ETHICS & BEHAVIOR
2023, VOL. 33, NO. 6, 433–460
https://doi.org/10.1080/10508422.2022.2104281

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An examination of online cheating among business students through the lens of the Dark Triad and Fraud Diamond

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ABSTRACT

Business students have long been noted for their differential proclivity to engage in academic misconduct. Unfortunately, the potential for misconduct has been exacerbated in recent years by rapid advances in technology, easy access to information, competitive pressures, and the proliferation of websites that provide students access to information that allows them to directly circumvent the learning process. Using a convenience sample of 631 students matriculating in various business majors at four U.S. universities and structural equations modeling procedures, this study assesses the effects of psychological factors on business students' propensities to utilize the services of homework assistance websites. Specifically, we examine how "Dark Triad" personality traits (i.e., narcissism, Machiavellianism, and psychopathy) interact with Fraud Diamond elements to influence student decisions to engage the services of these websites. We find that each Dark Triad trait exerts a significant influence on at least one of the Fraud Diamond elements, which in turn have a significant direct or indirect positive association with students' reported intentions to utilize, and reported utilization of, these websites.

KEYWORDS

Dark Triad; Fraud Diamond; business students; homework assistance websites

INTRODUCTION

This paper expands upon Harrison et al.'s (2018) and Smith et al.'s (2021) ethical decision-making models to examine the effects of psychological factors on business students' propensities to utilize the services of homework assistance websites.[1] The Harrison et al. (2018) model presents the "Dark Triad" personality traits (i.e., narcissism, Machiavellianism, and psychopathy) as psychological antecedents to fraudulent behavior through their differential effects on the four elements of the Fraud Diamond (Wolfe & Hermanson, 2004) conceptual framework (i.e., opportunity, motivation, rationalization, and capability). Harrison et al. (2018) tested their model in the context of online consumer fraud using survey and experimental data and found evidence consistent with their model's theoretical predictions. Harrison et al. (2018)'s results provide a notable contribution to research and practice by establishing an ethical decision-making model wherein fraud propensities arise because of differential interactions between dispositional and situational factors. Smith et al. (2021) modified the Harrison et al. (2018) model by adding additional hypotheses and reversing the predicted directionality of another. They also provided details on direct, indirect, and total effects among the constructs as well as conducted additional tests of moderation. These authors also made an incremental contribution to the literature by evaluating the same situational and dispositional factors among accounting students in

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[1]Chegg.com, Course Hero, and Quizlet are the three largest and most recognizable U.S.-based providers of homework assistance services.

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the context of academic misconduct. This study continues the development of these models in an attempt to merge "the Fraud Diamond and the Dark Triad paradigms in a comprehensive framework in the context of ethical decision making and the theory of reasoned action" (Smith et al., 2021, p. 5).

Rest et al. (1999) advanced a theory of ethical decision making where an awareness of a moral dilemma precedes the development of an internal justification for a possible resolution to that dilemma followed by an intention to execute the act and culminating with the act itself. It is our contention that Rest at al.'s theory maps onto the theory of reasoned action and the theory of planned behavior promulgated by Fishbein (1979) and Ajzen (1991), respectively.

According to these theories, an individual's behavior is largely guided "by a reasoned actioned approach which assumes that people's behavior follows reasonably from their beliefs, attitudes, and intentions" (Ajzen et al., 2018, p. 2). This paper is predicated on the presumption that an individual's psychological traits (i.e., Dark Triad) are directly related to their ethical decision-making processes (i.e., Fraud Diamond), and ultimately their behavior. We further believe that how an individual perceives each of the elements of the Fraud Diamond (i.e., capability, opportunity, motivation, and rationalization) is independently influenced by their levels of each component of the Dark Triad (i.e., narcissism, Machiavellianism, and psychopathy) when forming the intent to engage in academic misconduct and whether they actually do so.

Business students have long been noted for their higher reported incidence of academic misconduct relative to their peers pursuing other majors (e.g., Davy et al., 2007; Lawson, 2004; McCabe et al., 2006; McCabe & Trevino, 1995; Parks-Leduc et al., 2021; Verschoor, 2007). A recent study found that looking up answers on the internet or in textbooks to complete online quizzes, exams, and homework are among the most frequently reported cheating behaviors among a sample of business and non-business students, with business students reporting significantly higher engagement in these activities than their non-business major peers (Parks-Leduc et al., 2021). Specifically, the authors found that compared to other majors, business students had a had a greater propensity to be able to rationalize their unethical behavior and believed that they "should be in charge and have control over resources, be viewed as important, have prestige and social status, and have authority over others" (Parks-Leduc et al., 2021, pp. 3–4).

Concerns about academic integrity became more evident following the shift to online learning arising from the recent pandemic. For example, the academic publisher Willey (2020) found that of the nearly 800 educators surveyed world-wide, 93% believed that students were more likely to cheat in an online assessment compared to one administered face-to-face. Lancaster and Cotarlan (2021) found that students were using homework assistance websites during an online assessment at a rate nearly 200% higher than pre-pandemic levels, and Comas-Forgas et al. (2021) used internet search analytics to show a significant and marked increase in search terms related to online cheating. Similarly, Bilen and Matros (2021) present evidence showing a direct association between time and date of Google searches for exam-specific topics and the times and dates of the nationwide 2020 Advanced Placement examinations testing those topics during the peak of the pandemic when virtually all learning and testing had been moved online. More recently, the University of Toronto – Mississauga reported academic misconduct at a rate more than double that of pre-pandemic levels, with more than half of the offenses attributed to the use of unauthorized aids such as Chegg (Bellamy, 2022)

Compared to the face-to-face environment, online cheating is of particular concern, in part due to the pandemic but also because of an overall shift toward the acceptance of online learning (Grossman & Johnson, 2016). Emerson and Smith (2021) note that this problem has been exacerbated by rapid advances in technology, easy access to information, competitive pressures, and the proliferation of websites that provide students access to information that directly circumvents the learning process. Dyer et al. (2020) found that an assessment that is not proctored imbues a perception that it is not serious and that students are more likely to cheat as a consequence, and Parks-Leduc et al. (2021) speculated that because cheating is easier in the online environment, students may find it easier to rationalize the behavior compared to face-to-face assessments where there are clear expectations for ethical behavior.

Academic integrity is directly associated with quality in the online environment and is fundamental to the learning process. When students cheat, "not only are we graduating students that lack adequate knowledge, but we are also graduating unethical citizens" Heiser and McArthur (2020, pp. 2–3). Unfortunately, there is a documented link between academic dishonesty in college and unethical behavior in the workplace with potentially devastating consequences to business enterprises and society in general (e.g., Becker et al., 2006; Mulisa et al., 2021; Nonis & Swift, 2001). Even more distressing, business students have been shown to cheat at a higher rate than other majors (e.g., McCabe et al., 2006).

Motivated by the above-referenced concerns, we collected survey data from 631 undergraduate business majors at three U.S. universities and used a modified version of the Harrison et al. (2018) and Smith et al. (2021) models to measure the outcomes of student intentions to use, and self-reported use of, homework assistance website services in lieu of actually completing graded assessments on their own. Emerson and Smith (2021) note that these online providers, which have grown in both number and size in recent years, may look respectable on the surface, but ultimately provide students easy access to homework, quiz, and exam solutions, as well as essays, term papers, and other written assignments. Thus, this study serves to validate the Harrison et al. (2018) and Smith et al. (2021) framework's ability to analyze academic fraud in an alternative context. It also provides important evidence on the ethical decision-making process underlying the use of online homework assistance services, which have increasingly plagued higher education assessment in recent years (Bain, 2015; Emerson & Smith, 2021; Golden & Kohlbeck, 2020; Lancaster & Cotarlan, 2021). Consequently, educators and administrators should find our research useful as they develop strategies to mitigate the threat that such services pose to academic integrity and the higher education assessment process.

The remainder of the paper proceeds as follows. First, we briefly describe the elements of our theoretical model and discuss the changes that we made to referent models' hypothesized paths. Next, we describe our data and methodology and continue with a summary of our results. Last, we offer a discussion of our findings, recommendations, and conclusions.

THEORETICAL MODEL

Figure 1 presents the model used in our analyses. It was originally developed by Harrison et al. (2018), modified by Smith et al. (2021) and further adapted for this study to assess the dispositional and situational factors that may be associated with business majors' decisions to engage the services of online homework assistance platforms.[2] We employed the Dark Triad personality traits to model our participants' predisposition to engage in fraudulent activity and the Fraud Diamond framework to model their awareness and judgment of ethical dilemmas that determine fraudulent intentions and actions. Below is a brief description of the elements that comprise our model.

The Dark Triad consists of three distinct (but related) personality traits: narcissism, Machiavellianism, and psychopathy. Interested readers are encouraged to review Harrison et al. (2018) for detailed descriptions of each trait. *Narcissism* reflects a self-centered, entitled, and unempathetic disposition that projects grandiosity and which thrives on constant validation from others. *Machiavellianism* is typified by a cynical, manipulative, and competitive temperament that covets control and status and condones their pursuit by any means necessary. *Psychopathy* is characterized by an intrinsically anti-social personality where callousness, disinhibition, and remorselessness facilitate impulsive actions as a means to satiate one's own wishes and well-being.

The Fraud Diamond is an extension of Cressey's (1953) Fraud Triangle framework that was developed to understand the precursors of financial fraud. The Fraud Diamond consists of four distinct elements: capability, opportunity, motivation, and rationalization (Wolfe & Hermanson,

[2]Figures 1 and 2 illustrate hypothesized and measured associations, respectively, and are not intended to imply causality.

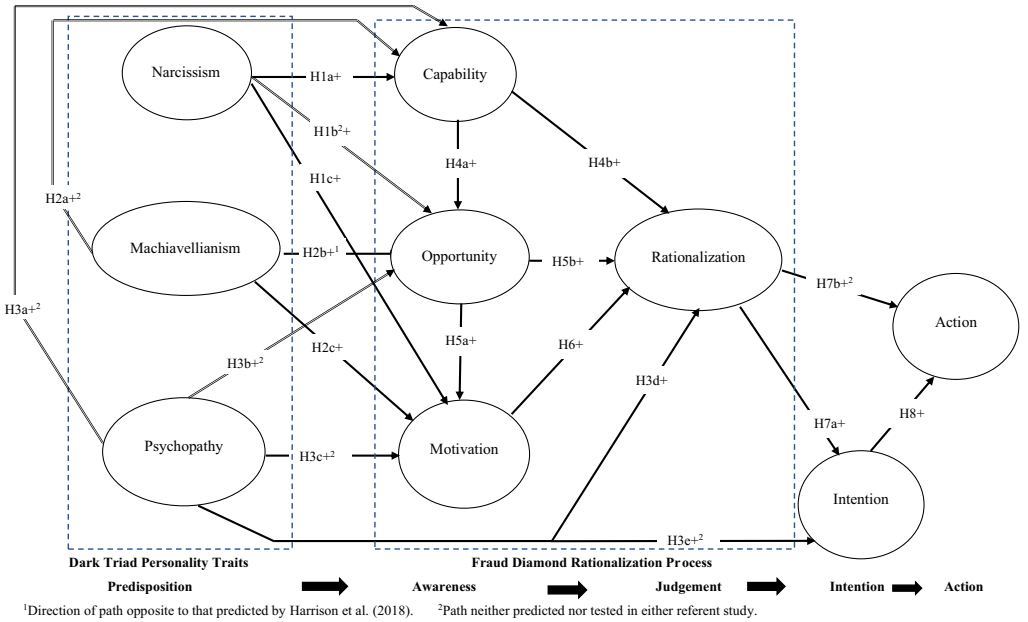


Figure 1. Theoretical model with hypothesized paths (adapted from Harrison et al. (2018)). [1] Direction of path opposite to that predicted by Harrison et al. (2018). [2] Path neither predicted nor tested in either referent study.

2004). *Capability* refers to one's perception of their ability to recognize and take advantage of available opportunities to commit fraud. *Opportunity* refers to circumstances where one believes they can take advantage of a situation or another's trust for personal gain (often at another's expense) with sufficiently low perceived likelihood of being caught. Note that these perceived capabilities and opportunities may be real or imaginary. The individual only needs to believe that such capabilities and opportunities exist. *Motivation* refers to one's incentives to engage in fraudulent behavior, either to avoid an undesirable consequence, achieve a favorable outcome, or some combination of both when a fraudulent opportunity can be successfully pursued. *Rationalization* refers to one's justification for exploiting opportunities to commit fraud in line with their assessment of their capability and motivation.

This study expands the models developed in the referent studies to include four additional paths based on further analysis of the literature. Specifically, to supplement those paths proposed by Harrison et al. (2018) and Smith et al. (2021) we hypothesize positive associations between both narcissism and psychopathy with opportunity (H1b and H3b, respectively), and between both Machiavellianism and psychopathy with capability (H2a and H3a, respectively).

The paths depicted in Figure 1 presents our theoretical model with each of the hypothesized paths, and Table 1 summarizes the underlying theoretical foundation for each.

METHODS

Measures

Dark triad elements

Jonason and Webster's (2010) four-item scales served as our measures of Machiavellianism and narcissism. We used a three-item scale adapted by Harrison et al. (2018) of the Levenson Self-Report Psychopathy Scale (Levenson et al., 1995) to measure

Table 1. Motivation for hypothesized paths.

Hypothesized Path	Motivation for Hypothesis
1a. Narcissism → Capability (+)	Narcissistic individuals feel that they are superior to others (Nathanson et al., 2006) but they often underachieve relative to their own expectations (Wallace & Baumeister, 2002). To preserve their sense of superiority and to ensure that others recognize their superior intellect and abilities, narcissists will often resort to cheating to ensure success (Campbell & Foster, 2007; Williams et al., 2010). With a strong superiority complex and a willingness to engage in unethical behavior, narcissists are likely to believe they have high cheating capabilities.
1b. Narcissism → Opportunity (+)	The narcissistic individual's perception of potential opportunities in performance activities feeds their narcissism (Roberts et al., 2018). A narcissistic individual's assertiveness. sociability, and high energy creates opportunities to harvest "low-hanging" goals and these initial successes feed their ego. Their initial success provides additional opportunities for success resulting in a self-perpetuating cycle (Grijalva et al., 2015).
1c. Narcissism → Motivation (-)	Because narcissists possess a strong desire for status (in appearance and fact), coupled with intrinsic desires to reaffirm their senses of self-importance and intellectual superiority, they are likely to be highly motivated to act unethically and cheat (Williams et al., 2010). Moreover, narcissists are likely to be further motivated to cheat by their heightened sense of entitlement (Harrison et al., 2018).
2a. Machiavellianism → Capability (+)	Sherry et al. (2006) Machiavellianism linked o tendencies to promote an image of high capability to others, but the theoretical link between Machiavellianism and perceptions of one's own capabilities to commit fraud is not well established in the literature. While Utami et al. (2019) hypothesized an interaction between Machiavellianism and capability in determining fraud intentions, they failed to find empirical support for this assertion. However, though Harrison et al. (2018) did not hypothesize a relation between Machiavellianism and capability, they nevertheless found that Machiavellianism was a positive antecedent of capability in an atheoretical model that tested each Dark Triad element as a potential antecedent to each Fraud Diamond element (see Appendix Table 7 in their paper). Thus, there is an empirical basis to predict a positive association between Machiavellianism and capability.
2b. Machiavellianism → Opportunity (+) Smith et al., (2021) [1]	Machiavellian individuals pedestalize power and goal attainment. Their cynical view toward others' intensions compels expedient, tactful, and unscrupulous behavior to achieve desired outcomes (e.g., Jones & Paulhus, 2011; Nathanson et al., 2006; Williams et al., 2010; O'Boyle et al., 2012). Machiavellians exhibit higher propensities to defraud others (e.g., Harrell & Hartnagel, 1976; Harrison et al., 2018; Tang et al., 2008), particularly in settings where deceptive and duplicative behaviors are unlikely to be detected (Cooper & Peterson, 1980; Christoffersen & Stamp, 1995; O'Boyle et al., 2012).
2c. Machiavellianism → Motivation (+)	Machiavellians are intrinsically motivated by power and achievement, and they are unconstrained by morality in the pursuit of their goals (Nathanson et al., 2006). With a credo to achieve their goals "by any means necessary," Machiavellians should be highly motivated to engage in unethical behavior when doing so promotes their own self-interest (Harrison et al., 2018).
3a. Psychopathy → Capability (+)	Bailey (2019) noted that psychopathy is characterized by a lack of conscience, a high stress tolerance, risk seeking behaviors, manipulativeness and a callous disregard for others, while Patrick et al. (2009) state that those scoring high on the psychopathy scales exhibit behavioral deviance or disinhibition and meanness. One of the most salient features of psychopathy is a lack of fear and an ability to remain calm in stressful situations. This fearlessness may lead the individual to believe that they have the capability to engage in the unethical act without consequence. Psychopathy is also associated with a lack of impulse control and disinhibition, and impulsivity has been found to be associated with academic cheating (Anderman et al., 2009). Extensive exposure to risky situations may lead the individual to perceive a greater capability of successfully engaging in the unethical act.
3b. Psychopathy → Opportunity (+)	Disinhibition may also lead the individual to believe that there are "more opportunities to cheat due to poor risk assessment and fallible analyses of the vigilance and control systems (Dias-Oliveira et al., 2022, p. 12).
3c. Psychopathy → Motivation (+) (Smith et al., 2021)	Bailey (2017) argues that psychopathic individuals are likely to have higher motivation to commit fraud because (1) they exhibit selfishness and a high sense of entitlement, and (2) they are intrinsically impulsive and risk-seeking. Psychopathic traits also align with the three primary motivations for academic misconduct identified by Williams et al. (2010): a desire for unrestrained achievement aligns with psychopaths' egocentricity and brazen disregard for fairness and equity (O'Boyle et al., 2012; Williams & McCarthy, 2011), a lower fear of punishment aligns with psychopaths' impulsiveness (Bailey, 2017; Jones & Paulhus, 2011; Williams et al., 2010), and diminished moral inhibition aligns with psychopaths' callousness and lack of personal responsibility (Jones & Paulhus, 2011; O'Boyle et al., 2012; Williams et al., 2010).
3d. Psychopathy → Rationalization (+)	A defining attribute of psychopaths is their lack of moral conscience, which promotes unethical behavior by freeing them from having to morally justify for their actions (Bailey, 2017). Indeed, morality does not factor into psychopaths' self-perception (Glenn et al., 2010) and even if they consider the immorality of their actions, their moral disengagement allows them to preserve a positive self-image (Stevens et al., 2012; LeBreton et al., 2006).

(*Continued*)

Table 1. (Continued).

Hypothesized Path	Motivation for Hypothesis
3e. Psychopathy → Intention (Smith et al., 2021)	Psychopathy has been causally linked to unethical publishing practices (Bailey, 2015). The acceptability of unethical business practices is linked to psychopathy (Bailey, 2017, Bailey, 2019) as well as the psychopathic tendency of low self-control (Bolin, 2004). The perceived acceptability of unethical business practices also serves to fully mediate the link between psychopathy and unethical actions (Bailey, 2015). Psychopathy is also associated with academic dishonesty (Nathanson et al., 2006; Williams et al., 2010), aligning with the theory of reasoned actions and the theory of planned behavior (Ajzen et al., 2018).
4a. Capability → Opportunity	Capability in the Fraud Diamond is an individual's perception of their ability to successfully engage in fraudulent activity (Vousinas, 2019; Wolfe & Hermanson, 2004). Following H1a above, individuals with narcissistic personalities believe they have superior skillsets and are entitled to success (John & Robins, 1994; Nathanson et al., 2006), making them more likely to perceive they have high cheating capabilities. Such individuals are also more likely to believe that they can identify opportunities to commit fraud relative to individuals without these beliefs (Harrison et al., 2018).
4b. Capability → Rationalization	To the extent that cheating is determined by perceptions of detection weighed against perceptions of consequences (McCabe et al., 2006), high capability individuals may have higher cheating propensities because their high capabilities reduce the likelihood of detection. With reduced detection risk, high capability individuals may also believe that the rewards of cheating are worth the risks, making it easier to rationalize cheating as advancing one's own interests (Harrison et al., 2018). Relatedly, individuals who are resourceful and who make efficient use of their time are more likely to form self-interest rationalizations for dishonest behavior (Peterson, 2004).
5a. Opportunity → Motivation	In the Fraud Diamond, opportunity represents an individual's perception of available cheating avenues along with the chances of success and consequences of failure when pursuing these avenues (Vousinas, 2019). Higher opportunities for fraud typically increase one's perceived likelihood of committing fraud successfully (Albrecht et al., 2006). With higher perceived likelihood of success and minimal penalties if detected, individuals perceiving high fraud opportunities may be more motivated to commit fraud.
5b. Opportunity → Rationalization	If individuals perceive greater opportunities to commit fraud, then they may cite the existence of those opportunities as rationalization to exploit them (Ramamoorti, 2008). Such psychology stems from a belief that greater opportunities indicate inadequate effort to mitigate fraud occurrences considering individuals' inherent motivation for success (Peterson, 2004).
6. Motivation → Rationalization	Motivation to commit fraud can come from a variety of sources (internal or external) for a variety of reasons (e.g., economic gain, social status, etc.). The ability to rationalize fraud is rooted in one's own personal code of ethics, but rationalization tendencies increase as the perceived benefits of fraud outweigh the perceived costs. For example, academic fraud is sometimes rationalized by the perceived ingenuity required to successfully pull it off (Peterson, 2004), its perceived low likelihood of disadvantaging others, and its lower time and effort requirements relative to fraud abstention (Larkin & Mintu-Wimsatt, 2015).
7a. Rationalization → Intention	Rationalization of fraud requires an individual to develop a justification for committing fraud in line with their personal code of morals and ethics (Cressey, 1953). Following H4b, H5b, and H6, rationalization should be jointly affected by an individual's perceived capabilities, opportunities, and motivations to commit fraud, and once formed, rationalization naturally leads to fraud intentions and actions. The process connecting rationalization to intention follows from the theory of reasoned action, which posits that behavioral intentions manifest as a function of one's beliefs about the behavior, even when beliefs are illegitimate (Ajzen et al., 2018).
7b. Rationalization → Action	In line with H7a, once someone develops a rationalization for fraud, there is a natural path from fraudulent intentions to fraudulent actions. Nevertheless, it is possible that an individual's contemplation and rationalization process occurs simultaneously with fraudulent actions.
8. Intention → Action	It is well recognized that fraud intentions naturally precede fraud actions (Ajzen et al., 2018; Rest et al., 1999). This process follows from theories of reasoned action and planned behavior, which posit that fraud intentions are based on one's beliefs about the fraudulent behavior. (Ajzen et al., 2018).

[1]Harrison et al. (2018) hypothesized a negative association between Machiavellianism and based on Harrell and Hartnagel (1976), who indicated that when high Machiavellians perceive a high risk of getting caught, they will be less likely to perceive an opportunity: their dependent variable, an act of consumer fraud in the public domain, motivated the negative sign of this association. In contrast, given that individuals high in Machiavellianism are more likely to cheat when working in isolation (Cooper & Peterson, 1980), coupled with the fact that students accessing homework assistance websites is a private activity, motivated Smith et al. (2021) to hypothesize a positive association between these constructs.

psychopathy.[3] For each of the three constructs, students were requested to indicate the extent to which they agreed with each statement on a seven-point scale that ranged from "strongly disagree" to "strongly agree," with the note that that there are no right or wrong answers.

Fraud diamond elements

We adapted Harrison et al.'s (2018)'s three item capability scale to measure student perceptions regarding obtaining online assistance for completing assignments.[4] We adapted two items from Harrison et al. (2018) and three from Becker et al. (2006) for our both our opportunity and motivation scales and adapted three of Harrison et al.'s and one of Becker et al. (2006) items to measure rationalization. The adapted Becker et al. (2006) items for each measure captured academic dishonesty, thus prompting their inclusion. The instructions for these items mirrored those noted above for the Dark Triad scales.

Intention and action

We adapted Harrison et al.'s (2018) three-item intention scale to assess student intention to seek an assignment solution online. The instructions for this scale reflected those for the above-referenced scales.

To measure reported use of online homework assistance services, we queried students as to how often (on a five-point scale that ranges from 1 = never to 5 = very frequently) in their college career they have: 1) used online homework assistance; and/or, 2) personally provided assignment solutions to an assignment assistance website.[5]

Participants

The respondents consisted of a convenience sample of 631 students matriculating in various business majors at four U.S. universities: two public universities in the South (n = 154 and n = 124), one public university on the East Coast (n = 252), and one private university on the West Coast (n = 101). All the business schools at these universities are accredited by the Association to Advance Collegiate Schools of Business (AACSB). The study's instrument package was approved by each university's Institutional Review Board as well as the human subjects committee. Data collection was administered online using Qualtrics during a pre-designated period during the fall 2020 semester. We solicited student participation via e-mail and in class. The study description provided students assurances of anonymity and participation was voluntary. To mitigate common method bias, we varied scale ordering (Podsakoff et al., 2003).

Non-response bias analyses

Our sample represents approximately 15% of the combined undergraduate business student populations at the participating schools for the semester during which the data were gathered.[6] We examined response differences using Oppenheim's (1966) early-late hypothesis, which in effect suggests that late respondents are generally similar to non-respondents. Specifically, we conducted independent sample

[3]Harrison et al.'s (2018) full adaptation contains six items, three that measure primary psychopathy (i.e., morality), and three that measure secondary psychopathy (i.e., impulsiveness). Preliminary analyses indicated that the three secondary psychopathy items had weak loadings on a second-order psychopathy factor, thus prompting us to exclude them from further analysis. The exclusion of these three items enhanced fit of the empirically tested model but did not result in significantly different structural associations among the latent constructs.

[4]Harrison et al. (2018) premised their Fraud Diamond questions centered on the opportunity to earn an additional $100 from overstating the condition of a tablet computer in an online advertisement.

[5]Readers interested in the database used for this study may contact the senior author.

[6]Because not all students at the various institutions were solicited for participation, the 15% figure cited above understates the actual response rate, albeit to an unknown degree due to our inability to feasibly ascertain how many students actually opened and read their e-mail solicitations to participate in the study.

t-tests to assess the significance of mean score differences between the first 50 respondents and the final 50 respondents on each of nine primary study scales. Bonferroni-adjusted probability values revealed no significant inter-group mean score differences (at $p < .05$). We concede that the above-referenced tests do not guarantee that this study is free of non-response bias. However, as Buzby and Falk (1979) citing Scott (1961) note, extensive review of evidence indicates that "the use of the early/late hypothesis is beneficial more often than not"[7] (p. 28).

Control variables

Table 2 presents inter-scale correlations and a demographic profile of our respondent group. Demographic variables such as age, gender, academic ability, etc., have the potential to influence specific behavioral outcomes (Herda & Lavelle, 2012; Herda & Martin, 2016; Jones et al., 2010). We evaluated the potential impact of five demographic control variables on the tested associations between the Dark Triad factors, Fraud Diamond factors, intentions, and actions. These control variables appear as items 1–5 in Table 2.

The inter-scale correlations reported in Table 2 indicate that except for gender, the correlations between the control variables and the primary study constructs were not significant, motivating us to exclude them from further analysis. Becker (2005) and Boehm et al. (2015) stated that unnecessary control variables have the potential to generate biased parameter estimates, thus excluding unnecessary controls maximizes the power of structural modeling tests by reducing the number of estimated parameters. However, we did assess the possible moderating effect of gender as reported in the Results section below.[8]

STATISTICAL ANALYSES

To ensure that a single factor did not account for most of the tested model's covariance, an issue of particular concern when same respondent provides data for both the independent and dependent variables (Ali et al., 2016; Podsakoff et al., 2003), we first conducted Harman's single factor test (Harman, 1976). Recent research (Babin et al., 2016) suggests that this test is quite meaningful despite earlier claims that it may not detect the presence of common method bias. Principal components factor analysis of the sample data uncovered several explanatory factors, thus allowing us to reject the single factor explanation. Though not reported in tabular form, we addressed the potential that our model is contaminated by common method bias by conducting Keck's (2015) suggested collinearity diagnostic procedure in SmartPLS. This procedure assessed the factor-level variance inflation factors (VIFs). According to Keck (2015) VIFs of 3.3 or lower indicate that the model is free of common method bias. All the VIFs in our model were less than 2.0, thus offering some assurance that common method bias was not a cause for concern with our data. Additionally, the measurement model discriminant validity tests (reported in Table 4 below) provide additional confidence that common method bias is not a significant problem in the present study.

We then followed Anderson and Gerbing's (1988) recommended two-step process of first testing the reliability and validity of the measurement model, followed by testing the structural linkages. For both the measurement and structural model tests, we assessed the significance of the factor loadings and path coefficients using complete bootstrapping with 5,000 resamples (Hair et al., 2013). We used Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology with SmartPLS 3.0

[7]Scott's (1961) findings are based on analyses of mail survey response rates. With respect to web-based surveys, Wells et al. (2012) prescribe that "Survey researchers who utilize web-based administrative methods should consider using multiple sources of leverage when soliciting participation and must carefully evaluate sample representativeness" (p. 455). This study's compliance with these admonitions is evidenced by the multiple means of soliciting student participation, the effort to assess non-response bias reported above, and the gender analyses reported below.

[8]While females comprised approximately 38% of the combined undergraduate business student populations from the participating schools, they comprised 59% of this study's sample. This finding is congruent with prior research among college students which indicates that female students and ethnic majority students are more likely to respond to paper and web-based surveys (e.g., see, Van Mol, 2017). However, this disparity motivated the gender-based moderation analyses reported below.

Table 2. Inter-scale Pearson correlations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. School[1]	-														
2. Major[2]	−0.023	-													
3. GPA[3]	**−0.175**	***−0.184***	-												
4. Age[4]	**0.163**	−0.013	**−0.155**	-											
5. Gender[5]	−0.023	0.066	***0.220***	0.051	-										
6. Academic Level[6]	−0.009	−0.079	0.033	***0.438***	0.051	-									
7. Machiavellianism	−0.058	0.074	−0.007	−0.108	−0.105	−0.081	-								
8. Narcissism	−0.115	0.013	0.152	−0.130	−0.029	−0.035	***0.457***	-							
9. Psychopathy	−0.043	0.048	−0.119	−0.134	***−0.187***	−0.101	***0.521***	***0.303***	-						
10. Capability	0.018	−0.093	0.111	−0.071	−0.079	0.003	**0.150**	***0.241***	0.132	-					
11. Opportunity	−0.073	−0.115	0.138	−0.048	0.090	0.067	0.134	***0.249***	0.094	***0.541***	-				
12. Motivation	−0.047	0.013	−0.100	−0.049	−0.039	0.075	***0.315***	***0.285***	***0.345***	***0.348***	***0.365***	-			
13. Rationalization	−0.088	0.026	−0.019	−0.093	−0.086	0.050	***0.329***	***0.320***	***0.346***	***0.494***	***0.472***	***0.654***	-		
14. Intention	−0.091	0.064	−0.009	−0.047	−0.004	0.029	***0.340***	***0.322***	***0.402***	***0.379***	***0.387***	***0.640***	***0.657***	-	
15. Action	−0.079	−0.021	0.081	−0.058	0.051	0.098	***0.200***	***0.266***	***0.175***	***0.385***	***0.478***	***0.464***	***0.508***	***0.499***	-

Bolded correlations significant at $p < .05$; ***Bolded and italicized*** correlations significant at $p < .01$.

[1]Coded "1" if Eastern school (n= 252), "2" if Southern School #1 (n= 101), "3" if Southern School #2 (n= 124), and "4" if Western School (n= 101)

[2]Coded "1" if Accounting (n= 249), "2" if Economics, Finance, Information Systems (n= 119), and "3" if Management, Marketing, Business Administration (n= 263)

[3]Coded "1" if 3.00 or lower (n= 71), "2" if 3.01–3.49, and (n= 172), and "3" if 3.50 or higher (n= 328)

[4]Coded "1" if under 20 (n= 177), "2" if 20–21 (n= 302), "3" if 22–24 (n= 113), and "4" if over 24 (n= 35)

[5]Coded "1" if male (n= 261) and "2" if female (n= 368)

[6]Coded "1" if freshman (n= 68), "2" if sophomore, (n= 162), "3" if junior (n= 171), and "4" if senior (n= 228)

software. Ali et al. (2016), citing Hair et al. (2013) state that PLS-SEM is a reputable procedure for examining structural models, has been widely used, and has become "increasingly popular . . . because of its ability to model latent constructs under conditions of non-normality and small to medium sample sizes" (p. 220). This study also meets several of the situations for which Manley et al. (2021) deem PLS-SEM appropriate, including: 1) it tests a complex model which includes many constructs, indicators, and hypothesized associations; 2) it includes multiple-item latent variables; 3) it extends a theory; and 4) prediction is one of the a primary objectives of the investigation.

RESULTS

Basic statistics

Table 3 presents mean and standard deviation data for each of the primary study constructs, both for the full sample, and those whose grade point average fell in the top and bottom quartiles of the sample. As indicated, the overall mean respondent grade point average was 3.472 (s = 0.444). This was significantly higher (at p< .01) than that of the underlying business student populations at the participating schools (μ = 3.113, σ = 0.811). This raises the concern that, ceteris paribus, lower achieving students might be differentially inclined to resort to cheating to succeed, and this study might fail to capture a differential pattern of cheating behavior associated with this group due to their underrepresentation in the sample. To address this concern, we conducted a series of means comparison tests among the study's constructs between students whose reported grade point averages were the highest 25% of the sample, with those whose were the lowest 25%.

As Table 3 indicates, there were significant differences between the two groups. Specifically, the students in the high GPA group reported significantly higher narcissism and opportunity scores, and significantly lower psychopathy and motivation scores, than did their low GPA counterparts. However, and more importantly, there were no significant inter-group differences reported for either of the three key outcomes, i.e., rationalization, intention, and action. Thus, while the above-reported mean comparisons provided some evidence of the predicted direction of potential GPA biases among the variables, they do not indicate that these biases extend to the key outcomes of interest.

Proclivities to engage homework assistance websites

Table 4 presents the results of the survey items related to intention and actual engagement of online homework assistance. As reported in Panel A, a troubling pattern emerges with respect to student intentions to seek online assistance for solutions to homework problems. A significant percentage of students at least somewhat agree that they intend to seek online assistance to obtain homework solutions. Moreover, as reported in Panel B, while it is comforting to note that only 12% indicated that

Table 3. Descriptive statistics for primary study constructs (full sample and top 25% GPA versus bottom 25% GPA groups).

Construct	*Full Sample (n = 631)* *GPA M = 3.472, SD = 0.444*	*Top 25% GPA (n = 145)* *GPA M = 3.939, SD = 0.061*	*Bottom 25% GPA (n = 145)* *GPA M = 2.853, SD = 0.327*	*t-value*	*Bonferroni Adjusted p-value*
Narcissism	*M* = 3.850, *SD* = 1.108	*M* = 4.047, *SD* = 1.082	*M* = 3.566, *SD* = 1.175	*3.616*	*0.003*
Machiavellianism	*M* = 2.740, *SD* = 1.159	*M* = 2.637, *SD* = 1.098	*M* = 2.760, *SD* = 1.233	−0.897	1.000
Psychopathy	*M* = 2.928, *SD* = 0.907	*M* = 2.705, *SD* = 0.861	*M* = 3.072, *SD* = 1.024	*−3.311*	*0.009*
Capability	*M* = 4.587, *SD* = 1.161	*M* = 4.867, *SD* = 1.032	*M* = 4.505, *SD* = 1.307	2.612	0.085
Opportunity	*M* = 5.076, *SD* = 1.252	*M* = 5.300, *SD* = 1.148	*M* = 4.900, *SD* = 1.241	*2.849*	*0.042*
Motivation	*M* = 4.039, *SD* = 1.280	*M* = 3.702, *SD* = 1.197	*M* = 4.124, *SD* = 1.267	*−3.024*	*0.024*
Rationalization	*M* = 3.885, *SD* = 1.252	*M* = 3.816, *SD* = 1.086	*M* = 3.940, *SD* = 1.339	−0.867	1.000
Intention	*M* = 3.250, *SD* = 1.444	*M* = 3.193, *SD* = 1.390	*M* = 3.267, *SD* = 1.488	−0.435	1.000
Action	*M* = 2.045, *SD* = 0.752	*M* = 2.062, *SD* = 0.687	*M* = 2.002, *SD* = 0.769	0.697	1.000

Table 4. Incidence of intent to use and reported use of homework assistance websites.

Panel A: Intent to Engage Homework Assistance Website Services							
You have a graded assignment due for class. If you solicit the solution to this assignment from an online source, your grade could improve substantially. Please indicate the extent to which you agree or disagree with each statement below.							
Intention Item	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Neither Agree nor Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
If I were to submit an assignment for grading, I would first acquire the solution online.	76 (12%)	173 (28%)	114 (18%)	119 (19%)	97 (15%)	31 (5%)	21 (3%)
I intend to acquire the solution online before submitting it for grading.	80 (13%)	141 (22%)	95 (15%)	140 (22%)	106 (17%)	45 (7%)	24 (4%)
If I submit an assignment solution for grading, I plan to first acquire it online.	105 (17%)	181 (29%)	103 (16%)	131 (21%)	63 (10%)	31 (5%)	17 (2%)

Panel B: Reported Engagement of Homework Assistance Website Services					
How often in your college career have you?					
Action Item	*Never*	*Rarely*	*Occasionally*	*Frequently*	*Very Frequently*
Used online homework assistance.	94 (15%)	169 (27%)	228 (36%)	96 (15%)	43 (7%)
Personally provided assignment solutions to an online assistance website.	558 (88%)	48 (8%)	19 (3%)	2 (.3%)	4 (.7%)

they have ever provided solutions to a homework assistance website,[9] 85% indicated that they have used online assistance at some point or another. Of the latter group, 58% indicated that they have sought assistance at least occasionally, and more than 20% do so frequently.

Measurement model assessment

We next assessed the adequacy of the fit for our measurement model by evaluating the standardized root mean square residual using the criterion recommended by Hu and Bentler (1998).

> " . . . [T]he only approximate model fit criterion implemented for PLS path modeling is the standardized root mean square residual (SRMR; Hu & Bentler, 1998, 1999). As can be derived from its name, the SRMR is the square root of the sum of the squared differences between the model-implied and the empirical correlation matrix, i.e., the Euclidean distance between the two matrices . . . Therefore, a cut-off value of 0.08 as proposed by Hu and Bentler (1999) appears to be more adequate in new technology research for PLS path models" (Henseler et al., 2016, p. 9).

The SRMR value for this study's measurement model was 0.079 thus suggesting adequate model fit.[10]

Table 5 presents the convergent validity and reliability assessment of the data. The average variance extracted (AVE) for each construct exceeded 0.500 thus indicating acceptable convergent validity. We assessed the reliability of the data using Cronbach's alpha and composite reliability (CR).[11] While the reported Cronbach's alpha score for Action failed to exceed Chin et al.'s (2008) suggested minimum value of 0.60, the CR value for this construct and each of the others fell within Hair et al.'s (2020) suggested range of 0.70–0.95.

Table 6 presents the results from the discriminant validity tests that assessed whether the primary study constructs were empirically distinct from one another (Hair et al., 2019). As illustrated, with one exception, the Henseler et al. (2015) ratios of correlations were below the authors' prescribed upper threshold of 0.90 for conceptually similar constructs. As can be seen from the results of Henseler et al.'s (2015) suggested 5,000-sample bootstrapping procedure that generated 95% confidence intervals, none of the interval values illustrated in the last two columns included the value of 1, thus providing additional evidence for discriminant validity.[12]

Structural model assessment

We evaluated the theoretical model via the structural (i.e., beta) coefficients and their corresponding *t*-values calculated using the above-referenced 5,000 bootstrapping procedure, the R^2 value for each dependent construct, effect size (f^2), and predictive relevance (Q^2) metrics outlined by Hair et al. (2019). Figure 2 presents the final structural model. As shown in Figure 2 and consistent with the results of Smith et al. (2021), we found narcissism to have a significant positive association with capability and motivation, thus supporting H1a and H1c. In contrast, Harrison et al. (2018) reported a significant negative association between narcissism and capability (in contrast to their prediction), and a non-significant association between narcissism and motivation.

We also found Machiavellianism to have significant positive association with motivation but not opportunity or capability supporting H2c but not H2a or H2b. In contrast, Smith et al. (2021) found significant positive associations between Machiavellianism and both opportunity and motivation. They did not test for an association between Machiavellianism and capability. Harrison et al. (2018)

[9]The business model for both Course Hero and Quizlet is predicated on course-specific, student-provided content.
[10]Hair et al. (2019) caution against putting too much reliance on model fit measures in PLS-SEM.
[11]Hair et al. (2020) note that because composite reliability is weighted it is more accurate than Cronbach's alpha which is unweighted and suggest that the former is the preferred measure to report: they also indicate that if either of these measures is 0.950 or higher, it is an indication that "the individual items are measuring the same concept, and are therefore redundant (p. 104).
[12]The correlation between motivation and rationalization (0.940), though above Henseler et al.'s (2015) upper threshold of 0.90, still has an upper interval value below 1.00. Conceptually, the fact that these two constructs are highly correlated is not surprising. Those who have a great deal of motivation to engage in the act would also find it commensurately easier to rationalize the act.

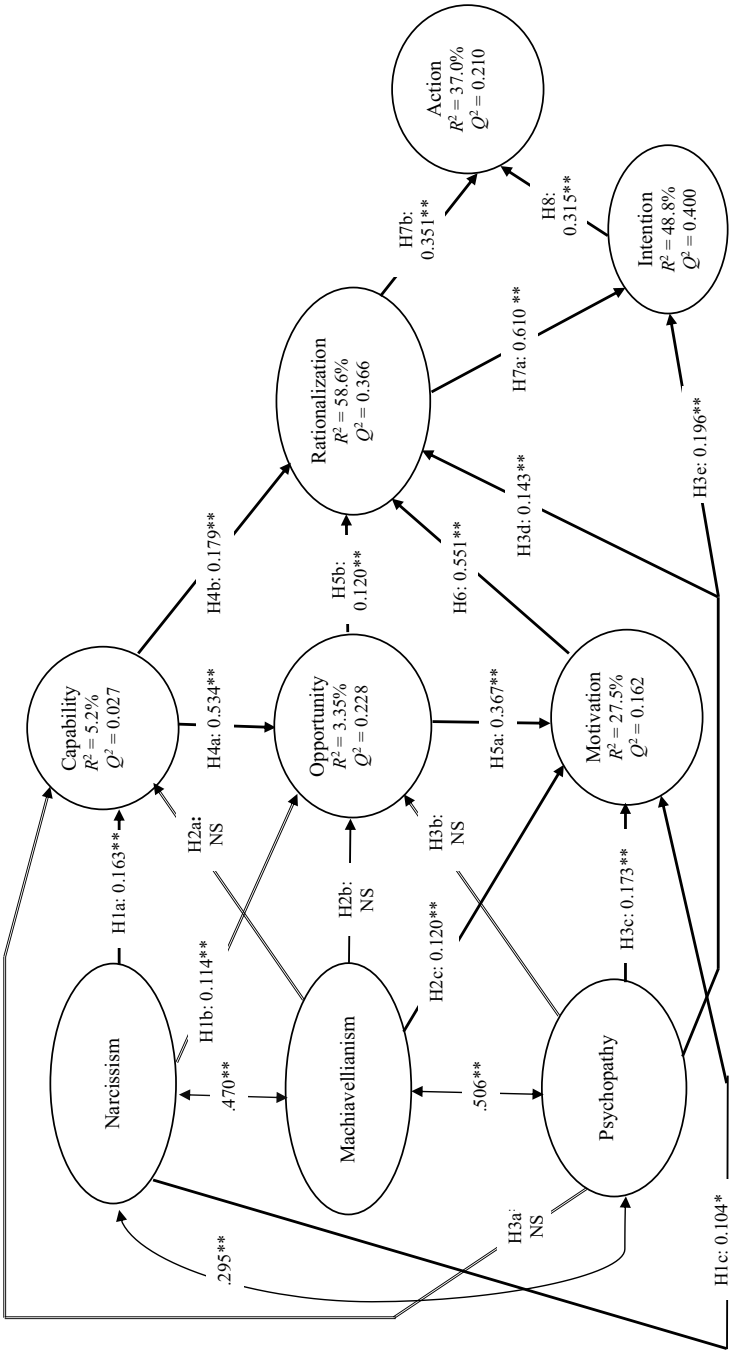


Figure 2. Final structural model. ** significant at $p < .01$; * significant at $p < .05$; NS = not significantIndicators for double-headed arrow paths represent correlations between exogenous factors (all significant at $p < .01$).

Table 5. Convergent validity assessment.

Construct	Scale Items[1]	Loadings	CA[2]	CR[3]	AVE[4]
Narcissism	I tend to want others to admire me.	0.795	0.685	0.810	0.518
	I tend to want others to pay attention to me.	0.800			
	I tend to seek prestige or status.	0.654			
	I tend to expect special favors from others.	0.625			
Machiavellianism	I tend to manipulate others to get my way.	0.817	0.756	0.845	0.577
	I have used deceit or lied to get my way.	0.810			
	I have use flattery to get my way.	0.691			
	I tend to exploit others toward my own end.	0.713			
Psychopathy	Success is based on survival of the fittest; I am not concerned about the losers.	0.648	0.667	0.813	0.596
	For me, what's right is whatever I can get away with.	0.774			
	In today's world, I feel justified in doing anything I can get away with to succeed.	0.876			
Capability	I have the ability to represent the acquired solutions as my own work.	0.772	0.621	0.793	0.562
	I am skillful enough to explain acquired assignment solution calculations to others.	0.667			
	If I wanted to, I am confident that I have the resources needed to obtain solutions online.	0.804			
Opportunity	In general, it would be easy to get online assistance for assignments.	0.789	0.843	0.894	0.680
	It is easy for someone to take advantage of online assignment assistance resources.	0.744			
	Many students in my class have used online homework assistance	0.867			
	Using online homework assistance occurs frequently at our school	0.891			
Motivation	I would benefit by obtaining the solution to my assignment online.	0.800	0.774	0.855	0.596
	I have something to gain by obtaining the solution to my assignment online.	0.797			
	In some classes, I can't get the grade I want without using online homework assistance	0.755			
	I do not have enough time to complete some assignments without using online homework assistance	0.736			
Rationalization	I can justify obtaining solutions online.	0.863	0.701	0.834	0.631
	In this circumstance, it is acceptable to acquire the assignment solution online.	0.881			
	Faculty usually don't detect using online homework assistance.	0.610			
Intention	If I were to submit an assignment for grading, I would first acquire the solution online.	0.915	0.894	0.934	0.825
	I intend to acquire the solution online before submitting it for grading.	0.904			
	If I submit an assignment solution for grading, I plan to first acquire it online.	0.906			
Action	Used online homework assistance.	0.939	0.415	0.746	0.608
	Personally provided assignment solutions to an online assistance website.	0.578			

[1]The following scale item was excluded due to low loadings on their respective constructs: Motivation – I have a difficult time keeping up with my classes; [2] Coefficient Alpha; [3] Composite Reliability [4] Average Variance Extracted;

found Machiavellianism to have a significant negative association with opportunity, and a significant positive association with motivation, supporting both of their hypotheses. Psychopathy had significant positive associations with motivation, rationalization, and intention, thus supporting H3c→ H3e, each congruent with Smith et al. (2021). However, H3a and H3b were not supported, and neither were tested in the referent studies. Harrison et al. (2018) also found psychopathy to have a significant positive association with rationalization but did not predict or test associations with motivation or intention. As did both prior studies, we found capability to have significant positive associations with opportunity and rationalization, supporting H4a and H4b. As did Smith et al. (2021), we found support for H5a and H5b as opportunity had significant positive associations with both motivation and rationalization; whereas Harrison et al. (2018) found support for H5a, but not H5b. Also in accord with Smith et al. (2021), motivation had a significant positive association with rationalization, and rationalization had significant positive associations with intention and action, supporting hypotheses H6, H7a. and H7b. Harrison et al. (2018) also found support for H6 and H7a but did not predict or test H7b. Finally, congruent with both prior studies, we measured a significant positive association between intention and action, supporting H8.

Table 6. Heterotrait-Monotrait (HTMT) bias-corrected bootstrap confidence intervals.

	Original Sample (O)[1]	*Sample Mean (M)*[1]	*Lower 2.50%*	*Upper 97.50%*
Capability → Action	0.528	0.529	0.446	0.608
Intention → Action	0.578	0.578	0.508	0.641
Intention → Capability	0.495	0.496	0.395	0.592
Machiavellianism →Action	0.268	0.269	0.175	0.362
Machiavellianism → Capability	0.241	0.253	0.153	0.362
Machiavellianism → Intention	0.434	0.433	0.338	0.527
Motivation → Action	0.683	0.682	0.624	0.737
Motivation → Capability	0.589	0.589	0.484	0.688
Motivation → Intention	0.803	0.803	0.747	0.853
Motivation → Machiavellianism	0.414	0.414	0.310	0.510
Narcissism → Action	0.357	0.357	0.264	0.444
Narcissism → Capability	0.335	0.340	0.231	0.448
Narcissism → Intention	0.400	0.399	0.305	0.488
Narcissism → Machiavellianism	0.656	0.656	0.572	0.736
Narcissism → Motivation	0.417	0.417	0.312	0.516
Opportunity → Action	0.543	0.543	0.476	0.603
Opportunity → Capability	0.732	0.733	0.653	0.812
Opportunity → Intention	0.45	0.451	0.374	0.523
Opportunity → Machiavellianism	0.213	0.216	0.119	0.315
Opportunity → Motivation	0.514	0.514	0.429	0.599
Opportunity → Narcissism	0.331	0.332	0.229	0.429
Psychopathy → Action	0.194	0.193	0.097	0.288
Psychopathy → Capability	0.234	0.244	0.144	0.356
Psychopathy → Intention	0.502	0.502	0.411	0.587
Psychopathy → Machiavellianism	0.718	0.719	0.624	0.808
Psychopathy → Motivation	0.387	0.387	0.283	0.485
Psychopathy → Narcissism	0.455	0.457	0.357	0.553
Psychopathy → Opportunity	0.107	0.125	0.064	0.208
Rationalization → Action	0.666	0.665	0.596	0.730
Rationalization → Capability	0.752	0.754	0.648	0.850
Rationalization → Intention	0.829	0.830	0.771	0.885
Rationalization → Machiavellianism	0.459	0.459	0.353	0.560
Rationalization → Motivation	0.940	0.940	0.886	0.994
Rationalization → Narcissism	0.450	0.450	0.344	0.553
Rationalization → Opportunity	0.621	0.621	0.531	0.705
Rationalization → Psychopathy	0.456	0.458	0.353	0.555

[1]Values defined by Henseler et al. (2015, p. 121) as "the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct)."

As shown in Table 7, the data only supported one of this study's four newly hypothesized associations. Narcissism had a significant positive association with opportunity as predicted.

Figure 2 presents the final structural model, and Table 7 presents the results of the hypothesis tests for H1a-H8 as well as a comparison of the structural model results between this study and those of the two referent studies.

We next calculated the effect size for each of the significant path coefficients using the f^2 statistic. The f^2 effect size measures how the removal of an individual predictor construct affects an endogenous construct's R^2 value (Hair et al., 2014). Values of 0.02, 0.15, and 0.35 represent small, medium, and large effect sizes (Cohen, 1988). Ali et al. (2016) suggested that f^2 value be reported in addition to statistical significance (p) values. As Table 7 indicates, among the significant path coefficients, nine had a small effect, one had a medium effect, and three had a large effect.[13]

[13]Harrison et al. (2018) did not report f^2 values in the comparison study.

Table 7. Results comparison with select prior research.

	Current Study			Prior Research[1]	
Hypothesized Path	Standardized β Coefficient	Hypothesis Supported?	f Square[1]	Hypothesis Supported	F-Square[2]
1a. Narcissism → Capability	0.163***	Yes	.022[a]	Yes	.050[a]
1b. Narcissism → Opportunity	0.114***	Yes	.024[a]	Not Tested	-
1c. Narcissism → Motivation	0.104*	Yes	.011	No[3], Yes[4]	.013
2a. Machiavellianism → Capability	0.055	No	.002	Not Tested	-
2b. Machiavellianism → Opportunity	0.056	No	.003	Yes	.008
2c. Machiavellianism → Motivation	0.120**	Yes	.013	Yes	.014
3a. Psychopathy → Capability	0.080	No	.005	Not Tested	-
3b. Psychopathy → Opportunity	−0.076	No	.006	Not Tested	-
3c. Psychopathy → Motivation	0.173***	Yes	.031[a]	Not Tested[3], Yes[4]	.030[a]
3d. Psychopathy → Rationalization	0.143***	Yes	.044[a]	Yes	.025[a]
3e. Psychopathy → Intention	0.196***	Yes	.068[a]	Not Tested[3], Yes[4]	.071[a]
4a. Capability → Opportunity	0.534***	Yes	.404[c]	Yes	.438[c]
4b. Capability → Rationalization	0.179***	Yes	.051[a]	Yes	.046[a]
5a. Opportunity → Motivation	0.367***	Yes	.174[b]	Yes	.172[b]
5b. Opportunity → Rationalization	0.120**	Yes	.024[a]	No[3], Yes[4]	.025[a]
6. Motivation → Rationalization	0.551***	Yes	.516[c]	Yes	.519[c]
7a. Rationalization → Intention	0.610***	Yes	.638[c]	Yes	.625[c]
7b. Rationalization → Action	0.351***	Yes	.105[a]	Not Tested[3], Yes[4]	.106[a]
8. Intention → Action	0.315***	Yes	.088[a]	Yes	.085[a]

[1]Harrison et al. (2018) Study 2, and Smith et al. (2021).
[2]Smith et al. (2021); Not reported by Harrison et al. (2018)
[3]Harrison et al. (2018)
[4]Smith et al. (2021)
* $p < .05$, ** $p < .01$, ***$p < .001$
[a]small effect size; [b] medium effect size, [c] large effect size

Next, we measured the proportion of variance in our dependent variables that is explained by the independent variables as well as the predictive relevance calculated for each dependent variable using the R^2 and Q^2 values. Figure 2 illustrates these values generated from analysis of the full sample structural model, as well as the standardized path coefficients for the full sample. The adjusted R^2 values in Figure 2 indicate that 58.6% of the variance in rationalization is explained by its Dark Triad and Fraud Diamond antecedents. In turn, 48.8% of the variance in intention and 37.0% of the variance in action is explained by their respective antecedents.

Hair et al. (2019) prescribe the Q^2 statistic as the measure for assessing the predictive accuracy of a PLS path model. Specifically, research indicates that Q^2 values associated with a specific endogenous construct that is greater than zero is indictive of predictive accuracy (Sarstedt et al. 2017; Shmueli et al., 2019). Q^2 values higher than 0, 0.25, and 0.50 indicate small, medium, and large predictive relevance for an endogenous latent construct in the path model (Hair et al., 2019). The Q^2 values in Figure 2 indicate small predictive relevance for capability, motivation, opportunity, and action, while those for rationalization and intention have values that indicate medium predictive relevance. Individual Q^2 values aside, all indicate acceptable predictive relevance.

Shmueli et al. (2019) state that and "PLS results are well-suited to generate out-of-sample predictions" and that "assessing a statistical model's predictive power is a crucial element of any study" (p. 2323). PLS-SEM can concurrently assess both explanation and prediction. We followed Shmueli et al.'s (2019) suggested procedure and followed their recommendation to focus on the indicators of the model's key endogenous construct, in this case reported use of online homework assistance services. We used the PLSpredict option in SmartPLS to evaluate the final structural model's out-of-sample predictive power. To generate the key prediction statistics, we

Table 8. PLSpredict results (italicized values represent lower prediction errors).

	Prediction Error Metrics					
Indicator	*RMSE*[1] *PLS-SEM Model*	*RMSE*[1] *Linear Benchmark Model*	*MAE*[1] *PLS-SEM Model*	*MAE*[1] *Linear Benchmark Model*	$Q^2_{predict}$[2] *PLS-SEM Model*	$Q^2_{predict}$[2] *Linear Benchmark Model*
Action 1[3]	1.068	1.061	0.867	0.854	0.064	0.077
Action 2[4]	*0.541*	0.547	*0.296*	0.298	*0.004*	−0.016

[1]Smaller values represent higher predictive power.
[2]Higher values represent higher predictive power.
[3]Used online homework assistance.
[4]Personally provided assignment solutions to an online assistance website.

Table 9. Direct and indirect effects of Dark Triad constructs on intent to engage and reported engagement of homework assistance website services (italicized paths significant at $p < .01$).

	Intention			*Action*		
Dark Triad Construct	*Direct Effect*	*Indirect Effect*	*Total Effect*	*Direct Effect*	*Indirect Effect*	*Total Effect*
Narcissism	NA	*.099*[1,2]	*.099*	NA	*.087*	*.087*
Machiavellianism	NA	*.063*	*.063*	NA	*.056*	*.056*
Psychopathy	*.197*	*.146*	*.343*	NA	*.193*	*.193*

[1]The total indirect effect is the sum of specific indirect effects. Specific indirect effects are the product of the paths that lead from a specific Dark Triad Construct (e.g., narcissism) to an outcome (e.g., intention). For example, one of the indirect effects between narcissism and intention can be calculated as follows: Narcissism → Opportunity (0.144) x Opportunity → Rationalization (0.120) * Rationalization → Intention (0.610) = 0.011. Each of other specific indirect effects for each of the Dark Triad constructs can be calculated in the same manner by reference to the path coefficients illustrated in Figure 2.
[2]Sum of the following indirect effects: Narcissism → Opportunity → Rationalization → Intention (0.011); Narcissism → Capability → Opportunity→ Motivation → Rationalization → Intention (0.011); Narcissism → Capability → Rationalization → Intention (0.018); Narcissism → Opportunity → Motivation → Rationalization → Intention (0.018); Narcissism → Capability → Opportunity → Rationalization → Intention (0.006); Narcissism → Motivation → Rationalization → Intention (0.035). The total indirect effects for the other two Dark Triad constructs can be calculated in the same manner with reference to Figure 2.

specified 10 folds and 10 repetitions for generating the training and holdout samples for estimating model parameters. We then compared the Root Mean Square Error (RMSE), Mean Absolute Error (MAE), and $Q^2_{predict}$ values of the PLS path model to those of a linear benchmark model. The results of these analyses appear in Table 8.[14]

Shmueli et al. (2019) present guidelines to assess PLS-SEM model predictive power. As illustrated, the PLS-SEM model had lower RMSE and MAE statistics values, and higher $Q^2_{predict}$ values than did the linear benchmark model for the second Action (i.e., reported use) indicator, thus suggesting medium predictive power for the model.[15]

As indicated in Table 2, there was a significant correlation between gender and psychopathy. The mean psychopathy score for males was 3.118 versus 2.795 for females, a difference significant at $p < .001$.[16] This significant mean difference motivated us to assess to conduct multi-sample and interaction-moderation tests in SmartPLS to assess whether there were any significant inter-gender differences in any of the associations measured for the full sample, and how gender moderated measured differences. Though not reported in tabular form, the multi-sample analyses revealed no significant differences in path coefficients by gender, thus all results reported in Figure 2 for the full sample hold for females and males.

[14]See Shmueli et al. (2019) for a full discussion of prediction statistics that can be used to assess the degree of prediction error.
[15]Shmueli et al. (2019) state that the $Q^2_{predict}$ value for each indicator must be greater than zero before the RMSE (and/or MAE) values for the PLS-SEM model can compared to the respective naïve linear benchmark values. As Table 8 illustrates, this criterion is satisfied for both Action indicators.
[16]This finding is congruent with prior research (e.g., for a review see, Landay et al., 2019).

Lastly, we calculated the direct, indirect, and total effects of the elements of the Dark Triad on both intention and action. It is noteworthy that of the three elements of the Dark Triad, psychopathy exerts a much larger influence on the outcome variables. As shown in Table 9, the total direct and indirect effect of psychopathy on intention was 0.343, a value more than three times larger than that for either Machiavellianism (0.063) or narcissism (0.099). Similarly, psychopathy's total effect on action was .193 which is more than double that of either of the other Dark Triad constructs. That said, given that the associations of narcissism and Machiavellianism with both intention and action are indirect and statistically significant (at $p < .01$) indicates that there is serial mediation via several pathways. While the incremental contribution of these items of the Dark Triad is relatively small relative to that of psychopathy, they are by no means inconsequential.

Table 9 presents a summary of all the direct, indirect, and total effects of the elements of the Dark Triad on intention and action.

DISCUSSION

We used a modified version of the Harrison et al. (2018) and Smith et al. (2021) models to explore academic misconduct through the lens of a comprehensive and synergistic framework that integrates the Fraud Diamond with the elements of the Dark Triad constellation of personality traits and find that each trait has a differential effect on each step in the ethical decision-making process. We hypothesized and found that rationalization was the culmination of that process and that one's capacity to rationalize the proposed action is directly associated with their motivation, capability, and opportunity. We further found that rationalization was directly related to both students' intentions to use unauthorized websites during online assessments as well as their actual use.

With the exceptions reported in the previous section, this our results were generally consistent with those of Harrison et al. (2018) and Smith et al. (2021) with respect to the common hypotheses tested. Moreover, our findings of significant associations between opportunity and rationalization and narcissism and motivation each conformed with their respective theoretical foundations. Also, in line with our theoretical predictions, we found positive associations between psychopathy and both motivation and intention, as well as between rationalization and action, thereby replicating the results reported by Smith et al. (2021).[17]

Our finding that each of the elements that comprise the Dark Triad has a differential impact on rationalization reinforce those of Choo and Tan (2008) who identified a three-way interactive effect between opportunity, motivation, and rationalization on students' propensity to cheat.

As depicted in Figure 2, we show that each of the members of the Dark Triad exerts a differential effect on the individual's ability to rationalize a potential act of academic misconduct as mediated by the individual's perception of their capability, opportunity, and motivation to engage in the act. Once the student has determined that the proposed act is acceptable, intent and action are presumed to follow (Ajzen et al. 2018). "Rationalization is the final step in an individual's ethical decision-making process before that person develops the intent to engage in the unethical activity and/or actually perform it. It represents the process of justifying the action by reconciling it with their own moral code" (Smith et al., 2021, p. 8).

RECOMMENDATIONS

The results presented above suggest that each of the individual Dark Triad traits effect the phases of the Fraud Diamond ethical decision-making process in a different manner. An individual's capabilities are associated with how they view potential opportunities which in turn influences their motivation to

[17]Smith et al. (2021) used a sample of accounting students to find that the elements of the Dark Triad exerted both unique and synergistic effects on the ethical decision-making process in general, and on rationalization in particular.

engage in unethical conduct and each is related to the student's ability to rationalize their action. The comprehensive nature of the model suggests that defending against students' decisions to engage the services of unauthorized homework assistance websites might be targeted at various points in the ethical decision-making process. However, given that the personality traits that comprise the Dark Triad appear to be immutable and not readily adaptable to change, and given that a person's preconceptions of their own capabilities, similar to other personality characteristics, is likely to be similarly immutable, such targeting will need to be directed at the opportunity, motivation, and rationalization elements of the Fraud Diamond (O'Boyle et al., 2012; Paulhus & Williams, 2002; Smith et al., 2021). Hence, it may be feasible to impose constraints or controls that curtail students' motivation, hinder perceived opportunities, and reduce their ability to rationalize the choice to engage in the unauthorized use of homework assistance websites.

Recommendations – motivation

While no educator would advocate for making coursework easier as a valid strategy to reduce student cheating, it may be possible to encourage more ethical behavior by altering their motivational focus. Students are more likely to cheat when they are motivated by external factors such as grades, a desire to be viewed as successful, or a need to meet the expectations of parents, peers, or prospective employers. Inculcating a strong internal motivation to learn and master the course material because it is germane and meaningful to their chosen career path has the potential to decrease negative actions (Becker et al., 2006; Burke & Sanney, 2018; Kock & Davison, 2003; Rettinger & Jordan, 2005). One way to do this is for educators to adopt a premeditated strategy that emphasizes the importance of learning the course material by demonstrating its relevance to students' future professional success (Burke & Sanney, 2018). Students should be made aware that success in upper-level coursework is predicated on mastery of lower-level materials and that future employers are seeking employees who have all the requisite skills and abilities rather than just grades on a transcript (Becker et al., 2006). Educators should focus on actual learning rather than test scores, and "create reasonable expectations concerning grades, establish a culture that recognizes and reinforces that a final grade of an 'A' is not the norm, but rather is the exception" (Burke & Sanney, 2018, p. 14).

Educators should be aware that attempts to influence students to adopt an internal motivational focus will often be futile in the face of the myriad of psychosocial and situational factors that can influence one's motivation. However, despite what is a likely low probability of success, it is our opinion that it is still a worthwhile endeavor because students who embrace this philosophy will have made a major leap forward in their educational journey. Moreover, internal motivational focus has been shown to be associated with lower levels of academic misconduct (Curtis, Correia et al., 2022).

Curtis, Clare et al. (2022) used the theory of reasoned action and the theory of planned behavior to predict (and find) associations between psychopathy and Machiavellianism and students' contract cheating behavior as mediated by attitudes, social norms, and anticipated guilt and shame, leading them to conclude that one way that "cheating intentions may be reduced is by modifying students' attitudes, subjective norms, or their anticipated moral emotions" (p. 1).

The decision to cheat is a deliberative process wherein the student evaluates their probability of success against the cost of failure. Indeed, McCabe et al. (2006) noted that "misconduct results from a rational calculus that represents a joint function of the perception of the likelihood that one will be caught and the perception of the severity of the penalties imposed for the misconduct" (p. 296). Accordingly, one tactic that should be universally deployed is the assurance that all acts of academic misconduct will be dealt with swiftly, severely and certainly with a zero-tolerance policy toward unethical behavior (Burke & Sanney, 2018). If even minor breeches of ethicality are accompanied by harsh penalties, students will be disincentivized from cheating even if they believe that there is a low probability of being detected (MacGregor & Stuebs, 2012).

Peer pressure also plays a role in students' ethical decision-making process. Students may be motivated to engage in cheating behaviors to avoid disapproval or gain favor with certain peer groups. Indeed, Saidin and Isa (2013) noted that "cheating is contagious, and peers are motivated to model the cheating behavior of others" (p. 522). However, peer effects can also be advantageous, and "getting students involved in creating a culture of academic honesty can be a great way to curb cheating" (Novotney, 2011, p. 56). Moreover, MacGregor and Stuebs (2012) note that advertising violations of academic honor codes may result in public shame and create a social disincentive derived from the public disclosure of academic dishonesty. Indeed, Curtis, Clare et al. (2022) found that anticipated shame and guilt mediated the association between both psychopathy and Machiavellianism and cheating intentions.

Recommendations – opportunity

When financial information specialists use the Fraud Diamond to devise ways to deter financial fraud, they will most often focus on minimizing the opportunities that the potential fraudster has to perpetrate their crime (Padgett, 2014; Wolfe & Hermanson, 2004). The same holds true when trying to forestall academic misconduct because this is the primary aspect of the ethical decision-making framework over which external parties can exert their influence. While it is true that educators can tangentially affect students' motivation and rationalization processes, they have overt control over the many of the opportunistic paths that students have available to them and a concurrent ability to preemptively thwart them.

The most effective way to prevent cheating is to deny students the opportunity to do so (Peterson, 2004). Perhaps the most powerful tool available to educators is course design. Some researchers have suggested that using many "low-stakes" assessments in favor of fewer "high-stakes" exams may be helpful in reducing the incidence of cheating (Lang, 2013), but recent research has shed doubt on that assertion when Emerson and Smith (2021) showed that a substantial and significant proportion of students used homework assistance websites when completing an extra credit assessment worth less than one percent of their course grade. A more efficacious way to reduce the use of online resources is to render those resources impotent by using questions for which there is no readily available online solution either by paraphrasing test bank questions, creating unique questions not found in any test bank or by using essay-type questions that require a higher degree of content mastery relative to the multiple-choice questions that populate most online assessments (Bain, 2015; Emerson & Smith, 2021; Golden & Kohlbeck, 2020; McCabe et al., 2006; Savage & Simkin, 2010). In addition, Bilen and Matros (2021) suggest that reducing the time that students have available to take an assessment (albeit with including some easier questions) will make it more costly for students to devote the time to cheat.

Another strategy to reduce the opportunities for students to use online homework assistance websites is by incorporating a third-party assessment integrity tool. These tools provide a broad range of available functionality (and pricing) that provide for remote monitoring, plagiarism detection, environmental scans, website tracking and/or blocking, audio and video recording, student identification and verification using keystroke recognition or other metrics of biometric analysis (Bain, 2015; Burke & Sanney, 2018; Moten et al., 2013). Unusual or suspicious activity is flagged for attention by the instructor, or in some circumstances a live proctor has the ability to intervene directly to investigate. Further, Dendir and Maxwell (2020) found that the implementation of online proctoring was associated with a decrease in academic performance. However, while assessment integrity tools have been found to reduce the academic misconduct, they do not eliminate it. For example, in a longitudinal study, Emerson and Smith (2021) recorded an 83% decline in the apparent use of homework assistance websites after the deployment of an assessment integrity tool,[18] but noted that while the use of the tool decreased the incidence of cheating, it was not eliminated altogether. Similar

[18]Twenty-nine percent of students taking an extra-credit online quiz were presumed to be using a homework assistance website to take assessment before requiring the use of the integrity tool compared to five percent after.

results were found by Golden and Kohlbeck (2020). The presumption made by the authors of each manuscript was that just because students were precluded from internet use on the device they were using to take the assessment did not prevent them from using a different device to circumvent the learning process. Both papers demonstrated that the joint use of paraphrasing test bank questions and the adoption of assessment integrity tools were effective in reducing but not eliminating the unauthorized use of homework assistance websites. Smith et al. (2021) suggested that for high-stake assessments instructors should paraphrase test bank questions, deploy an assessment integrity tool, and add an additional level of security by requiring the concurrent use of a second external monitoring tool on a different device (i.e., students' cell phones) via a platform such as Zoom, WebEx, Google Meet, etc. This multi-tiered approach, while potentially cumbersome, can greatly enhance exam security.

Bąkała and Bąkała (2020) offered several suggestions to mitigate online cheating that included preparing questions that require explanation, analysis, interpretations or opinions using open-ended questions, allowing only one opportunity to take any given exam thereby motivating students to prepare well the first time, change the question order and shuffle the answers in multiple-choice questions and showing the answer to only those questions that were answered incorrectly to protect the anonymity of the correct questions.

Further, reducing students' opportunities to engage in academic misconduct is especially salient when considering the importance of our findings reported above regarding psychopathy. Nathanson et al. (2006) noted "that the only way to eliminate cheating among psychopaths is to make cheating an impossibility" (p. 119). Where other students may be deterred from errant behavior by their internal moral code, psychopaths lack moral inhibition and are characterized by a lack of conscience. Indeed, Bailey (2017) noted that "psychopaths know right from wrong, but do not care," thus the only way to prevent students high in psychopathy from engaging in academic misconduct is by eliminating their opportunity to do so (p. 16).

We would be remiss if we did not note that psychopathy is a continuous rather than dichotomous variable and when we refer to psychopaths, we are generally referencing the subclinical variety where the dysfunctional behaviors typical of the disorder (i.e., lying, fearlessness, disinhibition, lack of conscience, impulsivity, lack of conscience, etc.) are present, albeit at a lower level than that seen in the clinical (or criminal) variant.[19]

Recommendations – rationalization

Student rationalization of unethical behavior is often neglected when evaluating ways to enhance academic integrity because it represents the unobservable process individuals use to relieve the internal discomfort that arises when they experience mutually exclusive attitudes, beliefs, or behaviors. Thus, "in order for people to cheat, they must either think of themselves as cheaters or must not consider the behavior to be cheating" (Parks-Leduc et al., 2021, p. 5). Self-deceptions such as these make immoral decisions defensible and serve to circumvent the ethical decision-making process (Burke & Sanney, 2018). The likelihood of academic misconduct decreases if potential rationalizations are limited (Shalvi et al., 2012).

Burke and Sanney (2018) noted that it may be possible to reduce academic misconduct by minimizing the ability for students to rationalize their actions. Instructors can do so by being very clear in their expectations regarding academic integrity by explicitly defining what constitutes academic misconduct, emphasizing that all academic fraud are major offenses, and having a policy that prohibits all resources other than those explicitly authorized rather than trying to construct an exhaustive list of those that are acceptable (MacGregor & Stuebs, 2012). Lastly, all violations of

[19]Psychopathy is presumed to be normally distributed in the population with between five and fifteen percent afflicted with subclinical psychopathy and approximately one percent categorized as clinical (LeBreton et al., 2006).

academic integrity must be swiftly and severely punished. Infractions of academic integrity that are not taken seriously represent a subtle endorsement that such behavior is acceptable (Bain, 2015). All the above actions can proactively inhibit potential rationalizations.

Moreover, implementing honor codes combined with imposing and enforcing academic integrity policies can serve as potent deterrents and decrease students' perceptions of opportunity and reduce their ability to rationalize such actions as acceptable (e.g., Bain, 2015; Emerson & Smith, 2021; Lang, 2013; McCabe et al., 2006; Moten et al., 2013; Savage & Simkin, 2010). However, recent cheating scandals at three of the United States' military academies during the pandemic give rise to doubt regarding the efficaciousness of such codes (Seck, 2021; Sisk, 2020; USNA News Center, 2021). Perhaps the solitary nature of online assessments limits the effectiveness of honor codes because the peer-pressure disincentive is lost compared to face-to-face examinations where unethical behavior may be detected by peers.

As previously noted, business students have been implicated in academic misconduct at a rate higher than their peers in other majors (e.g., McCabe et al., 2006). This led Wilson and McCarthy (2011) to predict and find that students majoring in business scored higher in subclinical psychopathy than those matriculating in the arts, science, or law. It remains unknown if these differences are driven by the nature of the curriculum or through self-selection, but it remains a troubling result given the implications that higher levels of psychopathy have on unethical decision making. Accordingly, the AACSB (The Association to Advance College Schools of Business) is very invested in encouraging academic ethics and integrity and offers ten suggestions for educators and universities to do so (Sykes, 2021).

LIMITATIONS AND CONCLUSIONS

This study is subject to certain limitations due its cross-sectional design with data collected from a single self-report psychometric instrument package. The potential for common method bias exists when all the data are collected simultaneously from a single source at one point in time. However, the results of the diagnostic procedures reported above indicate that this is not a concern. There is also the possibility that the data would support alternative construct orderings to those hypothesized. While extant theory and research guided the development and testing of this study's hypotheses, future studies of a longitudinal nature are needed to verify our findings.

Despite the efforts reported above, sample constraints precluded us from more comprehensively addressing non-response bias, which leaves a potential threat to the validity of our results. Our participants came from a convenience sample of undergraduate students who volunteered to complete the instrument package. This should be taken into consideration when interpreting the results, as participants were likely to possess certain similar characteristics that were not representative of the underlying business student populations at their institutions, or their peers pursuing non-business majors. Also, as Chiorri et al. (2019) caution, " ... socially desirable responding tends to be ... negatively related to self-reports of undesirable characteristics" (p. 672). By asking questions that could self-incriminate respondents, there might have been an underreporting of activities related to engagement of online assistance for homework assistance. However, our survey administration protocol was designed to ensure respondent anonymity, and this study's focus was not mean values, but the interrelationships among the constructs within the proposed theoretical model. In addition, despite the specter of self-incrimination, a substantial portion of respondents did so by admitting either the use or intent to use homework assistance websites (see, Table 4).

Moreover, our analyses revealed that the average GPA for our respondents was significantly higher than that of the underlying business student population at each university. To address this concern, we tested for differences in our study's constructs between the top and bottom quartiles of our sample. Although there were no significant differences between the groups in the ultimate outcome variables, it is possible that our results were skewed by this sample anomaly.

Another limitation relates to the abbreviated scales employed to measure the Dark Triad traits. As Chiorri et al. (2019) citing Miller et al. (2012) note, an abbreviated scale might not capture the full breadth of the Dark Triad, "and hence its ability to disentangle specific facets of the personality styles which make up the DT construct" (p. 672).

That the data for this study were gathered during the COVID-19 pandemic raises another potential limitation of this study. At the universities participating in this study, classes had recently transitioned to fully online delivery modes, in some cases synchronous and in others asynchronous. Most, if not all, assignments and examinations were completed online. The extent to which this transition influenced respondent attitudes and responses is unknown. Evidence is emerging that the incidence of student use of homework assistance websites increased during the pandemic (e.g., see, Hill et al., 2021), thus making this issue more germane. The question at present is whether the behaviors reported, and the attitudes measured in this study were transitory, or reflective of a new normal going forward. Thus, while our findings support the study's theoretical hypotheses and are consistent with the literature, it will require replication after complete return to a "normal" post COVID on-campus environment.

The above limitations notwithstanding, this study contributes to our understanding of the process surrounding the decision to engage the services of homework assistance websites by a student population already noted for its differential proclivity toward academic misconduct, i.e., business students. The association between the Dark Triad personality traits and the Fraud Diamond serve as a framework with which to evaluate this decision-making process. Moreover, this comprehensive framework allows for a holistic understanding of the underlying factors involved in the decision to commit this form of academic dishonesty, and sheds light on possible mitigation strategies. Given the rapid growth of these websites and reported incidence of their use which has been exacerbated significantly by the COVID-19 online learning environment, these new insights appear propitious.

Cheating is injurious to all parties. It diverts educators' scarce resources away from enhancing course content to deterring, discovering, and disciplining offenders. The cheaters themselves are deprived of the understanding that accompanies the mastery of the material and may harm their future employment prospects when it becomes clear that they do not possess the requisite knowledge, skills, and abilities for their desired position. Non-cheaters are injured by possessing lower GPAs than those who cheated, and the institution may suffer damage to its reputation by graduating inferior and unprepared students.

Technology is a dual-edged sword. It has greatly facilitated online learning with a concurrent facilitation of online cheating. In the online environment students have greater opportunity to collaborate and access forbidden resources while educators have a reduced capacity to monitor and enforce academic integrity. Cheating in cyberspace is easier and more convenient than ever and instructors have a duty to be aware of the strategies that students use to circumvent the learning process (Bain, 2015; Moten et al., 2013).

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

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