

Legitimacy and the Exercise of Institutional Authority: Motivating

Compliance with Student Conduct Codes

by

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ABSTRACT

Perceptions of legitimacy are an important antecedent of rule-abiding behavior. However, most research on the link between legitimacy and compliance has focused on legal authorities (i.e., police, courts, and corrections). To help fill this gap, the present study investigates the relationship between students' perceptions of the legitimacy of institutional authority and compliance with a code of conduct in a university context. This study uses cross-sectional data from pencil-and-paper surveys administered to 517 individuals 18 years and older that were enrolled in 12 undergraduate classes at a large southwestern university. Results from the multivariate regression models show that procedural justice judgments are associated with perceived legitimacy. The evidence also supports the link between legitimacy and compliance in that the former is inversely related to students' behavioral intentions to cheat on an exam. However, legitimacy was not significantly associated with plagiarism. Overall, findings support the application of the process-based model of regulation to the university context in regards to academic misconduct. In addition to contributing to the process-based model literature, this study emphasizes the utility of the process-based model as a guide for the development of fair processes, in order to reduce the prevalence of student academic misconduct.

Keywords: legitimacy, compliance, procedural justice, academic misconduct

TABLE OF CONTENTS

	Page
LIST OF TABLES	iii
INTRODUCTION	1
REVIEW OF LITERATURE	2
The Processed-Based Model of Regulation	2
Academic Misconduct	6
CURRENT FOCUS	10
METHODS	11
Data	11
Variables	12
Analytic Strategy	20
RESULTS	21
DISCUSSION.....	31
REFERENCES.....	36

LIST OF TABLES

Table	Page
1. Promax-Rotated Pattern and Structure Matrices for Legitimacy	14
2. PAF for Legitimacy	15
3. PAF for Procedural Justice	16
4. Descriptive Statistics	20
5. Correlation Matrix	24
6. Ordinary Least-Squares Legitimacy Models	25
7. Ordinal Regression Model for Cheating on an Exam	27
8. Ordinal Regression Model for Plagiarizing a Paper	30

How best to promote rule-abiding behavior is an important issue for institutional authorities. While it is possible to rely greatly on the threat of sanctions, research consistently shows that such an approach is often misguided and that authorities are more effective when they can draw upon individuals' feelings of responsibility and sense of obligation to voluntarily obey. This is achieved by cultivating institutional legitimacy, which is achieved by using fair procedures to enforce the rules, and the like (Tyler, 2003, 2006). These two propositions represent the core of the process-based model of regulation. A great deal of empirical research shows that perceptions of authorities as legitimate lead people to comply with the law (see, e.g., Murphy, 2005; Reisig, Bratton, & Gertz, 2007; Tyler, 2006) and to follow the rules at their place of employment (see, e.g., Cohen-Charash & Spector, 2001; Tyler & Blader, 2005).

A key shortcoming of this developing body of process-based model research is that it tends to focus almost exclusively on law-breaking behavior (see, e.g., Fagan & Piquero, 2007; Reisig, Tankebe, & Meško, 2014). Investigations of rule violations outside the context of the substantive criminal law are far less frequent (see, e.g., Aquino, Tripp, & Bies, 2006; Wolfe & Piquero, 2011). Given the level of attention to and support for the process-based model, it is surprising how limited the understanding of the model's explanatory scope is. For example, does the process-based model explain student academic misconduct in institutions of higher learning? Similar to other authorities (i.e., legal and otherwise), university officials (institutional authority) rely on students to voluntarily comply with its rules (student code of conduct). If normative judgments and values drive student rule compliance, then it would seem that university officials could

focus attention on developing fair and equitable processes for handling students, something that is far less adversarial and potentially more cost efficient than deterrence-based policies.

This study tests hypotheses derived from Tom Tyler's (1990, 2003, 2006) process-based model in a university context. Using cross-sectional survey data from a university-based sample, several multivariate regression models are estimated to test hypothesized relationships between students' procedural justice judgments of university authorities and policies and their legitimacy perceptions, and also the influence of the latter on compliance with the student code of conduct. The results will not only contribute to the growing body of research on the process-based model, but will also provide practical empirical evidence to university officials interested in curbing rates of academic misconduct among students.

Literature Review

The Process-Based Model of Regulation

The process-based model posits that the manner in which people are treated by authorities matters and directly affects their outlook of an authority (Tyler, 1990). What is more, while it may be possible to regulate individual behavior using only sanctions and incentives, the process-based model posits it is better if authorities can draw upon individuals' sense of obligation to voluntarily obey (i.e., legitimacy) to gain compliance with rules (e.g., criminal law and organizational policies) (Tyler, 2003).

A key concept of the process-based model—procedural justice—is operationally defined as the perceived fairness of the decision-making processes employed by authorities and by the perceived fairness of interpersonal treatment exhibited by

authorities. The latter component, fairness of interpersonal treatment, refers to how fairly individuals feel authorities treat them. When people feel that their rights are being acknowledged, are treated politely and with respect, and feel that authorities are acting out of a genuine desire to do what is right they are more likely to perceive fair treatment. The former component, fairness of decision-making, is captured by an authority's willingness to listen to people and explain their motives. People want to see that the process is impartial, and that no one is given undue advantage, which then increases the chances that the outcome will be perceived as acceptable (Tyler, 2003).

Research has consistently found that procedural justice judgments are linked to perceptions of legitimacy (Hinds & Murphy, 2007; Reisig, Bratton, & Gertz, 2007; Sunshine & Tyler, 2003). Put simply, people who feel they have been dealt with in a procedurally fair way are less likely to believe that they have been personally singled out (e.g., racially or economically profiled) and are more likely to accept the decisions made by authorities (Gau & Brunson, 2010). Conversely, when authorities engage in procedures that are perceived to be unfair, such as racial profiling, they ultimately lose public support (Tyler & Wakslak, 2004).

A second key concept in the process-based model—legitimacy—is conceptually defined as consisting of two parts. Legitimate authorities possess people's authorization to dictate appropriate behavior. They also possess people's trust and confidence in them that they will act honestly and act in ways that are in citizens' best interest (Tyler & Jackson, 2014, p. 78). In other words, when individuals deem an authority legitimate, they feel as though they ought to defer to authorities decisions and rules, and follow them

voluntarily out of obligation rather than fear of punishment or anticipation of reward (Tyler, 1990, 2003).

Traditionally legitimacy has been operationalized using two subscales: trust and obligation to obey (see, e.g., Reising, Bratton, & Gertz, 2007; Sunshine & Tyler, 2003). Trust is the belief that the authority figure is honest, shares individuals' values, is concerned about individuals' wellbeing, and will protect individuals' interests (Tyler & Huo, 2002). Obligation to obey refers to the personal obligation that individuals feel to accept decisions and obey the rules or directives of authority figures (Tyler, 1990). Essentially, when an individual perceives an authority figure to be legitimate they feel a sense of obligation to follow directives of an authority and authorize that authority to determine how individuals should act in certain situations (Tyler, 2003).

More recently, however, Tyler and Jackson (2014) have added a third dimension to legitimacy: normative (or moral) alignment. Tyler and Jackson argue that legitimacy may not only include factors such as trust and felt obligation, but also the belief that authorities broadly share one's moral values. Thus, individuals not only permit authority figures to dictate their behavior, but also justify the authority's right to hold power over them when they share the same set of values and morals (also see Jackson et al., 2012).

The ultimate reason for why procedural justice and legitimacy are consequential is that they work in tandem to produce compliant behavior (e.g., lawful and rule-following behavior), albeit the effect of procedural justice is indirect, exerting influence via legitimacy (Mazerolle et al., 2012; Sunshine & Tyler, 2003; Tyler, 1990). Much research has confirmed the link between beliefs in the legitimacy of the law and legal authorities and compliant behavior while controlling for numerous other factors, such as

sanction risk, personal morality, low self-control and demographic factors (Fagan & Piquero, 2007; Reisig, Wolfe, & Holtfreter, 2011; Reisig, Tankebe, & Meško, 2014). In her work on tax compliance in Australia, Murphy (2005) found that taxpayers' views of the legitimacy of the Tax Office, which were directly influenced by perceptions of procedurally fair treatment, predicted their compliance with tax laws. In contrast, individuals who questioned the legitimacy of the Tax Office were more likely to evade taxes. Similarly, Tyler and colleagues (2007) sought to determine if perceptions of procedural justice had an effect on defendants' views of the legitimacy of the court and future criminal behavior. The study found that offenders' perceptions of fair procedures did have an impact on whether they viewed the law as legitimate, where individuals who had greater perceptions of procedural justice were significantly more likely to view the law as legitimate and, in turn, have reduced likelihood of recidivism.

Similar to findings reported by criminal justice researchers, strong support has also been found by organization researchers. Similar to authority figures within the legal realm, organizational leaders commonly have to make decisions and conduct evaluations about individuals, thus making organizations another context where fair procedures are important. Studies within work-based organizational settings show that, as predicted by the process-based model, employees are more willing to follow organizational rules and authorities when they believe that they are legitimate (Cohen-Charash & Spector, 2001; Materson et al., 2000). In a nationally representative sample of employees in a variety of occupations, Tyler and Blader (2005) found that an individual's perceptions of the legitimacy of organizational rules and policies has a significant impact on one's intention to follow the rules and defer to the policies at their place of employment.

Academic Misconduct

One problem institutions of higher education currently face is an alarming rate of academic misconduct, which appears to be driven (at least in part) by various technological advancements that have opened opportunities for unethical student behavior (Hard, Conway & Moran, 2006; Hughes & McCabe, 2006; Sattler, Graeff, & Willen, 2013). Self-report studies show that up to 90% of college students commit academic misconduct (see, e.g., Hard, Conway & Moran, 2006; Hughes & McCabe, 2006; Witherspoon, Maldonado, & Lacey, 2012). Although prevalence estimates vary from one study to the next, it is clear that unethical academic behavior among students is a problem at universities in the United States.

Academic misconduct is broadly defined as “anything that gives a student an unearned advantage over another” (Mullens, 2000, p. 23). This includes (but is not limited to) cheating on an exam (e.g., looking on another student’s exam for answers), cheating on an assignment (e.g., copying another student’s results for a lab or stats assignment), impersonating another to take an exam (e.g., have another student take an online exam for you), and plagiarizing a written assignment (e.g., taking credit for written work that was not your own) (Hughes & McCabe, 2006; Mullens, 2000). Though academic dishonesty captures many unethical student behaviors, most studies on the subject tend to focus on cheating on exams and plagiarism, largely because these two offenses are traditionally among the most prevalent forms of academic rule breaking observed in higher education (Rettinger & Kramer, 2009; Wheeler & Anderson, 2010). The problem of plagiarism is partially fueled by over 250 online paper mills, such as StudyMode.com, Schoolsucks.com, and ResearchHaven.com, where students can obtain

papers on many different topics (Fain, 2013). Other websites host videos demonstrating on how to successfully cheat on an exam (Household Hacker, 2008).

Academic misconduct is a serious problem for a variety of reasons, not the least of which is that this type of unethical behavior threatens the integrity of universities and colleges because it lies in stark contrast to the values that universities hope to instill in students (e.g., honesty, hard work, and accountability) (Sattler, Graeff, & Willen, 2013). Academic misconduct also damages institutions of higher learning by reducing the value of a degree and damaging the trust between faculty members and students. What is more, students who cheat their way through school deprive themselves of an education. This results in poorly educated graduates. This lack of preparedness can be especially critical in a number of professions, especially those where public safety is a focal point of the job (Carpenter et al., 2006). Moreover, successfully engaging in misbehavior (e.g., unfairly receiving credit) may increase the likelihood of future dishonesty. Studies have shown that students who are academically deviant in college are more likely to cut corners in their future career (Harding et al., 2004; Nonis & Swift, 2001). In sum, the negative consequences associated with unethical student behavior is clear and addressing the problem should be a salient goal of universities and colleges throughout the United States.

A significant body of research has focused on the factors thought to be associated with academic misconduct. This effort is partially motivated by the need to develop more effective preventative measures that can help reduce the prevalence of unethical academic practices by students. Yet prior research has done little to help prevent academic misconduct. Many of the factors found to be associated with academic

misconduct are either difficult to manipulate (e.g., self-control and personal morality) or largely ineffective (e.g., sanction risk) (Ashwin, 2012).

Given the level of empirical support for the process-based model in curbing rule-breaking behavior in other contexts, it is surprising that it has yet to be applied to the problem of student academic misconduct in institutions of higher learning. After all, perceptions of institutional legitimacy have been linked to compliance with legal statutes and adherence to organizational rules in business settings. Just as there are criminal laws governing citizens' behavior and organizational rules directing how employees behave, so too are there rules regulating academic behavior in the form of student codes of conduct. And institutions of higher education, similar to criminal justice and business organizations, rely (to a great extent) on voluntary compliance with such rules. Similar to the social harm caused by crime commission, violation of student codes of conduct (e.g., plagiarism and cheating on exams) harms the integrity of educational institutions, places honest students in an unfair competitive environment, and can result in unqualified graduates entering job markets.

Other factors influencing academic misconduct. Research has focused on a number of different factors hypothesized to explain academic misconduct. For example, studies consistently observe an association between low self-control and academic misconduct (see, e.g., Cochran et al., 1998; Reisig & Pratt, 2011; Smith, 2004). People who lack self-control are impulsive, risk taking, and value instant gratification. According to Gottfredson and Hirschi (1990), individuals with poor self-control are predisposed to engage in deviant behaviors. When applied to the university context, academic misconduct can provide immediate gratification to impulsive students who

enjoy engaging in risky behaviors. When presented the opportunity, individuals with higher self-control are more likely to resist deviant opportunities. In a large multi-school study, Bolin (2004) found that students with low self-control had more favorable attitudes toward academic misconduct and that self-control accounted for 40% of the variance in academic misconduct. Clearly, individual variations in self-control appear to be associated with self-reported academic misconduct among university students.

Another factor that has been attributed to whether students engage in academic misconduct is sanction risk (i.e., risk of being caught and punished). Deterrence theory states that all forms of student misconduct result from rational calculations by individuals who weigh the benefits of cheating against the potential costs associated with doing so (e.g., likelihood of being caught and the severity of the penalties) (Cochran et al., 1999; Tibbets, 1997). Various studies report that students who believe that the risk of being caught and punished for dishonesty are high are less likely to do it (McCabe, Treviño, & Butterfield, 2002; Sitren & Applegate, 2007; Vandehey et al., 2007). Similarly, Bisping et al. (2008) found that undergraduates were less likely to commit academic misconduct when there was a high perceived likelihood of being caught. Studies have also observed that when higher education institutions implement plagiarism detection software systems students are less likely to commit plagiarism due to the increased likelihood of being caught (Braumoeller & Gaines, 2001; Martin, 2005).

Research also supports the hypothesis that personal moral beliefs strongly impact whether students engage in academic misconduct. Specifically, it is argued that beliefs regarding the wrongness of various forms of student cheating are inversely linked to committing such acts. Students whose moral views are more lax are more likely to

engage in various forms of academic deviance (Cohran et al., 1997; Tibbetts & Myers, 1999). For example, Simkin and McLeod (2010) found that undergraduates' moral beliefs that academic misconduct is wrong functioned as an internal deterrent and were inversely related to committing academic misconduct.

Finally, several demographics are correlated with committing academic misconduct. Age, for instance, has consistently been found to be negatively correlated with academic dishonesty, with younger students more disposed to engage in dishonest behavior (Cochran et al., 1998; McCabe & Trevino, 1997; Nonis & Swift, 2001). Some studies report the presence of a gender gap in student misconduct in that males are more likely to engage in it (Hard et al., 2006; McCabe & Trevino, 1997; Smyth and Davis, 2004). However, not every study has uncovered these gender differences (see Walker, 2010; Yardley et al., 2009). Although a thorough examination of the many known correlates of academic misconduct is beyond the scope of the current study, such variables are included as statistical controls to help limit potential spurious correlations.

Current Focus

The objective of this study is to determine whether two forms of academic misconduct (i.e., cheating on an exam and plagiarism) can be explained by Tyler's (1990, 2003, 2006) process-based model of regulation. Accordingly, two key research questions are investigated: Are student procedural justice judgments about university processes and officials associated with the perceived legitimacy of university authority? Are perceptions of the legitimacy of university authority linked to academic misconduct, controlling for low self-control, personal morality, and sanction risk? These questions are empirically

assessed using cross-sectional survey data from a university-based sample. This study builds on process-based model research by determining whether it informs the understanding of rule-breaking in a university context. Not only will the findings provide much needed information about the explanatory scope of process-based model, but the results will also provide valuable information as to how university administrators can address academic misconduct.

Methods

Data

The data used in this study come from pencil-and-paper surveys that were administered to undergraduate students, ages eighteen years and older, who were attending a large southwestern university. Survey instruments were distributed in twelve undergraduate criminology and criminal justice classes taught by multiple instructors during the fall 2014 and spring 2015 semesters. Ten of the classes were introductory courses that were open to major and non-majors alike ($n = 448$). The remaining two classes were upper-level courses that are largely reserved for criminology and criminal justice majors ($n = 69$). Surveys were administered in class during regularly scheduled meeting times. Prior to administering the survey, students were informed that their participation was voluntary and that their responses were completely anonymous. In total, 502 of the 517 surveys distributed were returned (participation rate = 97.1%). On average it took students 15 minutes to complete the survey.

As is common in survey research, some individuals who participated in the study declined to answer every question contained in the instrument. Imputation of missing values was carried out using similar-response pattern imputation (SRPI), which is

available in PRELIS version 9.1 (Scientific Software International, Chicago, IL). During this process, missing values for specific cases were substituted with values from donor cases with highly similar response patterns. This process has been shown to be effective (Gmel, 2001). Prior to the SRPI process, 712 of the 34,136 cells used in the current study had missing values (2.1%). Following imputation, complete information was available for all 502 cases.

The final sample consisted of 293 females (58.4%) and 209 males (41.6%). Slightly less than half of the respondents were white (46.6%), 33.5% were Latino, 6.8% were African American, 4.6% were Asian, 2.2% were Native American, and 6.4% were racial minority. Most of the students were younger with 57.4% reporting their age as 18-19, 11.6% were 20, and 31.1% were 21 or older. Compared with the university's student population, the sample is more racially diverse, has more females, and is younger.

Variables

Measuring legitimacy. A total of 14 survey items are used to operationalize a multidimensional legitimacy model. All of the items featured a four-point Likert scale, where respondents were asked their level of (dis)agreement with statements ranging from "strongly disagree" to "strongly agree." The survey items were entered into an exploratory factor analysis using principle-axis factoring (PAF). Preliminary tests showed that the data were well-suited for estimating factor-analytic models (Bartlett's sphericity test: $\chi^2 = 3141.341$, $p < 0.001$; Kaiser-Meyer-Olkin test = 0.924). Promax rotation was used because the hypothesized factors were expected to be highly correlated (> 0.30) (Fabrigar et al., 1999). The pattern and structure coefficients are examined and variables

that load under a particular factor at the 0.40 level or higher are retained. The eigenvalues and scree plot indicate a three-factor solution (see Table 1). Factor 1 includes three items (e.g., “The University generally has the same sense of right and wrong as you do”) that are said to reflect *normative alignment* (Cronbach’s $\alpha = 0.825$; mean inter-item $r = 0.612$). Five survey items (e.g., “I trust University officials”) hypothesized to reflect *trust in university* load on Factor 2 (Cronbach’s $\alpha = 0.841$; mean inter-item $r = 0.519$). Factor 3 is defined by six survey items (e.g., “You should support the decisions that the university makes even if you disagree with them”) used in previous research to capture variations in the sense of *obligation to obey* (Cronbach’s $\alpha = 0.841$; mean inter-item $r = 0.519$). The three dimensions of legitimacy—*normative alignment*, *trust in university*, and *obligation to obey*—are operationalized as a weighted factor scores. Scales are coded such that higher values reflect elevated levels of alignment, stronger trust, and a greater sense of obligation to obey.

Although each of the three dimensions of legitimacy will be used individually, the analysis will also employ a multidimensional legitimacy scale. To construct this measure, each of the three subscales were entered into a factor model (PAF) and a simple solution emerged (see Table 2). *Legitimacy* is operationalized as a weight factor score. The scale is coded so that higher scores reflect more favorable legitimacy perceptions. The scale has a mean of 0, and a standard deviation of 1.

TABLE 1. Promax-Rotated Pattern and Structure Matrices for Legitimacy

<i>Variables and Items</i>	<i>Pattern</i>			<i>Structure</i>			<i>R²</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>1</i>	<i>2</i>	<i>3</i>	
Normative Alignment							
1. Your views of right and wrong are consistent with the University's code of student conduct.	.890	-.098	.038	.849	.568	.542	.724
2. The University generally has the same sense of right and wrong as you do.	.861	.052	-.107	.825	.562	.517	.684
3. The University's code of student conduct is consistent with your views of right and wrong.	.432	.250	.123	.687	.640	.605	.531
Trust in University							
1. You generally support how the University acts toward students.	-.042	.852	-.190	.414	.680	.426	.481
2. The code of student conduct at the University is in place to help protect everyone.	.075	.567	.109	.538	.701	.588	.502
3. The University cares about the views of all students.	-.046	.730	.056	.493	.741	.577	.551
4. I trust University officials.	-.021	.628	.116	.489	.701	.576	.497
5. The code of student conduct at the University protects the interests of students like you.	.127	.643	.080	.623	.791	.652	.640
Obligation to Obey							
1. You should support the decisions that the University makes even if you disagree with them.	-.118	-.035	.658	.305	.382	.552	.314
2. It is hard to break University rules and keep your self-respect.	.119	-.182	.623	.417	.371	.566	.335
3. You should always follow University rules even if you do not understand the reasons why.	-.132	.122	.712	.435	.570	.715	.521
4. Students should do what the code of conduct says.	.132	.136	.475	.548	.586	.667	.469
5. It is never okay to ignore the University's code of student conduct.	.078	.057	.658	.563	.607	.753	.574
6. Students who disobey University rules put other students in harm's way.	.082	.063	.485	.454	.486	.588	.353
Eigenvalues (λ) =							
	4.483	5.194	5.061				

TABLE 2. PAF for Legitimacy

<i>Items</i>	<i>Loadings</i>
Normative Alignment	.836
Obligation to Obey	.923
Trust in University	.925
Eigenvalue (λ) =	2.405

Procedural justice. Procedural justice judgments are said to reflect two equally important components: quality of decision-making (e.g., “The University makes fair decisions when dealing with students”) and quality of interpersonal treatment (e.g., “The University treats students with dignity and respect”). Eleven survey items, all of which featured a 4-point Likert scale (i.e., ranging from “strongly disagree” to “strongly agree”), were used to operationalize the procedural justice scale. The 11 items were first entered into a PAF model (Barlett’s sphericity test: $\chi^2 = 2754.088$, $p < 0.001$; Kaiser-Meyer-Olkin test = 0.929), and a unitary factor emerged (see Table 3). Next, the regression scores were saved to create the *procedural justice* scale, where higher scores indicate more favorable fairness judgments. This scale exhibits strong psychometric properties (Cronbach’s $\alpha = 0.910$; mean inter-item $r = 0.484$).

TABLE 3. PAF for Procedural Justice

<i>Items</i>	<i>Factor</i>
<i>Loadings</i>	
1. The University always has a valid reason for sanctioning students.	.681
2. The University makes fair decisions when dealing with students.	.765
3. The University treats students with dignity and respect.	.746
4. The University never mistreats students.	.645
5. There is always a good reason when the University disciplines a student.	.750
6. Students who get in trouble at the University are allowed to tell their side of the story.	.664
7. University officials explain their decisions in ways that students can understand.	.708
8. University officials try to do what is best for students they are dealing with.	.691
9. University officials make decisions that are good for everyone in the university.	.714
10. University officials use the code of student conduct when disciplining students, not their personal opinions.	.753
11. University officials respect the rights of students.	.540
Eigenvalue (λ) =	5.370

Academic Misconduct. This study uses scenarios to capture participants' behavioral intentions for two forms of academic misconduct: *cheating on an exam* and *plagiarizing a paper*. Scenario-based measures are commonly used in offending research (see, e.g., Holtfreter et al., 2010). This approach allows respondents to take the role of the main actor in each scenario and assess the likelihood of their committing academic misconduct if they found themselves in the same situation.¹

¹ Although offender intentions are not equivalent to actual behaviors, intentions to offend closely reflect behavior (Green, 1989). The theory of planned behavior suggest that individuals behave as they predict. Research has found a positive correlation between projected and self-reported prior behavior for drunk driving and underpayment of taxes (Grasmick & Bursik, 1990; Nagin & Pogarsky, 2001).

The first scenario presented to participants involved a hypothetical opportunity to commit plagiarism. The scenario reads:

It is Sunday afternoon and you have a five-page paper due the next day. You have been sitting staring at your computer screen for the last several hours but have only managed to complete two pages. You find the assigned paper topic to be uninteresting and can't find the motivation to finish. On top of the paper you also have several chapters to read for another class. You do a quick search on the Internet to see what has been written on your topic. You find that there are several papers on your topic and consider copying their work to help you finish your paper. You believe that changing a few of the words and copying from multiple papers will reduce the chances of getting caught.

When respondents were asked to rate the likelihood that they would engage in unethical behavior if they found themselves in such a situation, the responses were as follows: 2.2% (very likely), 12.2% (somewhat likely), 17.1% (somewhat unlikely), and 68.5% (very unlikely).

A second scenario, one that involved a hypothetical opportunity to cheat on an exam, was also presented to participants. This scenario states:

It is Thursday evening and you are at home getting ready to go out to celebrate your best friend's birthday. Your phone goes off and it is a text from a classmate asking if you are ready for the exam tomorrow morning. You realize that you have completely forgot about the exam. You consider staying home and studying, but then you'd miss your best friend's birthday that you have been looking forward to. You know that your classmate has been studying and will let you look

at their exam in class if you ask.

The responses to the cheating scenario were as follows: 8.0% (very likely), 26.9% (somewhat likely), 22.1% (somewhat unlikely), and 43.0% (very unlikely).

Nearly all of the participants (greater than 90%) reported that the two scenarios were “clear” and were also “realistic.”

Sanction risk. Perceptions of the likelihood of being sanctioned for committing academic misconduct, termed *sanction risk*, were captured using a 5-item summated scale. The scale items ask about different forms of misconduct (e.g., “How likely are you to be caught and punished if you lied to an instructor about missing an exam?”), and consist of closed-ended response sets ranging from 1 (very likely) to 4 (very unlikely). Higher scale scores represent higher perceived likelihood of being sanctioned for the misconduct. The internal consistency of the scale was sufficient (Cronbach’s $\alpha = 0.838$; mean inter-item $r = 0.503$). A very similar approach to capturing perceived sanction risk has been employed by researchers testing the hypothesized connection between legitimacy and compliance with the law (see, e.g., Tyler, 1990; Tyler & Jackson, 2014).

Personal morality. Perceptions of how wrong committing academic misconduct, termed *personal morality*, were captured using a 4-item summated scale. The scale items (e.g., “In your opinion, how wrong is it for someone to lie to an instructor about missing an exam?”) consist of a closed-ended response set ranging from 1 (not wrong) to 3 (very wrong). Higher scale scores represent higher levels of personal morality. The scale possessed acceptable levels of internal consistency (Cronbach’s $\alpha = 0.626$; mean inter-item $r = 0.295$). Similar scales have been employed in studies assessing the relationship

between legitimacy and compliance in a criminal justice context (see, e.g., Reisig et al., 2014; Tyler, 1990).

Low self-control. This study controls for individual variations in self-control to help ensure that the observed effect of legitimacy on self-reported academic misconduct is not spurious. Low self-control is operationalized using the Brief Self-Control Scale (Tangney et al., 2004). This scale consists of 13-items (e.g., “I wish I had more self-discipline” and “I have trouble concentrating”) and was originally developed using university-based samples. Closed-ended responses for each item ranges from 1 (not at all) to 5 (very much). Responses were summed and the scale is coded so that higher scores reflect lower levels of self-control. The scale meets conventional internal consistency standards (Cronbach’s $\alpha = 0.830$; mean inter-item $r = 0.276$).

Demographic variables. Several demographic variables are included to help ensure that the estimates in the multivariate regression models are unbiased. *Male* is a dichotomous measure (1 = yes, 0 = no). *Age* is coded using four categories (1 = 18 years to 4 = 21 years or older). The multivariate analyses include two race/ethnicity variables: *Hispanic* (1 = yes, 0 = no) and *racial minority* (1 = yes, 0 = no; non-Hispanic whites serve as the reference group). Summary statistics for the variables used in the study are provided in Table 4.

TABLE 4. Descriptive Statistics

<i>Variables</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Cheating on an Exam	1.998	1.009	1	4
Plagiarizing a Paper	1.480	.791	1	4
Procedural Justice ^a	.000	.957	-3.586	2.037
Legitimacy ^a	.000	.966	-3.597	2.161
Normative Alignment ^a	.000	.934	-3.528	1.789
Obligation to Obey ^a	.000	.923	-3.162	2.121
Trust in University ^a	.000	.935	-3.548	1.941
Sanction Risk	12.669	4.336	5	20
Morality	10.418	1.430	5	20
Low Self-Control	33.560	8.769	14	62
Age	2.402	1.239	1	4
Male	.416	---	0	1
Hispanic	.335	---	0	1
Racial Minority	.199	---	0	1

^a Weighted factor score

Analytic Strategy

Tests of the research hypotheses proceed in several steps. First, bivariate relationships are examined using Pearson's r to determine whether the independent variables are too highly correlated with one another (i.e., collinearity), and whether the key variables of theoretical interest are associated with the dependent variables in the expected directions. Although the bivariate correlations are telling, it is necessary to estimate multivariate models to determine whether the relationships hold under more rigorous conditions. An ordinary least-squares (OLS) regression model is estimated to examine whether procedural justice is associated with legitimacy. A series of ordered logit regression models are estimated to examine the direct effect of legitimacy (both subscales and combined measure) on the likelihood of cheating on an exam and plagiarizing a paper. The ordered logit model is selected because the outcome variables are measured at the ordinal level. Using Likert-type response sets, both variables exhibit score distributions that are skewed. Attempts to normalize these distributions using

traditional transformations (e.g., natural logarithmic) ultimately failed. Under these conditions, the ordered logit model is well-suited for the research objectives because it does not require a near normal distribution in the outcome variable to achieve reliable estimates (see Long, 1997).

Results

Bivariate Results

Several diagnostic tests were performed to determine whether harmful levels of collinearity would bias the parameter estimates in the regression analyses. Examining the bivariate correlations (Pearson's r) between the independent variables in Table 5, none of the coefficients are higher than $|0.40|$, which is below the standard threshold (i.e., $|0.70|$). Additionally, the tolerance estimates are greater than 0.80, and variance inflation factors are less than 1.5. This evidence suggests that the correlations between the independent variables should not result in biased estimates stemming from collinearity (O'Brien, 2007). Finally, results from a series of Breusch-Pagan tests indicate the presence of heteroskedastic errors (Breusch & Pagan, 1979). To adjust for this source of bias, robust standard errors are used.

The bivariate correlations also show, consistent with expectations, that several variables of interest are significantly associated with one another (see Table 5). In accord with the process-based model, procedural justice and legitimacy are positively and significantly correlated ($r = 0.842, p < 0.01$). Specifically, students who perceive the university as exercising its authority in a procedurally-just manner when dealing with students are more likely to perceive university authority (both officials and policy) as legitimate. As expected, the legitimacy scale is correlated with both cheating on an exam

($r = -0.197, p < 0.01$) and plagiarism ($r = -0.090, p < 0.05$). In other words, students who view the university as more legitimate are less likely to engage in these unethical behaviors. Of the three legitimacy subscales, normative alignment is the only one that is significantly related with both cheating on an exam ($r = -0.240, p < 0.01$) and plagiarism ($r = -0.127, p < 0.01$). However, trust in university authority ($r = -0.149$) and obligation to obey ($r = -0.197$) are each correlated with cheating on an exam in the expected direction at the 0.01 level.

Multivariate Analyses

The next step in the analysis involves estimating several regression models to test the research hypotheses more rigorously. Table 6 presents four OLS models that regress the legitimacy (sub)scales onto procedural justice and the control variables. The F -tests are statistically significant, indicating that the models provide better predictive power than chance alone. In all four models the t -ratios indicate that procedural justice judgments are associated with perceptions of legitimacy, regardless of how the latter is operationalized. When the full legitimacy scale is regressed onto the independent variables, the standardized partial regression coefficient (β) indicates that a one standard deviation increase in procedural justice leads to a 0.828 standard deviation increase in legitimacy. Simply put, students who believe that the university's processes are fair are also more likely to perceive the university as a legitimate authority. Furthermore, the model shows that procedural justice and the control variables explain a good portion of the variation in legitimacy ($Adjusted R^2 = 0.715$). Focusing on the subscales of legitimacy, it is interesting to note that the trust scale is most strongly related with procedural justice ($\beta = 0.864$) and normative alignment is the weakest ($\beta = 0.653$).

However, procedural justice and the control variables explain a significant portion of the variation in each of the subscales of legitimacy. Overall, these findings support the proposition that at least part of the process-based model is relevant in a university context. Having established the relationship between procedural justice and legitimacy (and its component parts), the next steps in the analyses involve testing the relationship between legitimacy and academic misconduct in a multivariate context.

As mentioned earlier, the two unethical behavior outcomes are ordinal level measures, therefore a series of ordinal regression models are well-suited for this portion of the analyses (Long, 1997). Also, it bears repeating that the score distributions for both outcomes are skewed (indicating low levels of misconduct), and that attempts to normalize the distributions failed (e.g., natural log transformation). The test of parallel lines for the models featured below show that the data fit the ordinal regression models well. Furthermore, the measures of joint association (i.e., the Wald χ^2) are all statistically significant in Table 7, indicating that the models provide better predictive power than constant-only models.

TABLE 5. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Plagiarizing a Paper	1														
Cheating on an Exam	.381**	1													
Procedural Justice	-.055	-.142**	1												
Legitimacy	-.090*	-.197**	.842**	1											
Normative Alignment	-.127**	-.240**	.672**	.865**	1										
Trust in University	-.072	-.149**	.871**	.958**	.773**	1									
Obligation to Obey	-.078	-.197**	.764**	.955**	.771**	.854**	1								
Sanction Risk	-.178**	-.122**	.025	.006	.017	-.001	.008	1							
Personal Morality	-.176**	-.351**	.139**	.187**	.215**	.156**	.179**	.047	1						
Low Self-Control	.202**	.281**	-.244**	-.288**	-.320**	-.237**	-.283**	.035	-.198**	1					
Male	.121**	.098*	-.144**	-.198**	-.158**	-.175**	-.211**	-.017	-.185**	.031	1				
White	-.083	-.065	-.034	-.012	-.018	.004	-.023	.126**	-.047	-.019	.118**	1			
Hispanic	.039	-.007	.134**	.114**	.134**	.094*	.108*	-.042	.046	-.089*	-.077	-.663**	1		
Racial Minority	.057	.090*	-.116**	-.120**	-.137**	-.116**	-.099*	-.107*	.004	.129*	-.057	-.466*	-.354**	1	
Age	-.061	-.178**	-.019	.007	.053	-.021	.014	-.005	.073	-.046	.189**	.009	.005	-.017	1

* $p < 0.05$, ** $p < 0.01$ (two-tailed test).

TABLE 6. Ordinary Least-Squares Legitimacy Models

Variables	Legitimacy			Normative Alignment			Trust in University			Obligation to Obey		
	<i>b</i>	SE	<i>t</i> -ratio	<i>b</i>	SE	<i>t</i> -ratio	<i>b</i>	SE	<i>t</i> -ratio	<i>b</i>	SE	<i>t</i> -ratio
Procedural Justice	.836 [.828]	.029	29.49**	.637 [.653]	.038	19.48**	.844 [.864]	.024	38.63**	.720 [.747]	.033	25.61**
Age	.030 [.039]	.019	1.62	.060 [.080]	.024	2.39*	.004 [.066]	.018	.26	.036 [.049]	.021	1.68
Male	-.176	.048	-3.70**	-.153	.062	-2.38*	-.108	.042	-2.52**	-.213	.054	-3.86**
Hispanic	-.033	.049	-.67	.040	.068	-.57	-.075	.045	-1.60	-.016	.056	-.26
Racial Minority	-.082	.068	-1.21	-.132	.085	-1.60	-.076	.060	-1.37	-.047	.079	-.66
<i>F</i> -test=		202.24**			66.74**			272.54**			115.09**	
<i>Adjusted R</i> ² =		.715			.461			.760			.592	

Note. Entries are in unstandardized partial regression coefficients (*b*), robust standard errors (SE), and standardized partial regression coefficients are in brackets (β).

* $p < 0.05$, ** $p < 0.01$ (two-tailed test).

Focusing first on the cheating on an exam models, Table 7 shows four models where cheating on an exam is regressed onto the legitimacy scale and each constituent dimension. As hypothesized, Model 1 shows that legitimacy is negatively related to the likelihood of cheating on an exam ($b = -0.194, p < 0.05$), net of controls. In other words, students who perceive the university as legitimate are less likely to engage in this form of unethical behavior. This finding supports Tyler's (1990, 2003, 2006) contention that perceived legitimacy is a key factor determining whether individuals comply with the rules (e.g., criminal codes and statutes), in this case the university student code of conduct.

TABLE 7. Ordinal Regression Model for Cheating on an Exam
Variables Cheating on an Exam

	Model 1			Model 2			Model 3			Model 4		
	<i>b</i>	SE	<i>z</i>	<i>b</i>	SE	<i>z</i>	<i>b</i>	SE	<i>z</i>	<i>b</i>	SE	<i>z</i>
Legitimacy	-.194	.100	-1.97*	---	---	---	---	---	---	---	---	---
Normative Alignment	---	---	---	-.266	.109	-2.44**	---	---	---	---	---	---
Trust in the University	---	---	---	---	---	---	-.128	.101	-1.27	---	---	---
Obligation to Obey	---	---	---	---	---	---	---	---	---	-.213	.102	-2.08*
Sanction Risk	-.056	.019	-2.88**	-.055	.019	-2.86**	-.055	.020	-2.87**	-.056	.019	-2.87**
Personal Morality	-.404	.071	-5.68**	-.399	.071	-5.65**	-.407	.072	-5.70**	-.406	.071	-5.70**
Low Self-Control	.048	.012	3.97**	.045	.012	3.74**	.050	.012	4.18**	.048	.012	4.00**
Age	-.267	.075	-3.55**	-.261	.075	-3.47**	-.269	.075	-3.58**	-.265	.075	-3.52**
Male	.268	.187	1.43	.269	.186	1.45	.294	.187	1.57	.260	.187	1.39
Hispanic	.266	.195	1.36	.286	.196	1.46	.252	.195	1.29	.267	.195	1.37
Racial Minority	.379	.234	1.59	.364	.239	1.52	.388	.237	1.64	.387	.238	1.63
Wald $\chi^2 =$					102.98**			103.45**			103.71**	
McFadden's $R^2 =$.100			.096			.098	

Note. Entries are in unstandardized partial regression coefficients (*b*) and robust standard errors (SE).

* $p < 0.05$, ** $p < 0.01$ (two-tailed test).

In addition to combined legitimacy scales, researchers also test the separate effects of the domains of legitimacy (i.e., normative alignment, trust, and obligation to obey) on measures of compliance (see, e.g., Tyler & Jackson, 2014). Models 2 and 4 regress cheating on an exam onto normative alignment and obligation to obey. In both models the relationship is negative and significant ($b = -0.266, p < 0.01$ for normative alignment; $b = -0.213, p < 0.05$ for obligation to obey). Thus, feeling one has an obligation to obey university rules and a belief that university officials share one's moral values are both associated with a reduced likelihood of cheating on an exam. Furthermore, the amount of variance explained did not differ much between the two subscales (i.e., 10% for normative alignment and 9.8% for obligation to obey, respectively). However, trust in university ($b = -0.128, p = 0.206$) is not a significant predictor of cheating. Additional analyses reveal that the trust relationship is attenuated below statistical significance only after low self-control is included in the model. This observation underscores the need to include well-known correlates of criminal behavior when assessing the legitimacy-compliance link, a cautionary reminder that has been noted elsewhere (Reisig, Wolfe, & Holtfreter, 2011). Overall, the results from the analysis including the three dimensions of legitimacy found that the effect of the combined legitimacy scale is largely driven by normative alignment and obligation to obey. These results are not entirely consistent with those of Tyler and Jackson (2014). According to Tyler and Jackson, the obligation and trust subscales should prove most influential in terms of compliance. In short, the results show mixed support for the argument that students in the sample with higher perceptions of legitimacy will report a

lower likelihood of cheating on an exam relative to students who do not see the university as a legitimate authority.

Moving onto the second dependent variable, Table 8 shows four ordered logit regression models. Here, the plagiarizing a paper variable is regressed onto the full legitimacy scale and the three subscales. Although the effects of legitimacy (full model and subscales) are in the expected direction, none of the test statistics are statistically significant at the 0.05 level. In other words, perceptions of legitimacy appear not to exert influence on likelihood of plagiarism. The lack of a significant association between the measures of legitimacy and plagiarizing a paper may be due to a contextual difference between the two academic misconduct outcomes. Studies have shown that students are more likely to not commit plagiarism when the academic institution uses anti-plagiarism software, which increases the threat of being caught and sanctioned (Braumoeller & Gaines, 2001; Martin, 2005). Thus, traditional deterrence may play a more pivotal role in explaining why students refrain from committing plagiarism than normative judgments of an authority. Additionally, cheating on an exam is probably more difficult for academic institutions to monitor. Therefore, it fits that normative judgments and values may play a stronger role in driving student rule compliance with cheating on an exam.

TABLE 8. Ordinal Regression Model for Plagiarizing a Paper
Variables

	Plagiarizing a Paper											
	Model 1			Model 2			Model 3			Model 4		
	<i>b</i>	SE	<i>z</i>	<i>b</i>	SE	<i>z</i>	<i>b</i>	SE	<i>z</i>	<i>b</i>	SE	<i>z</i>
Legitimacy	-.038	.122	-.31	---	---	---	---	---	---	---	---	---
Normative Alignment	---	---	---	-.137	.125	-1.10	---	---	---	---	---	---
Trust in the University	---	---	---	---	---	---	-.018	.128	-1.10	---	---	---
Obligation to Obey	---	---	---	---	---	---	---	---	---	-.011	.124	-.09
Sanction Risk	-.095	.023	-3.98**	-.095	.024	-3.99**	-.095	.024	-3.97**	-.095	.024	-3.97**
Personal Morality	-.161	.078	-2.08*	-.154	.078	-1.98*	-.163	.077	-2.10*	-.163	.078	-2.10*
Low Self-Control	.051	.014	3.76**	.048	.014	3.55**	.051	.013	3.83**	.051	.013	3.83**
Age	-.132	.088	-1.50	-.128	.088	-1.45	-.132	.088	-1.51	-.132	.088	-1.50
Male	.451	.213	2.12*	.433	.210	2.07*	.458	.212	2.17*	.459	.215	2.14*
Hispanic	.410	.237	1.73	.431	.238	1.81	.406	.237	1.71	.405	.236	1.17
Racial Minority	.260	.261	1.00	.245	.261	.94	.263	.260	1.01	.264	.261	1.02
Wald $\chi^2 =$			51.72**			52.35**			51.65**			51.74**
McFadden's $R^2 =$.063			.064			.063			.063

Note. Entries are in unstandardized partial regression coefficients (*b*) and robust standard errors (SE).

* $p < 0.05$, ** $p < 0.01$ (two-tailed test).

Finally, several other test statistics for the regression estimates featured in Tables 7 and 8 achieve statistical significance. For example, low self-control is related to both forms of unethical behavior. More specifically, students with poor self-control are more likely to cheat on exams and plagiarize papers. This finding is consistent with prior research on the link between self-control and academic misconduct (see, e.g., Reisig & Pratt, 2011; Smith, 2004). Sanction risk is also correlated with both unethical behavior outcomes—students who perceive the risk of being caught and punished for committing academic misconduct as high are considerably less likely to do so. Again, these observed relationships are consistent with extant research (see, e.g., McCabe, Treviño, & Butterfield, 2002). Lastly, similar to previous academic misconduct research, personal morality is negatively associated to both unethical outcomes (see, e.g., Simkin & McLeod, 2010; Tibbetts & Myers, 1999). In other words, students who considered cheating on an exam and plagiarizing a paper as morally wrong are less likely to report that they would engage in the unethical behaviors discussed in the scenarios. The consistency of the findings with available research that used different samples and measures increases confidence in the validity findings presented here.

Discussion

Research on Tyler's (1990, 2003, 2006) process-based model of regulation shows clearly that the interpersonal processes involved in an interaction between individuals and authorities matter and have serious consequences. This study expands the understanding of the process-based model by examining the applicability of the model to academic misconduct. Survey data from a university-based sample was used to estimate a series of

multiple regression models. The findings suggest qualified support. First, as hypothesized, procedural justice is strongly associated with legitimacy. However, mixed support was found for the relationship between legitimacy and the two noncompliance variables. The results reported here have implications for the advancement of process-based theory and research, while also providing direction for academic misconduct research and policy.

This study suggests that the process-based model's scope extends to the university setting. Recall that students are more likely to perceive the university (officials and rules) as legitimate when they perceive the processes at the institution as procedurally just. This finding is consistent with prior process-based model research focusing on the police and the courts (Reisig, Bratton, & Gertz, 2007; Sunshine & Tyler, 2003; Tyler, 1990).

However, the link between perceived legitimacy and the two unethical behavior outcomes was less straightforward. Although students' views of legitimacy influence whether they would cheat on an exam, the relationship between such perceptions and plagiarism was no different than zero. As mentioned in the results section, this may point to a contextual difference between cheating on an exam and plagiarism. If the university is successfully deterring plagiarism through the use of anti-plagiarism software, then normative motivations to follow the code of conduct (e.g., perceived legitimacy) may be less salient. In sum, these findings provide qualified support for the application of the process-based model to the university setting in regards to student academic misconduct.

Second, concerns have been raised about the conceptualization (Tankebe, 2013) and measurement of legitimacy (Reisig et al., 2007). Using factor-analytic procedures to create legitimacy and procedural justice scales, the current study found that trust in

university (a dimension of legitimacy) loaded on both latent constructs. This finding not only replicates work by Reisig et al. (p. 1017), but also lends support to the emerging conceptualization of legitimacy that takes into account procedural justice measures (see Bottoms & Tankebe, 2012). For example, Tankebe (2013) argues that legitimacy is more appropriately measured as a multi-dimensional model comprising police lawfulness, procedural fairness, police distributive fairness, and police effectiveness. Tankebe's approach is much different than traditional research that combines obligation to obey and trust items (see Sunshine & Tyler, 2003). Additionally, this study also showed that the effects of the three subscales of legitimacy on cheating on an exam varied—normative alignment and obligation to obey was associated with cheating, but trust was not. This finding lends mixed support to Tyler and Jackson's (2014) contention that the different components of legitimacy (i.e. normative alignment, obligation to obey, and trust) have distinct influence on different behavioral outcomes (i.e., compliance, cooperation, and engagement). While Tyler and Jackson found that the obligation to obey and trust subscales proved most influential in terms of compliance. This study found that normative alignment and obligation to obey were the most significant. These findings emphasize the need for further refinement and conceptualization of the process-based model and underscore the importance of measurement of key variables.

Prior to considering the role that the process-based model of regulation can play in the development of university policies and procedures to prevent academic misconduct among university students, some limitations of the study should be noted. First, this study used cross-sectional survey data. Until future longitudinal research is able to confirm the findings reported here, causal relationships between the variables of interest should only

be inferred with caution. Second, the study focused on legitimacy of university officials and the student code of conduct. However, the pattern of findings might have differed if the measures of legitimacy reflected instructors rather than officials. Research has demonstrated the important role that instructors play in affecting classroom cheating (Murdock, Miller, & Goetzing, 2007; Stearns, 2001). Therefore, future research should also examine professors as university authority figures. It is possible that this relationship may better mirror that of the police officer-citizen and organization-employee relations, as students interact with professors on a more regular basis. Third, this study used scenarios to capture students' "behavioral intentions" for two forms of academic misconduct: cheating on an exam and plagiarizing a paper. This allowed students to take the role of the main actor in each scenario and assess the likelihood of committing academic misconduct if they found themselves in the same situation. These scenarios focused on cheating on an exam and plagiarism due to their high prevalence reported in former studies. Prior research has shown that the prevalence of academic misconduct varies greatly depending on what form of academic misconduct is being studied and how it is measured (Hard, Conway, & Moran, 2006; Hughes & McCabe, 2006; Witherspoon, Maldonado, & Lacey, 2012). Future researchers should consider additional forms of academic misconduct (e.g., tampering with research data and collaborating on individual assignments) and alternative strategies of measurement. Subsequent research addressing these limitations will assist in advancing our understanding of the process-based model and student academic misconduct.

The results from this study have practical implications for university administrators. Authority figures should be concerned with the fairness of the interactions

they have with subordinates. When people are treated fairly they are more likely to acknowledge the authority figure as legitimate and in turn are more likely to voluntarily comply with official rules (Tyler, 1990). With strained university resources, the process-based model represents a proactive and cost-efficient alternative to reactive sanction-based strategies. University administrators and staff can, through training and policy changes, increase quality of interactions with students rather than merely relying on deterrence. This conclusion is similar to recent organizational research that contends that employees are more likely to follow the rules and defer to the policies at their place of employment when they feel they view their place of employment as a legitimate authority (Cohen-Charash & Spector, 2001; Tyler & Blader, 2005).

This research project is hopefully the first in a long line of studies that will assess the effects of students' perceptions of the university as a legitimate authority and their engagement in academic misconduct. The results of the study find qualified support for the hypothesized relationships. This suggests that legitimacy is an important factor to be considered when thinking about academic misconduct, and that additional research is certainly warranted to determine whether the process-based model explains other forms of academic misconduct. Only after such studies are conducted, which require care in measurement of key variables, will the picture regarding the process-based model and academic misconduct become clear.

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