

Running head: FACTORS RELATED TO ACADEMIC INTEGRITY

Academic Integrity: The Relationship between  
Individual and Situational Factors on Misconduct Contemplations

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## Abstract

Recent, well-publicized scandals, involving unethical conduct have rekindled interest in academic misconduct. Prior studies of academic misconduct have focused exclusively on situational factors (e.g., integrity culture, honor codes), demographic variables or personality constructs. We contend that it is important to also examine how these classes of variables interact to influence perceptions of and intentions relating to academic misconduct. In a sample of business students, we examined how integrity culture interacts with Prudence and Adjustment to explain variance in estimated frequency of cheating, suspicions of cheating, considering cheating and reporting cheating. Age, integrity culture, and personality variables were significantly related to different criteria. Overall, personality variables explained the most unique variance in academic misconduct, and Adjustment interacted with integrity culture, such that integrity culture had more influence on intentions to cheat for less well adjusted individuals. Implications for practice are discussed and future research directions are offered.

### **Abstract**

Recent, well-publicized scandals, involving unethical conduct have rekindled interest in academic misconduct. Prior studies of academic misconduct have focused exclusively on situational factors (e.g., integrity culture, honor codes), demographic variables or personality constructs. We contend that it is important to also examine how these classes of variables interact to influence perceptions of and intentions relating to academic misconduct. In a sample of 217 business students, we examined how integrity culture interacts with Prudence and Adjustment to explain variance in estimated frequency of cheating, suspicions of cheating, considering cheating and reporting cheating. Age, integrity culture, and personality variables were significantly related to different criteria. Overall, personality variables explained the most unique variance in academic misconduct, and Adjustment interacted with integrity culture, such that integrity culture had more influence on intentions to cheat for less well-adjusted individuals. Implications for practice are discussed and future research directions are offered.

**Keywords:** Academic Integrity; Academic Culture; Cheating; Misconduct; Personality

## Academic Integrity: The Relationship Between Individual and Situational Factors on Misconduct Contemplations

Interest in ethical behavior in general and in academic misconduct in particular has increased in recent years due to publicized scandals in both organizational and academic realms. Academic misconduct, however, is not new. Available evidence suggests the decline of academic integrity began some time ago and appears to be continuing. In 1941, Drake found that 23 percent of students reported cheating. In 1964, Hetherington and Feldman reported a cheating rate of 64 percent and Baird documented 76 percent cheating rate in 1980. While Jendreck (1989) estimated cheating rates between 40 and 60 percent, Smyth and Davis (2004) found 74 percent of a sample of 265 two-year college students had observed cheating and 45.6 percent admitted to cheating.

In 2005, McCabe reported levels of cheating between 47 and 71 percent. McCabe's data, based on over 18,000 students in 61 schools in the U.S. and Canada, showed that business school students are especially likely to engage in academic misconduct compared to students in other programs. Based on a series of studies, McCabe and his colleagues (McCabe and Trevino, 1997; McCabe et al., 2002) argued that academic integrity culture is the primary driver of perceptions related to cheating and academic dishonesty.

Crown and Spiller (1998) conducted a comprehensive review of the empirical literature on academic cheating. Ford and Richardson's (1994) review of ethical decision making categorized studies into those examining individual and situational factors in relation to academic integrity. However, neither the Crown and Spiller nor the Ford and Richardson review addressed interactions between individual and situational factors since prior research failed to consider interaction between these factors. Most research to date has dealt only with individual

factors such as gender, age, grade point average, education and several personality variables or situational (i.e., contextual) factors such as honor codes, surveillance, rewards/sanctions, peer context, fraternity or sorority membership and campus housing, but not both.

In the few studies that examined both situational and individual difference variables, only demographic variables, such as age and gender, were examined (e.g., McCabe and Trevino, 1997). Studies that examined the influence of personality factors, such as locus of control (Forsyth et al., 1985; Karabenick and Srull, 1978; Leming, 1980), harm avoidance (Kelly and Worrell, 1978), achievement (Hetherington and Feldman, 1964) and self-control (Bolin, 2004) on academic dishonesty did not use personality factors corresponding to the Five-Factor Personality Model nor considered the impact of situational factors in their investigations.

We contend that it is important to not only examine individual and situational variables, but to also investigate the interactions among them to better understand individuals' propensities to engage in and report instances of academic misconduct. The primary purpose of this study is to fill this void in the literature. To our knowledge, this study is the first to examine the influence of situational factors and personality variables as well as to investigate how they interact to influence students' perceptions of academic misconduct.

#### *Delineation of Constructs Related to Academic Dishonesty*

Academic misconduct is a construct that encompasses multiple forms of academic deviance including but not limited to test cheating, plagiarism, and inappropriate collaboration. The current study examines factors related to four different criteria regarding academic misconduct perceptions: frequency of misconduct, suspicions regarding misconduct, likelihood of considering misconduct, and likelihood of reporting cheating. Students who believe academic misconduct is occurring and suspect other students are engaging in misconduct are likely to have

a low opinion of the culture of academic integrity at their school and thus are likely to consider engaging in misconduct themselves. On the other hand, students likely to report cheating will have different attitudes toward cheating and will perceive the integrity culture very differently than students who are likely to consider misconduct. Thus, the first three dependent variables capture facets of academic dishonesty and the last variable, report cheating, captures the positive academic honesty attitude.

*Frequency of cheating* construct is defined as students' overall perceptions regarding the frequency with which academic misconduct occurs at their institution. This construct assesses global perceptions regarding various academic violations rather than specific incidents of academic misconduct that they have witnessed. *The suspected misconduct* construct assesses how often students believe other students were engaging in some form of academic misconduct. This construct measures one's estimate of the frequency of actual incidents of academic misconduct by other students. *Considering misconduct* is an assessment of the likelihood of cheating under various circumstances and captures one's intention to cheat. Intention to engage in a behavior is a good predictor of behavior (Beck and Ajzen, 1991). In addition, asking respondents to report intentions to cheat rather than how often they engaged in cheating is less threatening and will likely yield more honest responses.

*Reporting cheating* by others is a measure of academic honesty. Examination of factors related to students' likelihood of reporting cheating is important to better understand the circumstances and characteristics that can enhance vigilance among students. Research by McCabe (McCabe et al., 2001; 2002) and others has shown that several factors affect students' tendency to report cheating. First and most importantly, their beliefs about the likelihood that

cheaters will be caught; second, the effect of an honor code environment and third, perception that reporting cheating is part of their responsibility in an integrity culture.

We asked about the importance of reporting cheating and the likelihood of reporting cheating for both friends and strangers. We chose to ask about likelihood of reporting cheating rather than ask students to indicate actual instances of reporting for several reasons. First, retrospective recall of the actual number of incidents would likely produce inaccuracies. Second, asking participants to indicate likelihood of reporting cheaters focuses on their perceptions regarding misconduct in the present, rather than providing an indication of past behavior. Past behavior of participants included in the sample could be influenced by a number of factors. Factors such as attendance at another university that had an honor code requiring student reporting of misconduct and actual number of instances student observed other students engaging in misconduct would present extraneous variance. On the other hand, limiting recall of reporting incidents to the current university for the current semester would likely result in a low variance across respondents.

### *Factors Influencing Academic Dishonesty*

#### *Influence of Demographic Factors*

Several demographic variables have been related to student engagement in academic misconduct. For example, Hetherington and Feldman (1964) investigated cheating on exams in three contrived classroom situations that provided students opportunities to be academically dishonest. Overall, 59 percent of the 78 students cheated in one or more of the situations with 64 percent cheating in two situations and 24 percent cheating in all three. Cheaters, compared to non-cheaters, were more likely to be male, first-born and have a lower GPA than non-cheaters.

Gender may impact likelihood of engaging in academic misconduct (Hetherington and Feldman, 1964). Several studies have shown gender to be related to cheating, plagiarism and similar forms of academic dishonesty such that academic misconduct rates are higher for males than females (Davis et al., 1992; Kelly and Worrell, 1978; McCabe and Trevino, 1997; Nonis and Swift, 2001; Simon et al., 2004; Smyth and Davis, 2004). Simon et al. (2004) found women were more likely to report cheating than men.

Hypothesis 1: Gender will be related to estimated frequency of cheating (1a), suspected cheating (1b), consideration of misconduct (1c), and likelihood of reporting cheating (1d). Specifically, we hypothesize that males are likely to estimate cheating as occurring more frequently, to suspect and consider misconduct more, and report cheating less than females.

A number of studies have also investigated the role that age plays in academic misconduct. Research generally suggests that younger students may be more likely to engage in academic misconduct than older students (Kelly and Worrell, 1978; McCabe and Trevino, 1997; Nonis and Swift, 2001; Smyth and Davis, 2004). Crown and Spiller (1998), however, found mixed results for the effect of age.

Hypothesis 2: Age will be negatively related to estimated frequency of cheating (2a), suspected cheating (2b), and consideration of misconduct (2c), and positively related to likelihood of reporting cheating (2d).

Researchers have also examined the influence of general mental ability on propensity to cheat. Results indicate that students with lower ACT scores (Kelly and Worrell, 1978), intelligence (Hartshorn and May, 1928; Hetherington and Feldman, 1964) and grade point averages (GPA) (Hetherington and Feldman, 1964; McCabe and Trevino, 1997; Crown and Spiller, 1998) are more likely to engage in various forms of academic misconduct compared to their peers with higher ACT scores, intelligence, and grade point averages.

Hypothesis 3: ACT scores will be negatively related to estimated frequency of cheating (3a), suspected cheating (3b), and consideration of misconduct (3c), and positively related to likelihood of reporting cheating (3d).



*Influence of Personality Factors*

Relatively few studies have examined personality variables and academic integrity. Crown and Spiller's (1998) review of 25 years of academic integrity research found only one personality variable with consistently significant results. Their review identified four studies, one survey (Houston, 1983) and three experiments (Forsyth et al., 1985; Karabenick and Srull, 1978; Leming, 1980) in which externals on Rotter's (1966) locus of control measure, were more likely to cheat than internals.

Kelly and Worrell (1978) investigated various demographic and personality factors associated with cheating on a self-scored, extra-credit task. Results from the sample of 629 introductory psychology students revealed several personality factors associated with cheating, specifically, males who cheated were significantly higher on aggression, exhibition, harm avoidance and social recognition, but lower on autonomy as measured by the Personality Research Form (Jackson, 1967). For females, cheaters were higher on impulsivity and lower on harm avoidance.

Hetherington and Feldman (1964) also considered personality variables in their study of academic misconduct. Among the personality differences that emerged, cheaters were higher on the repression scale of the MMPI, and non-cheaters scored higher than cheaters on the achievement via conformity, socialization and responsibility scales of the California Personality Inventory.

From the few studies that used personality measures, it is clear that cheaters tend to be impulsive, risk taking, attention-seeking, low in responsibility, and tend to attribute causality to external sources. This trait behavior is similar to Prudence in the Hogan Personality Inventory (HPI). Low Prudence scores are associated with behaving impulsively, irresponsibly, being

impatient with details, careless about rules and venturesome while high scores are conscientious, follow organizational procedures and tend to be good students (Hogan and Hogan, 1995).

Hypothesis 4: Prudence will be negatively related to estimated frequency of cheating (4a), suspected cheating (4b), and consideration of misconduct (4c), and positively related to likelihood of reporting cheating (4d).

Since students who cheat tend also to have lower ACT scores (Kelly and Worrell, 1978), intelligence (Hartshorn and May, 1928; Hetherington and Feldman, 1964) and grade point averages (Hetherington and Feldman, 1964; McCabe and Trevino, 1997), the pressure for making high grades in college is likely to impact them more than students with higher levels of intelligence and higher GPAs. Therefore, college may be more stressful for them and they may view cheating as a viable way to cope. Students in this situation may score low on the Adjustment scale of the HPI. Low scorers are described as self-critical, unhappy and stress-prone while high scores are associated with self-confidence, even-tempered and good at handling stress (Hogan and Hogan, 1995). Therefore, we expect students who score lower on Adjustment are more likely to exhibit academic dishonesty than students scoring higher on this scale.

Hypothesis 5: Adjustment will be negatively related to estimated frequency of cheating (5a), suspected cheating (5b), and consideration of misconduct (5c).

### *Influence of Situational Factors*

Work by Davis et al. (1992) indicates students' beliefs about academic integrity and their actual behavior are unrelated. In a 21-item survey of 6,000 students attending 35 different schools of varying sizes, Davis et al. (1992) found that even though 90 percent of students said it is wrong to cheat and that instructors should care if students cheat on an exam, 76 percent said they had cheated in high school, college or both.

McCabe et al. (2002) and Smyth and Davis (2004) suggest that students at most institutions learn that cheating is a common behavior despite institutional policies prohibiting it.

McCabe et al. (2002) found that students' perceptions of peers' behavior was the best predictor of academic dishonesty regardless of the presence or absence of an honor code. McCabe and his co-authors argue that the academic culture is the primary driver of cheating perceptions and academic dishonesty. Academic integrity culture refers to an institution's values regarding promoting academic honesty as well as preventing and punishing academic misconduct. Such values are reflected in faculty and students' tolerance and reporting of academic violations, the severity of penalties imposed for academic violations, as well as the presence or absence of an institutional honor code.

Smyth and Davis (2004) found that although 92 percent of a sample of 265 two-year college students indicated that cheating is unethical, 45 percent of the sample also indicated that cheating is acceptable social behavior. Additional findings from Smyth and Davis (2004) highlight the importance of culture in terms of intentionally or unintentionally supporting or preventing academic misconduct. In this case, subcultures associated with being male, in the business school or living in a dormitory were related to higher levels of actual cheating and greater social acceptance of cheating.

The concept of social justice underlies a model of academic dishonesty proposed by McCabe and Trevino (1993). The model suggests that perception of peers' behavior is the most influential variable affecting students' academic dishonesty behavior. Specifically, that "academic dishonesty not only is learned from observing the behavior of peers, but that peers' behavior provides a kind of normative support for cheating" (McCabe and Trevino, 1993, p. 533). Researchers have argued that when students believe others are cheating and their school or individual faculty members are not doing anything about it, many use this as justification for their own cheating (Bowers, 1964; McCabe, 1992; McCabe et al., 1999; Kaufman et al., in

press). Thus, students' perceptions about the culture of integrity at an institution, specifically their perceptions and suspicions regarding cheating will impact the likelihood that they consider engaging in academic misconduct as a viable tool to use in their academic careers.

Despite admonitions by faculty to prevent misconduct, students are likely to engage in misconduct if sanctions are not imposed or are not severe enough to outweigh potential benefits of cheating. As McCabe et al. (2002) found, students' degree of certainty of being caught engaging in academic misconduct predicted extent of dishonesty regardless of presence or absence of an honor code. Catching cheaters, however, is not solely the responsibility of instructors, especially for students who attend institutions with a traditional honor code which not only require students to refrain from academic misconduct but also require students to report instances of misconduct by other students. Research by McCabe (2005) shows that integrity culture is bolstered by the presence of an honor code, especially those that require students to report instances of misconduct.

A study of 172 undergraduates in chemistry classes (Simon et al., 2004) focused on factors related to who would report cheating. Results revealed that gender was the best predictor of likelihood of reporting cheating; 46 percent of women would report compared to only 30 percent of men (35.7% combined). The study also suggested that when students perceive that policies and processes regarding academic misconduct are fair and feel faculty are committed to the education process, they are more willing to take an active role in maintaining a high level of academic integrity.

Hypothesis 6: Academic Integrity Culture will be negatively related to estimated frequency of cheating (6a), suspected cheating (6b), consideration of misconduct (6c), and positively related to likelihood of reporting cheating (6d).

*Combined Influence of Personality and Situational Factors*

We identified only one study that examined the relationship between a personality trait, integrity culture and academic dishonesty (Bolin, 2004). Bolin examined a model of the disposition self-control, attitudes toward academic dishonesty and perceived opportunity for cheating to predict academic dishonesty in a large multi-school study using an on-line survey. The self-control measure contained items from the six dimensions impulsivity, risk taking, preference for physical activity, self-centered, temperamental and preference for simple tasks (Gottfredson and Hirschi, 1990). Note that self-control shares several similarities with low HPI Prudence scores, i.e., impulsive, risk taking, attention-seeking, and low in responsibility. Students low in self-control had more favorable attitudes toward academic dishonesty and the later accounted for 40 percent of the variance in academic dishonesty. Though Bolin did not test a direct relationship between self-control and academic dishonesty, the correlation was significant and positive. Additionally, and contrary to McCabe's data, the path from culture (perceived opportunity) to academic dishonesty was not significant.

Again, we contend that it is important to not only examine personality and situational variables, but also investigate the interactions among them to better understand individuals' propensities to engage in and report instances of academic misconduct. To our knowledge, this study is the first to examine the influence of situational factors and personality variables as well as to investigate how they interact.

Hypothesis 7: Personality and situational (i.e., integrity culture) factors will interact to predict frequency of cheating (7a), suspected cheating (7b), consideration of misconduct (7c), and likelihood of reporting cheating (7d).

## Method

### *Sample*

Undergraduate business students in marketing and management classes at a large, mid-western public university were given the opportunity to participate in the current study, yielding a potential sample of 500 students. An academic integrity survey including demographic items was administered during regular class sessions. Participants also completed The Hogan Personality Inventory (HPI) (Hogan and Hogan, 1995) administered via the internet. Participants were assured of the confidentiality of their responses. Code numbers for access to the on-line portion of the study and last four digits of each student's social security number were used to match students' in-class and on-line responses.

A total of 431 students completed the integrity survey and 299 students completed the HPI. Students were not required to participate in the current study. Students who did participate were given extra credit for participation. Students were given the opportunity to earn extra credit by completing an alternative assignment but no student made use of this opportunity. The response rate for the integrity survey was 86% and the response rate for the HPI was 60%. Approximately 275 (55%) students completed both in-class and on-line portions of the study. This estimate is likely conservative, however, given that some students did not provide identifying information on their survey in order to allow the integrity survey responses to be matched to HPI scores. Additionally, an instructor of two large classes gave partial credit that likely led to the lower HPI response rate. Thirty-six integrity survey cases were removed from the data set due to probable response set responding and an additional 22 cases were removed due to low validity scores on the HPI indicating careless responding. Thus, of respondents who

completed both portions of the survey, 13% were eliminated due to response sets and 8% were eliminated due to careless responding. The effective sample for the study was 217 participants.

### *Measuring Academic Integrity*

Major challenges in survey research on academic integrity involve the choice and measurement of the dependent variable. Earlier studies conducted prior to the established of Institutional Review Boards (IRBs) used contrived cheating situations to study academic integrity (e.g., Hetherington and Feldman, 1964). The tight guidelines of IRBs, at most institutions, discourage researchers from asking for self-incriminating information from respondents. Consequently, most recent studies have relied upon fairly subtle measures to study the prevalence of academic integrity.

### *Measures*

*Academic integrity inventory.* The Academic Integrity Inventory consisted of demographics and the scales described below. Sample items for the scales are included in the Appendix, and internal consistency reliability of the scales is reported in Table 1. Items on the Academic Integrity Inventory include items adapted from an online survey administered by Millersville University.

The *integrity culture* scale ( $\alpha = .79$ ) consisted of 10 items and was designed to assess various nuances regarding academic misconduct attitudes, policies, and procedures at the institution. The *frequency of cheating* scale ( $\alpha = .77$ ) is a three-item scale designed to assess participants' estimate of the frequency of cheating by others. The *suspected misconduct* scale ( $\alpha = .72$ ) is a two-item measure designed to assess how frequently students suspected others of cheating over the past year. The *report cheating* scale ( $\alpha = .84$ ) is a two-item scale designed to assess how likely students are to report friends or strangers whom they observe engaging in

academic misconduct. The *consider-misconduct* scale is a 10-item scale ( $\alpha = .89$ ) asking how likely students would be to consider various forms of academic misconduct such as inappropriate collaboration on assignments or copying from others on a test.

*Hogan personality inventory (HPI)*. The HPI is a measure of normal personality and is based on the Socio-analytic theory of personality and was designed to parallel the Big Five personality factors (Hogan and Hogan, 1995). Considerable data are available to support the reliability and validity of HPI scores in the measurement of personality (Hogan and Hogan, 1995). The HPI measures 7 aspects of personality: Adjustment, Ambition, Sociability, Likeability, Prudence, Intellectance, and School Success. For the current study, the HPI was used to measure *Adjustment* ( $\alpha = .89$ ) and *Prudence* ( $\alpha = .78$ ). *Adjustment* is highly correlated with the Big Five factor emotional stability ( $r = .70$ ) and *Prudence* is correlated with conscientiousness ( $r = .36$ ) (Hogan and Hogan, 1995). Table 1 reports the internal consistency for these personality factors. The HPI also includes a Validity Scale and scores below 10 indicate careless responding to HPI items making respondents' profiles invalid. Based on recommendations in the manual, 22 participants who scored less than 10 on the HPI Validity Scale were excluded. Because students received extra credit for participation, we contend that those with V Scale scores lower than 10 committed academic dishonesty.

*Demographic variables*. Participants were also asked to report their age, gender (females coded as 1, males coded as 2) and ACT score.

## Results

Correlational analyses were conducted to test the first six hypotheses. Moderated hierarchical regression was used to test hypothesis seven which predicted that personality and integrity culture would interact to influence academic misconduct perceptions and behaviors.



Two of our scales, students' perceptions of the frequency with which other students cheat and students' suspicions regarding other students cheating, are conceptually similar, and as expected, these scales were positively correlated ( $r = .51, p < .001$ ). Both these scales measure students' perceptions of their peers' behavior. McCabe's data show that the single best predictor of academic dishonesty is students' perception of their peers' behavior, specifically, how often others cheat. Consistent with findings of McCabe and colleagues, likelihood of considering misconduct was significantly correlated with frequency of cheating,  $r = .26, p < .001$  and with suspected misconduct,  $r = .20, p < .01$ .

### *Hypothesis Testing*

The first hypothesis predicted that gender would be related to estimated frequency of cheating, suspected cheating, consideration of misconduct, and likelihood of reporting cheating such that males would be likely to estimate cheating as occurring more frequently, to suspect cheating and consider misconduct more, and report cheating less than females. As shown in Table 1, results of the analysis did not support hypothesis 1a, b, c, or d. Males actually reported significantly lower perceptions regarding frequency of cheating than did females,  $r = -.16, p < .05$ . Gender may not have been related to likelihood of considering misconduct in the current study because the more "deviant" males were removed from the sample due to low validity scores or probable response set responding. Approximately 80% of the individuals who were removed due to low validity scores were male while approximately 67% of participants who were removed for probable response set responding were male. Although the proportion of males and females included in the study was roughly equivalent, responses by males were more likely to be removed due to deviant or careless response patterns.

The second hypothesis predicted that age would be related to perceptions of misconduct such that older students would estimate cheating, suspect cheating, and consider misconduct less frequently than would younger students but that, older students would be more likely to report cheating. As shown in Table 1, hypotheses 2b, c, and d were supported, but not 2a. Older students suspected misconduct and considered misconduct less often and were more likely to indicate that they would report incidences of misconduct compared to younger students.

Data failed to support hypothesis 3 which predicted that self-reported ACT scores would be negatively related to estimated frequency of cheating, suspected misconduct, and consideration of misconduct while positively related to likelihood of reporting cheating.

Hypothesis 4 predicted that Prudence would be negatively related to perceived frequency of misconduct, suspected misconduct, and consideration of misconduct but positively related to likelihood of reporting cheating. Results of the analyses supported hypothesis 4c and 4d such that students high on Prudence were less likely to consider misconduct and more likely to report cheating. Results also supported hypotheses 5a, 5b, and 5c indicating that students higher on Adjustment perceived cheating as less frequent, suspected misconduct less often, and were less likely to consider academic misconduct themselves.

Hypothesis 6 predicted that students' perceptions of academic integrity would be associated with perceptions of academic dishonesty. Research on the effects of honor codes directly addresses the importance of a culture of academic integrity and thus it was hypothesized that integrity culture would be negatively related to perceptions regarding the frequency of cheating and suspected misconduct as well as likelihood of considering misconduct. On the other hand, we predicted that integrity culture would be positively related to likelihood of reporting cheating. Results of the analysis supported hypothesis 6a and 6b such that perceptions

of the frequency of cheating and suspicions regarding misconduct were lower for students who perceived a strong integrity culture. Students' perceptions of academic integrity culture, however, were not related to the likelihood of considering misconduct,  $r = -.08, p > .05$ . This result contradicts results of McCabe and others that academic integrity culture is the most important factor in predicting academic misconduct.

Hypothesis 7 predicted that individual factors, including demographics and personality variables, would interact with situational factors to predict perceptions regarding misconduct. To test our hypotheses, we conducted moderated hierarchical regression analyses (Cohen and Cohen, 1983). In each of the four hierarchical regression equations, age, gender and ACT score were entered in step 1. Integrity culture, Prudence and Adjustment were entered in step 2, and the cross product terms of integrity culture and Adjustment, and integrity culture and Prudence were entered in step 3.

#### *Frequency of Cheating (H7a)*

Students' perceptions regarding frequency of cheating were marginally related to the individual difference factors entered in step 1 ( $R^2 = .04, F_{3, 165} = 2.27, p < .10$ ). Of these variables, gender was negatively related to estimated frequency of cheating ( $\beta = -.15, t = -2.00, p < .05; sR^2 = .02$ ). While gender was unrelated to estimated frequency of cheating at the univariate level (see Table 1), results of multiple regression indicates that men estimate more frequent cheating by others than women do. The squared semi-partial correlation,  $sR^2$ , was used to ascertain the unique contribution of each variable to the criterion.  $sR^2$  indicates the incremental change in  $R^2$  for a given variable beyond all other variables.

Integrity culture, Prudence and Adjustment entered in step 2 collectively explained an additional 11% of the variance ( $\Delta R^2 = .11, F_{3, 162} = 7.28, p < .001$ ). Of these variables, integrity

culture ( $\beta = -.19, t = -2.54, p < .05; sR^2 = .04$ ), Adjustment ( $\beta = -.33, t = -3.89, p < .001; sR^2 = .09$ ) and Prudence ( $\beta = .19, t = 2.16, p < .05; sR^2 = .03$ ) explained unique variance. The cross product terms of integrity culture and Adjustment, and integrity culture and Prudence entered in step 3 failed to explain any additional variance in estimates of frequency of cheating ( $\Delta R^2 = .02, F_{2, 160} = 1.66, ns$ ).

#### *Suspected Misconduct (H7b)*

Age, sex and ACT score entered in step 1 of a hierarchical regression were unrelated to participants' suspicion of cheating behavior ( $R^2 = .03, F_{3, 166} = 1.79, ns$ ). Integrity culture, Prudence and Adjustment entered in step 2 collectively explained an additional 10% of the variance ( $\Delta R^2 = .10, F_{3, 163} = 6.13, p < .01$ ). Of these variables, integrity culture ( $\beta = -.17, t = -2.21, p < .05; sR^2 = .03$ ) and Adjustment ( $\beta = -.31, t = -3.63, p < .001; sR^2 = .08$ ) explained unique variance in suspected cheating. The cross product terms of integrity culture and Adjustment, and integrity culture and Prudence, entered in step 3 failed to explain any additional variance in the likelihood of reporting cheating behavior ( $\Delta R^2 = .03, F_{2, 161} = 2.36, ns$ ).

#### *Consideration of misconduct (H7c)*

Age, sex and ACT score entered in step 1 of a hierarchical regression were marginally related to the likelihood of participants' consideration of engaging in misconduct ( $R^2 = .04, F_{3, 163} = 2.08, ns$ ). Integrity culture and personality factors, Prudence and Adjustment were entered in step 2 of the hierarchical regression. These variables collectively explained an additional 5% of the variance ( $\Delta R^2 = .05, F_{3, 160} = 2.80, p < .05$ ). Of these variables, only Prudence explained unique variance ( $\beta = -.19, t = -2.05, p < .05; sR^2 = .03$ ).

The cross product terms of integrity culture and Adjustment, and integrity culture and Prudence entered in step 3 explained an additional 5% of the variance (adjusted  $R^2 = .09, \Delta R^2 =$

.05,  $F_{2, 158} = 2.94, p < .01$ ). The interaction between culture and Adjustment ( $\beta = 2.48, t = 2.75, p < .01; sR^2 = .05$ ) and the interaction between culture and Prudence ( $\beta = -1.67, t = -2.14, p < .05; sR^2 = .03$ ) were significant.

To explore the nature of the interaction, we performed follow-up split-group analyses as recommended by Aiken and West (1991). To test the culture X Adjustment interaction, we took a median-split on Adjustment and regressed consider misconduct on integrity culture at low ( $n=102$ ) and high levels ( $n=101$ ) of Adjustment. Integrity culture was significant for low Adjustment,  $F_{1, 100} = 4.04, p < .05$  but not high Adjustment,  $F_{1, 99} = 0.395, ns$ . To test the culture X Prudence interaction, we took a median-split on Prudence and regressed consider misconduct on integrity culture at low ( $n=107$ ) and high ( $n=96$ ) levels of Prudence. Integrity culture was not significant for either low Prudence,  $F_{1, 105} = .715, ns$ , or high Prudence,  $F_{1, 94} = 0.208, ns$ .

#### *Reporting cheating (H7d)*

Age, sex and ACT score entered in step 1 of a hierarchical regression were significantly related to how likely participants were to report cheating ( $R^2 = .07, F_{3, 166} = 4.38, p < .01$ ). Of these variables, age was significantly related to the likelihood of reporting cheating ( $\beta = .27, t = 3.54, p < .01; sR^2 = .07$ ). Integrity culture, Prudence and Adjustment entered in step 2 collectively explained an additional 5% of the variance ( $\Delta R^2 = .05, F_{3, 163} = 3.14, p < .05$ ). Of these variables, only Prudence ( $\beta = .21, t = 2.40, p < .05; sR^2 = .03$ ) explained unique variance. The cross product terms of integrity culture and Adjustment and integrity culture and Prudence entered in step 3 failed to explain any additional variance in the likelihood of reporting cheating behavior ( $\Delta R^2 = .01, F_{2, 161} = .95, ns$ ).

## Discussion

Previous investigations of academic integrity have tended to focus on situational variables or individual differences and have failed to investigate how situational factors interact with personality constructs to influence perceptions of and intentions relating to academic honesty. The primary purpose of this study was to fill this void. We investigated the direct and interactive effects of academic integrity culture (a situational variable), demographic variables (age, sex, ACT) and personality constructs (Adjustment, Prudence) on four criteria: frequency of misconduct, suspected misconduct, consideration of misconduct, and reporting cheating by others.

Our results indicated that males perceived less frequent cheating than females, a finding that is inconsistent with previous literature. While older previous research tends to indicate males are more likely to engage in academic misconduct, more recent research suggests that academic misconduct rates by females is rivaling that of males (e.g., Crown and Spiller, 1998). We did note that gender was unrelated to suspected misconduct, considering misconduct and reporting cheating. A plausible reason for the reversed effect for gender regarding suspected misconduct, at least in our data, could be the removal of the most deviant students, who were predominately male, based upon their low validity scale scores on the HPI and response sets evident on the academic integrity survey. This may also explain the lack of significant effect for gender regarding suspected misconduct, consideration of misconduct and likelihood or reporting misconduct. Most of the responses that were removed were from male students. Given that students received extra credit for participating in this study, careless (or response set) responding represents a type of cheating, providing some evidence for the role of gender in academic misconduct.

To our knowledge, this study is the first that used a published validity (lie) scale to detect academic misconduct despite the ex post facto nature of this detection. In the current study, approximately 21 percent of the participants' responses were eliminated due to response sets on the academic integrity survey and/or invalid responses on the HPI measure. Kelly and Worrell (1978) also found 19.5 percent of a sample of undergraduate psychology students cheated on a problem-solving task to gain course credit.

This circumstance provided an ex post facto study regarding academic integrity since students cheated by responding to the surveys in invalid ways despite receiving credit for their participation. We compared students scoring below 10 on the HPI Validity scale with students scoring above 10. Results revealed that students differed significantly ( $p < .05$ ) on all HPI personality dimensions except Intellectance. That is, students who responded carefully to the HPI scales (scoring above 10 on the validity scale) were significantly better adjusted, more ambitious, more sociable, more likeable, more prudent, and scored higher on school success.

One major contribution of our paper is identification of individual factors, including age and the personality characteristics of Prudence and Adjustment, related to aspects of academic misconduct. As expected, older students relative to younger students were less likely to suspect misconduct or to consider misconduct but were more likely to report incidences of cheating by others. Unlike previous research, we relied on established personality constructs corresponding to the Big Five model and investigated the influence of Prudence and Adjustment on academic integrity. As expected, students with high scores on Prudence were less likely to cheat and more likely to report cheating. Because Prudence is closely related to the construct of Conscientiousness (Hogan and Hogan, 1995), it is consistent that Conscientious students who engage in misconduct less are likely to report others who engage in misconduct. Adjustment, on

the other hand, is an indication of how well individuals cope with stress. High scores on Adjustment indicate someone who tends to handle pressure well and is even-tempered whereas low scores are indicative of moodiness and neurotic tendencies. Thus, students with high scores on Adjustment perceived less frequent misconduct, suspected misconduct less often and were less likely to consider misconduct themselves.

The construct academic integrity culture represents the shared values of an academic institution's members regarding maintaining integrity in the educational process as well as preventing and punishing instances of misconduct. Integrity culture was assessed by asking students about their perceptions regarding the extent to which the institutional members including faculty and students promote academic integrity as well as prevent or punish academic misconduct. The research was conducted at a single institution which has formal academic integrity policies, but which has not implemented an honor code institution-wide. Participants' perception of the culture of integrity of the institution varied, albeit not as greatly as is likely for students attending different institutions. Nonetheless, students who perceived higher levels of academic integrity culture estimated less frequent misconduct by others and suspected misconduct less often. But perceptions of academic integrity culture were unrelated to either considering misconduct or reporting cheating by others. Our results for academic integrity culture are inconsistent with claims by McCabe and his colleagues that integrity culture is the best predictor of academic honesty/dishonesty. Unlike the work by McCabe and his colleagues that did not consider personality factors or other research that did not consider academic culture, we examined both academic culture and personality variables in the prediction of various misconduct related perceptions and behaviors. This study also considered the interaction



between personality and academic culture in the prediction of perceptions regarding academic misconduct.

Adjustment interacted with academic culture to influence consideration of misconduct, such that academic culture mattered more for those individuals with low scores on Adjustment but not for those with high scores on Adjustment. This finding suggests that individuals who handle pressure well (high Adjustment scores) are not as influenced by the academic culture as are students who are more moody, and have less developed coping strategies (low Adjustment scores). Adjustment (9%) also explained more unique variance in frequency of cheating than academic culture (4%), in suspected cheating than academic culture (8% versus 3%). Prudence explained the most unique variance in reporting cheating whereas academic integrity culture was unrelated to reporting cheating. Overall, these results highlight the importance of personality constructs, namely Adjustment and Prudence, in explaining variance in perceptions of and intentions relating to academic integrity. Investigating the combined influence of situational factors, such as academic integrity, and personality constructs is the most significant contribution of this study.

#### *Implications for Practice*

Individuals who have high scores on Prudence or on Adjustment are less likely to perceive and engage in academic dishonesty. Our results suggest that academic integrity culture matters more for individuals who are less well adjusted. Thus, building a positive academic integrity culture appears to be an important avenue for promoting professional behavior and ethical conduct amongst students. Academic integrity could be enhanced by clearly communicating standards of ethical conduct, adopting honor codes, building in mechanisms that make it easier to detect academic dishonesty and report such behavior, and using appropriate

penalties that could serve as a deterrent. Our results also suggest that colleges and universities should consider administering personality measures such as the HPI or other Big Five measures to incoming students in order to point out potential areas of interest as well as potential strengths and weaknesses. Once weaknesses such as a heightened likelihood to engage in academic misconduct are identified, students can be taught positive coping mechanisms for handling stress they are likely to encounter in college. Students whose scores indicate they are likely to demonstrate high integrity could be recruited to serve in various capacities to promote the institution's academic culture. With additional research support, personality and integrity tests may be shown to be useful and valid tools in making college admission decisions. A growing number of organizations are using integrity tests, many based upon the Big Five, to screen out applicants likely to engage in counterproductive behaviors such as theft, illegal activities, and absenteeism (Ones and Viswesvaran, 1998; Ones et al., 1993).

#### *Directions for Future Research*

Future research should focus on antecedents of academic integrity culture as building a strong culture will discourage academic dishonesty without the added expense involved with monitoring academic conduct. Our results highlight the importance of investigating if personality constructs interact with situational factors to influence perceptions of, and intentions relating to academic misconduct. How other personality variables interact with academic culture needs to be examined. Perceptions of fairness and the presence of situational constraints (e.g., time pressure, work overload) are likely to influence academic misconduct. While a substantial body of research has documented the prevalence of academic misconduct, a framework for systematically investigating the potential antecedents of academic misconduct is needed to guide future research. Future research should also focus on the extent to which misconduct in the

academic domain carries over to work domain and to family domain. For instance, Sims (1993) has provided evidence indicating that individuals who cheat in school are more likely to cheat on the job. With few exceptions, research that examines spillover of cheating behavior from one domain to another is virtually non-existent.

Appendix  
Sample Scale Items

Integrity Culture

How would you rate:	Low 1	2	3	4	High 5
The climate of academic integrity at your school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faculty concern about academic integrity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The severity of penalties for cheating at your school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Frequency of Cheating

How frequently do you think the following occur in <i>traditional classroom</i> environments at your school?	Never	Very Seldom	Seldom	Often	Very Often
Plagiarism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inappropriate collaboration on assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cheating during tests and examinations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Suspected Misconduct

	Never	Once	Few Times	Several Times	Many Times
In the past year, how often, if ever, have you <i>suspected</i> another student of cheating during a test/exam?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Likelihood of Reporting Cheating

Listed below are statements regarding academic misconduct occurring in a <i>traditional classroom</i> . Please indicate how likely you are to report these instances of academic misconduct.	Very Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Very Likely
I would report an incidence of cheating by a student whom I consider to be a friend.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Likelihood of Considering Misconduct

Listed below are behaviors that some people might consider to be dishonest. How likely are you to consider the following in a <i>traditional classroom</i> setting?	Very Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Very Likely
Turning in work done by someone else as one's own.	○	○	○	○	○
Collaborating on an assignment that is supposed to be completed individually.	○	○	○	○	○
Copying from someone else during a <i>test</i> .	○	○	○	○	○
Using unapproved materials (e.g., books, notes) to complete an <i>assignment</i> .	○	○	○	○	○

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Note- Table 1 was included in a separate file.

**TABLE 2**  
**Overall Regression Analysis Results**

Variables	$R^2$	$\Delta R^2$
Hypothesis 7a (Frequency of Cheating)		
Step 1: Age, Gender, ACT	.04	.04
Step 2: Prudence, Adjustment, Int. Culture	.15***	.11***
Step 3: Culture*Prud, Culture*Adj	.17***	.02
Hypothesis 7b (Suspected Misconduct)		
Step 1: Age, Gender, ACT	.03	.03
Step 2: Prudence, Adjustment, Int. Culture	.13***	.10***
Step 3: Culture*Prud, Culture*Adj	.15**	.03
Hypothesis 7c (Consider Cheating)		
Step 1: Age, Gender, ACT	.04	.04
Step 2: Prudence, Adjustment, Int. Culture	.09*	.05*
Step 3: Culture*Prud, Culture*Adj	.13**	.05*
Hypothesis 7d (Reporting Cheating)		
Step 1: Age, Gender, ACT	.07**	.07**
Step 2: Prudence, Adjustment, Int. Culture	.12**	.05*
Step 3: Culture*Prud, Culture*Adj	.13**	.01

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$