



Predicting contract cheating intentions: Dark personality traits, attitudes, norms, and anticipated guilt and shame[☆]

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ARTICLE INFO

Keywords:

Contract cheating
Attitudes
Psychopathy
Machiavellianism
Shame
Guilt

ABSTRACT

Contract cheating is a critical emerging threat to academic integrity in higher education. Although some situational predictors of student engagement in contract cheating are known, little is known about the psychological predictors of contract cheating. Intentions are a key predictor of future behavior. Thus, in this study, students' ($N = 459$) intentions to engage in contract cheating were examined in an extended Theory of Reasoned Action (TPR) model via a cross-sectional survey. Psychopathy and Machiavellianism were included in the TRA model as precursors of attitudes and subjective norms, and anticipated guilt and shame were included as mediators between attitudes and norms, and intentions. Structural equation modeling and analysis of mediation paths revealed that psychopathy and Machiavellianism did not directly predict contract cheating intentions. Psychopathy and Machiavellianism predicted contract cheating intentions via simple and serial mediation paths. These results suggest that contract cheating intentions may be reduced by modifying students' attitudes, subjective norms, or their anticipated moral emotions.

1. Introduction

Contract cheating involves outsourcing of educational assessment work by students to another person (Bretag et al., 2019; Clarke & Lancaster, 2006). Such outsourcing can be paid or unpaid, with paid contract cheating commonly referred to as commercial contract cheating (e.g., Newton, 2018; Rundle et al., 2020). Contract cheating is a substantial, and possibly increasing, problem among higher education students (Curtis et al., 2021; Lancaster & Cotarlan, 2021). The critical threat of contract cheating to academic integrity is that students can potentially gain academic qualifications that do not reflect their actual knowledge, skills, or capabilities (Bretag, 2019). Thus, higher education institutions may graduate, for example, teachers who cannot teach or accountants who cannot balance the books.

Despite a growing interest in contract cheating, little research assesses theory-driven explanations of why students might engage in contract cheating (Ahsan et al., 2021). Moreover, the perspective taken in the handful of existing theory-driven studies of contract cheating has

been criminological rather than psychological (Ahsan et al., 2021; Baird & Clare, 2017). In this article, we examine a psychology-based model of contract cheating intentions among higher education students. This model is informed by research on personality predictors of academic misconduct, attitudinal and normative influences on academic misconduct, and contributions of anticipated emotions to behavioral intentions.

1.1. Background

Internationally, governments have begun to legislate to outlaw services that provide ghost-written assignments to higher education students (Awdry et al., 2021). Legislation presumes that contract cheating is driven by supply and demand, and targets the supply of ghost-written assignments. However, examining individual and psychological factors may help educators to understand why some students might demand these services (Rundle et al., 2020).

Some evidence exists concerning what personal, demographic, and situational variables are related to engagement in contract cheating. For

[☆] The fifth author was partially funded by a grant from the National Science Centre, Poland (2019/35/B/HS6/00682). We thank Lidia Baran for her comments on our paper prior to submission.

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example, Bretag et al., 2019 found that self-reported engagement in contract cheating was related to dissatisfaction with the learning and teaching environment, perception that opportunities to cheat exist, and not being a native speaker of the language of instruction. In addition, Rigby et al. (2015) identified cost, risk of detection, marks, and penalties as situational factors that would influence students' decision to engage in contract cheating. More broadly, it is conceptually expected that many of the psychological predictors of engagement in other forms of academic misconduct, such as plagiarism, are also likely to predict engagement in contract cheating.

Psychological predictors of academic misconduct are many and varied (see for a review Lee et al., 2020). Importantly, research has found that the Dark Triad personality traits of psychopathy and Machiavellianism, and less commonly narcissism, are related to academic misconduct (Baran & Jonason, 2020; Esteves et al., 2021; Ternes et al., 2019). Psychopathy and Machiavellianism are particularly associated with rule-breaking for personal benefit (Muris et al., 2017).

Recently, authors have noted that studies predicting academic misconduct often examine one-off correlates of academic dishonesty, but not how such correlates "fit together" or interact (e.g., Curtis et al., 2018; Husain et al., 2017; Tremayne & Curtis, 2021). Moreover, although the Dark Triad traits predict general academic misconduct attitudes and behavior per se, no research of which we are aware has linked these directly to contract cheating intentions specifically.

The Theory of Reasoned Action (TRA; Fishbein, 1979) provides a useful framework for integrating predictors of intentional actions. The TRA states that attitudes and subjective norms together predict intentions, and intentions predict behavior. The Theory of Planned Behavior (TPB; Ajzen, 1991) extended the Theory of Reasoned Action by adding perceived behavioral control as a predictor of intentions, particularly for behaviors that were outside individuals' control.

The TRA and TPB have been applied and extended in studies of academic misconduct. For example, Alleyne and Phillips (2011), found that the TPB with the addition of moral obligation predicted academic dishonesty (lying and cheating). Stone et al. (2010) found that prudence (similar to conscientiousness) was a personality precursor that predicted attitudes and subjective norms concerning academic misconduct. In addition to extensions of the TRA/TPB to include personality precursors, numerous studies suggest that anticipated emotions add to the predictive capacity of the TRA/TPB (Rivis et al., 2009). In the context of cheating, students may anticipate feeling guilt and/or shame.

Guilt is experienced when people feel bad about their actions, even in the absence of those actions being known to others (Sznycer et al., 2016). However, shame is related to the threat of social devaluation when one's wrongdoing is exposed (Sznycer et al., 2016). Generally, psychopathy is associated with both reduced shame and guilt (Djeriouat & Trémolière, 2020). In contrast, Machiavellianism is associated with reduced guilt, but sensitivity to the prospect of shame (Lau & Marsee, 2013).

1.2. The present study

In this study we aimed to test extended the TRA models that included psychopathy and Machiavellianism as potential precursors of attitudes and subjective norms concerning contract cheating. In addition, we added anticipated guilt and anticipated shame as potential mediators between attitudes, subjective norms, and contract cheating intentions. We omitted perceived behavioral control from the TPB, because contract cheating is an entirely volitional behavior (Newton, 2018) (see Figs. 1 and 2).

We expected (H1) that psychopathy and Machiavellianism would predict contract cheating intentions directly and mediated by attitudes and norms, then by anticipated guilt and shame (see Figs. 1 and 2). Furthermore, we predicted (H2) that both psychopathy and Machiavellianism would be negatively correlated with anticipated guilt related to engaging in contract cheating. Finally, (H3) we predicted that

psychopathy would be negatively correlated with anticipated shame related to being caught engaging in contract cheating, whereas Machiavellianism would be positively correlated with anticipated shame.

To summarise, the present study makes the following unique contributions to the literature: First, we examine a psychology-based theory-driven model seeking to predict contract cheating intentions via expected serial mediation relationships. And second, although previous studies have included either personality precursors or anticipated moral emotions in a TRA framework, we are not aware of any other study that has included both in the same theoretical model.

In addition to the aim of this study to examine the extended TRA model, we note that key concepts in this study typically differ by gender. Specifically, Dark Triad traits and academic dishonesty (including contract cheating) are usually higher in men than in women (Bretag et al., 2019; Paulhus et al., 2020; Tindall & Curtis, 2020). Because of this, we conducted supplementary analysis by gender to investigate whether these differences replicated in our study.

2. Method

2.1. Participants and procedure

Ethics approval to undertake this study was granted by the University of Western Australia Human Research Ethics Committee (RA/4/20/5802). An a priori analysis using Kenny's MedPower calculator (2017), with expected effect sizes of 0.20 and a desired power of 0.80, calculated a required sample size of 397. We aimed to recruit a sample size greater than the recommended size to allow for participant dropout. We sampled only higher education students aged 17 years or older. Data were collected between December 2019 and June 2020.

A total of 621 students were recruited to participate in this study: 136 via the Prolific Academic participant recruitment platform and 400 via the University of Western Australia psychology student research participation system, 78 via social media, and 9 via the survey sharing site Survey Circle.¹ Participants recruited via Prolific Academic were paid £UK5, University of Western Australia psychology students received partial credit toward research participation requirements, participants recruited via social media could enter a \$AU50 gift voucher prize draw, and Survey Circle participants received participation points. After the removal of participants who were not students ($n = 25$), did not complete 95% of the survey ($n = 105$), completed the survey too fast ($n = 2$), and failed either of the two attention checks ($n = 30$), we were left with a sample of 459 students (344 females, 114 males, 2 other/unspecified). Most participants were Australian (397; 86.5%, no other country accounting for >3%), they were most frequently studying psychology (30%; followed by 18% health science, 16% science, 10% business/commerce, 9% arts/humanities), and ages ranged between 17 and 50 ($M_{age} = 21.56$; $SD_{age} = 5.13$).¹

The participants logged into an online survey using the Qualtrics systems. They read an information form and provided consent to participate. Next, the measures in the study were presented in a random order for each participant, with demographic questions always presented last. Once the study measures were completed, the participants were redirected to a separate link to collect identifying information for compensation and thanked for their participation.

¹ Participants recruited through their psychology courses showed less inclination toward contract cheating than those recruited through other sources. However, these participants did not differ in mean psychopathy and Machiavellianism and the correlations among the variables of interest were similar between participants recruited through these different sources (see Supplementary online materials).

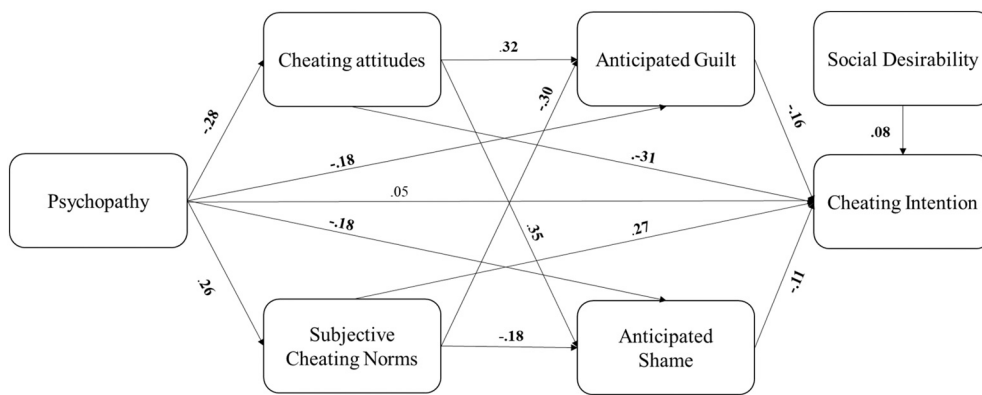


Fig. 1. Standardized regression coefficients for the expected relationship between Psychopathy, attitudes, norms, anticipated emotions, and contract cheating intentions, controlling for social desirability. $N = 459$, significant regression weights ($p < .05$) in bold. Covariances (not displayed) between attitude and norms, and anticipated guilt and shame were -0.50 and 0.53 respectively.

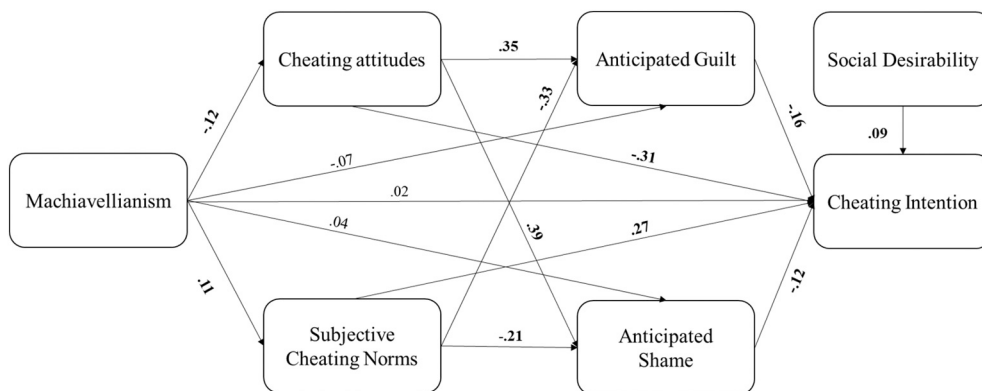


Fig. 2. Standardized regression coefficients for the expected relationship between Machiavellianism, attitudes, norms, anticipated emotions, and contract cheating intentions, controlling for social desirability. $N = 459$, significant regression weights ($p < .05$) in bold. Covariances (not displayed) between attitude and norms, and anticipated guilt and shame were -0.46 and 0.49 respectively.

2.2. Measures

Psychopathy and Machiavellianism were measured using the Wild (psychopathy) and Crafty (Machiavellianism) scales of the Short Dark Tetrad (SD4; Paulhus et al., 2020). Each scale consisted of 7 items responded to on a 5-point scale from “strongly agree” to “strongly disagree”. Example, items include: “I tend to fight against authorities and their rules” (psychopathy) and “I love it when a tricky plan succeeds” (Machiavellianism). These scales were averaged and had Cronbach alphas of 0.77 and 0.74 respectively in the present study.

Contract cheating, attitudes perceived norms, and intentions were measured using a scale designed for this study. Students were presented with two forms of contract cheating (custom ghost writing and online test impersonation), with each defined and accompanied by a concrete example. For each form of contract cheating students were asked several questions, each rated on scales of 0–100: 1. how serious it is as a breach of academic conduct, as a measure of attitude; 2. how acceptable this behavior is among their peers, as a measure of subjective norms; 3. how much guilt they anticipated feeling if they engaged in the behavior and got away with it; 4. how much shame they anticipated feeling if they engaged in the behavior and were caught by their teacher; and 5. the extent to which they intend to engage in the behavior in the future. The ratings for attitudes, norms, anticipated guilt, anticipated shame, and intentions were combined and averaged for each student for the two types of contract cheating behavior.

Social desirability was measured with the Social Desirability Scale – 17 (SDS-17; Stöber, 2001). The SDS-17 includes 17 items, 16 of which are included in the final summed score, such as “I always eat a healthy diet” answered “true” or “false” that indicates the extent to which a participant may be presenting socially-desirable answers. This measure

was included in the study because of the potential for socially desirable response bias in relation to questions on sensitive topics such as cheating.

2.3. Data analysis

We analysed the theoretical model via two structural equation models (SEM, see Figs. 1 and 2) using AMOS 27. For each model, one personality precursor (psychopathy or Machiavellianism) of attitudes and subjective norms was included, with anticipated shame and anticipated guilt as mediators between attitudes, subjective norms, and intentions. We tested psychopathy and Machiavellianism in separate models as covarying these in a single model may make these variables uninterpretable (Lynam et al., 2006). Model fit was assessed as recommended by Kline (2015) where good model fit is indicated by a non-significant chi-squared, $GFI > 0.90$, $CFI > 0.90$, and $RMSEA < 0.06$. We used Hayes's (2017) Process macro 3.4 in SPSS to calculate the indirect effects in the SEM models, with 5000 bootstrapped resamples. Indirect (mediation) pathways were considered as significant if the 95% confidence intervals did not overlap zero. For these analyses social desirability was included as a covariate.

3. Results

3.1. Data screening

Under 1% of data were missing completely at random ($MCAR \chi^2(13894) = 13,900.25, p = .483$) and these were replaced using expectation maximization. Data were assessed for compliance with statistical assumptions. Three variables were significantly skewed (skew

Table 1
Descriptive statistics and Kendall Tau correlations.

	<i>M (SD)</i>	1	2	3	4	5	6	7
1. Psychopathy	1.80 (0.63)							
2. Machiavellianism	3.22 (0.66)	0.14						
3. Attitudes	92.14 (10.86)	-0.16	-0.09					
4. Subjective norms	10.04 (15.93)	0.20	0.09	-0.51				
5. Anticipated guilt	84.34 (21.28)	-0.19	-0.12	0.50	-0.49			
6. Anticipated shame	93.81 (13.72)	-0.20	-0.06	0.49	-0.46	0.56		
7. Contract cheating intentions	5.57 (10.89)	0.20	0.12	-0.49	0.55	-0.49	-0.44	
8. Social desirability	11.43 (2.93)	0.21	0.12	0.05	0.11	-0.14	-0.09	0.17

$N = 459, p < .01$ in bold.

> 2; contract cheating norms, intentions, and anticipated shame); these could not be corrected to normal via transformation. In addition, the distributions of attitudes and anticipated guilt were also skewed. Because of this, non-parametric correlations were calculated.

3.2. Correlations

Kendall Tau correlations among the variables of interest in the study are shown in Table 1. To allow for familywise error, only correlations where $p < .01$ are indicated as significant. As shown in Table 1, psychopathy and Machiavellianism both correlated positively with contract cheating subjective norms and intentions, and negatively with contract cheating attitudes (i.e., perceiving cheating as serious). As predicted, psychopathy was significantly negatively correlated with both anticipated guilt and shame. However, Machiavellianism was significantly negatively correlated only with anticipated guilt but was not significantly correlated with anticipated shame.

3.3. SEM and mediation analyses

As outlined in the Data Analysis section, two SEM models were constructed to test the extended TRA model with psychopathy as the personality precursor variable in one analysis (see Fig. 1) and Machiavellianism in the other (see Fig. 2). The model including psychopathy was significant $R^2 = 0.51, p < .001$, with two of the four indicators showing good model fit [$\chi^2(5) = 53.16, p < .001, GFI = 0.970, CFI = 0.955, RMSEA = 0.145$ (90% CI: 0.111, 0.181)]. As shown in Fig. 1, the direct path from psychopathy to contract cheating intentions was non-significant. The model including Machiavellianism was significant $R^2 = 0.50, p < .001$, with two of the four indicators showing good model fit [$\chi^2(5) = 29.43, p < .001, GFI = 0.983, CFI = 0.975, RMSEA = 0.103$ (90% CI: 0.069, 0.141)]. As shown in Fig. 2, the direct paths from Machiavellianism to anticipated guilt, anticipated shame, and contract

Table 2
Summary of the two serial mediation analyses using Hayes's (2017) Process macro 3.4 for SPSS see Figs. 1 and 2 for the models. Indirect effects with 95% confidence intervals for 5000 bootstrap resamples.

Personality precursor	Psychopathy	Machiavellianism
Mediation path	Effect (CI)	Effect (CI)
Personality → attitudes → intentions	1.54 (0.78, 2.47)	0.58 (0.06, 1.15)
Personality → norms → intentions	1.15 (0.54, 1.96)	0.42 (0.10, 0.81)
Personality → guilt → intentions	0.44 (0.03, 1.01)	0.14 (-0.03, 0.39)
Personality → shame → intentions	0.36 (-0.06, 0.80)	-0.07 (-0.24, 0.03)
Personality → attitude → guilt → intentions	0.26 (0.02, 0.58)	0.11 (-0.00, 0.27)
Personality → attitudes → shame → intentions	0.18 (-0.03, 0.49)	0.08 (-0.01, 0.24)
Personality → norms → guilt → intentions	0.20 (0.02, 0.47)	0.08 (0.00, 0.21)
Personality → norm → shame → intentions	0.08 (-0.09, 0.29)	0.04 (-0.00, 0.14)

$N = 459$, effects in bold where 95% confidence interval does not cross zero.

cheating intentions were non-significant. For both models, the statistics indicating poorer model fit, chi-squared and RMSEA, are sensitive to non-normal (skewed) data (Kline, 2015), which, as noted above, we had. Bootstrapping, used in calculating indirect effects, overcomes the problem of non-normal data (Hayes, 2017).

Indirect effects are presented in Table 2. As shown in Table 2, the relationships between both personality variables¹ (psychopathy and Machiavellianism) and contract cheating intentions were mediated by attitudes and norms. Additionally, psychopathy predicted contract cheating intentions mediated by anticipated guilt. For both psychopathy and Machiavellianism, there was a significant serial mediation with the personality precursor predicting contract cheating intentions via subjective norms and then via anticipated guilt. In addition, psychopathy predicted contract cheating intentions in a significant serial mediation via attitudes and then anticipated guilt. For both psychopathy and Machiavellianism, anticipated shame was not included in any significant mediation path.

3.4. Gender

Consistent with previous research, male students scored higher than female students in mean psychopathy (male: $M = 2.06, SD = 0.73$; female: $M = 1.72, SD = 0.57$; $t(159.90) = 4.62, p < .001$) and Machiavellianism (male: $M = 3.43, SD = 0.65$; female: $M = 3.16, SD = 0.65$; $t(455) = 3.94, p < .001$). In addition, male students were higher than female students in mean intentions (male: $M = 10.44, SD = 15.56$; female: $M = 4.00, SD = 8.30$; $t(133.55) = 4.21, p < .001$) and subjective norms (male: $M = 14.23, SD = 19.00$; female: $M = 8.61, SD = 14.50$; $t(157.08) = 2.88, p = .004$), and lower in anticipated guilt (male: $M = 74.23, SD = 26.21$; female: $M = 87.67, SD = 18.29$; $t(149.43) = 5.06, p < .001$) and anticipated shame (male: $M = 88.79, SD = 17.69$; female: $M = 95.44, SD = 11.75$; $t(145.83) = 3.74, p < .001$) regarding contract cheating. Male students also held attitudes considering cheating as less serious than did female students (male: $M = 89.51, SD = 12.13$; female: $M = 92.99, SD = 10.31$; $t(168.45) = 2.75, p = .007$). Although the level of personality and contract-cheating-related scores differed between genders, the patterns of correlations among these variables and contract cheating intentions were consistent between genders (see Supplementary Online Materials).

4. Discussion

This study tested a theoretical model to predict students' contract cheating intentions that extended the TRA by including personality precursors of attitudes and subjective norms, with anticipated moral emotions as second stage mediators. The results partly supported our predicted model (H1) and partly did not. Psychopathy and Machiavellianism did not directly predict contract cheating intentions. However, psychopathy and Machiavellianism predicted cheating intentions mediated by attitudes, subjective norms, and anticipated guilt via subjective norms. Psychopathy also predicted contract cheating intentions mediated by attitudes and then anticipated guilt. Interestingly, anticipated shame did not mediate the relationship between either

psychopathy or Machiavellianism and cheating intentions. Consistent with H2, psychopathy and Machiavellianism were negatively correlated with anticipated guilt, and psychopathy was negatively correlated with anticipated shame. However, Machiavellianism was not positively correlated with anticipated shame as predicted in H3. Furthermore, our study replicates previous findings of gender differences in Dark Triad traits and academic misconduct (e.g., Bretag et al., 2019; Paulhus et al., 2020; Tindall & Curtis, 2020).

The current study adds to the growing literature suggesting that the TRA and TPB are useful models for examining the psychology of academic misconduct. Several studies have examined standard or modified TRA/TPB models to examine academic misconduct (Alleyne & Phillips, 2011; Curtis et al., 2018; Uzun & Kilis, 2020). However, no studies of which we are aware have specifically examined the prediction of contract cheating intentions within this framework. In addition, and as a generally more substantive contribution to the TRA/TPB literature, we are not aware of any studies that have included *both* personality precursors and anticipated emotions in predicting intentions or behavior. Thus, the present study demonstrates that such a model is empirically viable and worthy of further investigation.

The results of this study extend previous research that has demonstrated relationships between Dark Triad personality traits and academic misconduct by students (e.g., Esteves et al., 2021). Most research to date examining connections between Dark Triad traits and academic misconduct has examined direct relationships, albeit with notable exception of Baran and Jonason's (2020) study, which found that mastery goals mediated the relationship between psychopathy and academic misconduct. In the present study, we found new mediators of the connection between two Dark Triad traits and academic misconduct intentions.

Interestingly, we failed to find a significant direct relationship between either psychopathy or Machiavellianism with contract cheating intentions. The absence of a direct effect suggests that the cheating intentions of students who may be predisposed to cheating by their personality may be reduced by modifying their attitudes, perceived norms, or anticipated guilt regarding cheating. However, Rundle et al. (2019) have suggested that psychopathy and Machiavellianism may be more strongly related to fear of punitive consequences related to cheating rather than a preference for moral and normative compliance. Thus, future research should examine what persuasive messages most successfully dissuade students from cheating, i.e., alerting students to norm vs potential punishments for academic misconduct, and whether psychopathy and Machiavellianism moderate the effect of different forms of message content.

The theory-driven approach to examining the relationship between Dark Triad traits and academic misconduct used in the present study opens numerous avenues for potential future research. For example, for some students anticipating shame or guilt may deter academic misconduct. However, for sensation-seeking individuals, such as those with higher levels of psychopathy (Weidacker et al., 2017), anticipating the "thrill" of getting away with cheating may be a motivator to engage in misconduct. Thus, future research could examine anticipated positive emotions related to personality and academic misconduct.

4.1. Limitations

The two main limitations of our study are common to many studies that use a TRA or TPB framework: the use of cross-sectional self-report data and the termination of our test of the theory with intentions rather than behavior. As noted, we took various steps to enhance the validity of our data collection and analysis, including anonymity, attention checks, and removal of mostly incomplete and overly-fast responses. In addition, our analyses allowed for social-desirability in responding as a covariate. Nonetheless, cross-sectional self-report data can inflate some relationships due to common-methods variance. In addition, this design does not allow for causal inferences to be made. Thus, future research should

consider longitudinal data collection. In addition, although intentions typically correlate strongly and positively with both past and future behavior (Curtis et al., 2018), a measure of contract cheating behavior should also be included in future extensions of this work.

5. Conclusion

The present study examined whether students' contract cheating intentions could be predicted in TRA-based models that included psychopathy and Machiavellianism as precursors and anticipated moral emotions as second stage mediators between attitudes, subjective norms, and intentions. This is the first study to examine the critical and rising problem of understanding contract cheating intentions within an established psychological theoretical framework. In addition, this is the first study to examine both personality precursors and anticipated moral emotions within the same model in predicting academic misconduct. Our results suggest that attitudes, subjective norms, and anticipated guilt together accounted for the relationship between psychopathy and Machiavellianism with contract cheating intentions; expanding on previous studies which have mostly established *that* but not *how* the Dark Triad is related to academic misconduct. Practically, our results suggest that researchers could attempt to influence students' attitudes, subjective norms, and anticipated guilt to help counteract the growing threat to educational integrity of contract cheating.

CRedit authorship contribution statement

Guy Curtis: Conceptualization, Data curation, Methodology, Analysis, Resources, Supervision, Writing - original draft, Writing - reviewing & editing. **Joseph Clare:** Conceptualization, Supervision, Resources, Writing - reviewing & editing. **Emma Vieira:** Investigation, Analysis, Writing - reviewing & editing. **Emily Selby:** Investigation, Analysis, Writing - reviewing & editing. **Peter Jonason:** Conceptualization, Writing - reviewing & editing.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2021.111277>.

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