* unexpectedly *decreases* the frequency of cheating (β = -.16, $p < .001$). Based on the magnitude of the standardized regression coefficients, the analysis finds *shortcoming scale* to have the strongest association with cheating frequency (β = .21, $p < .001$) followed by *lose athletic eligibility* (β = .18, $p < .001$), *injustice scale* (β = -.16, $p < .001$), and the *insipid classes* measure (β =.09, $p < .05$). Finally, model 3 finds the *cumulative stress index* to be a statistically significant predictor of the frequency of cheating (β = .29, $p < .05$) controlling for all other variables in the model. The addition of the *cumulative stress index* to the controls, however, only increases the amount of explained variance by a very small amount (1.1%).

Discussion and Conclusion

The results of this study produced mixed support for general strain theory. Six of the seven hypotheses were not supported in the analysis of exam cheating but four of the seven hypotheses were supported in the analysis of plagiarism. Only the first hypothesis, personal academic shortcomings will increase cheating, was validated in both tests. In terms of the frequency of cheating, four of the seven hypotheses were supported. Interestingly, one hypothesis test produced an unexpected finding (hypothesis 2) in that perceived injustices *decreased* the frequency of cheating. Those who strongly believed that cheaters had an unfair advantage over honest students in the job market and application to post-baccalaureate programs, such as medical or law school, were not willing to take corrective actions to offset the competitive inequity.

The results of this modest study lend support to the argument that research on academic integrity can certainly benefit from theoretical criminology. Future research on scholastic dishonesty might prosper by investigating the role of other prominent criminological explanations not tested in this investigation. Criminology profits as well by displaying the field's robust explanatory power and flexibility. Theories within the discipline can also be tested for explanatory breadth, scope and generality by examining general forms of deviance and other social problems historically disregarded by the field.

Limitations

There are several noteworthy limitations of this study. First, the retrospective cross-sectional design does not permit establishment of temporal ordering among the variables. It is uncertain if dishonest behaviors preceded the academic stressors measured in this study. There is simply no way to determine, for example, if perceptions of personal academic shortcomings lead to cheating or is otherwise indicative of post-cheating rationalizations. Second, this investigation did not consider coping mechanisms that could have dampened deviant reactions to adverse conditions. Agnew (1992, p. 66) argues that cognitive, emotional, and behavioral adaptations to frustration exist and that very few individuals respond in a deviant manner. Still, the findings do indicate that many students have cheated (*see* Table 3) but not necessarily in response to the academic stress or frustration that were measured in this study. Additionally, it is also conceivable that

students confronted with academic stress may have coped in other deviant ways for example, binge drinking or drug use that were not measured in this study. Third, the study does not attempt to measure the impact that negative emotions may have on cheating behaviors. Agnew (1992, p. 59-60) maintains that negative affective states, especially anger, are important mediating links between stress and deviance. Negative emotions prompt corrective maneuvers to relieve stress. We are not certain if any the academic stressors employed for this study produced negative emotions. The unexpected findings for the perceived injustice stressor, for instance, may only increase the likelihood of cheating when accompanied by strong indignation.

Fourth, Agnew (1992, p. 71) also argues the selection of coping adaptations, deviant or non deviant, are constrained by several factors including traits such as "intelligence, creativity, problem-solving skills, . . . and self-esteem." There is good reason to believe that a high concentration of these protective factors might exist in a sample of college students attending a selective private institution. Finally, the loss of athletic eligibility because of poor grades may not produce sufficient stress or frustration to motivate a student to cheat. Perhaps the *subjective* interpretation of an adverse circumstance matters most. Students may have divergent views regarding the magnitude of a negative life event. Failing an examination, for example, may be personally devastating to some who are grade-oriented while producing an apathetic response by others. Future tests of general strain would be better served by developing indices of objective adverse events informed by theory and previous research. In addition, future research should be particularly attentive to the impact accumulation, magnitude, recency, duration, and clustering of negative life events might have on individuals.

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