BREAKING THE RULES: A STUDY ON PSYCHOPATHY

By

SHELBY RAE CURTIS

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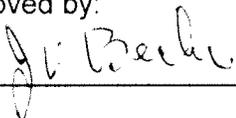A Thesis Submitted to The Honors College

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Abstract

The majority of recent research into psychopathy and rule breaking has focused almost entirely on self report measures of academic cheating. There has been little research into experimental tasks to observe rule breaking. To fill this methodological deficit, we conducted a study where we utilized an in-person task to measure general rule breaking behaviors while replicating the self report measures of criminal history and academic cheating. After completing a host of personality measures that included the Dark Triad (Machiavellianism, narcissism, psychopathy), subjects completed a series of mazes at varying of levels of difficulty and were explicitly told not to break a series of established rules. Only secondary psychopathy was significantly correlated to rule breaking on the maze task, though primary psychopathy was significantly correlated to criminal history. After multiple regression, a subsection of secondary psychopathy, Machiavellian egocentricity, significantly predicted rule breaking by use of the path verify option on the maze task. Additional research and future directions are discussed.

Keywords: psychopathy, Machiavellianism, narcissism, rule breaking, cheating

1. Introduction

The relative rarity of identifiable psychopathy, as diagnosed by the Psychopathy Checklist and similar measures, makes it a difficult construct to study empirically, particularly in non-offender populations. This makes it difficult to generalize results about psychopaths to a broader population that, while not "pure psychopaths", do possess psychopathic traits. As a result, recent studies are beginning to look at the broader spectrum of psychopathic and antisocial personality features in general populations and examine correlates with different behaviors.

A cluster of different personality traits being studied in this regard has been named the Dark Triad. The Dark Triad is composed of three separate personality features: psychopathy, Machiavellianism, and narcissism (Jones & Paulhus, 2011). Psychopathy is characterized by impulsive, inconsistent behavior, and being locked into a short term frame of mind. It is currently thought that psychopathy can be broken down into two areas: primary psychopathy and secondary psychopathy. Primary psychopathy is also seen as the "callous unemotional" dimension of psychopathy (Wilson, Frick, & Clements, 1999), and theories posit that it is based in an genetic, inherited affective deficit (Skeem et al, 2007). Secondary psychopathy, on the other hand, is thought of as an affective deficit that has been acquired, and secondary psychopaths are often seen as more anxious, guilt ridden, and impulsive than primary psychopaths (Skeem et al, 2007; Coyne & Thomas, 2008).

People with high scores on Machiavellian scales come off as cold and manipulative— people who will aim for long-term achievement through any means necessary. An example of someone displaying Machiavellian traits is a person who would agree strongly with the following statement: "It is hard to get ahead without cutting corners here and there" (Christie &

Geis, 1970). Narcissism displays itself as a presence of grandiosity in self-perception. Those with narcissistic tendencies will seize opportunities to reinforce their identity, and are often considered "self-centered" and lack empathy for others (Brunell et al, 2011).

Although the Dark Triad traits are all moderately intercorrelated with each other, there is evidence that these are all unique and separate traits of personality, even though they share some common behaviors (Paulhus & Williams, 2002; Vernon et al, 2008; Williams, Nathanson, & Paulhus, 2010). One set of behaviors shared by the factors of the Dark Triad is not adhering to clearly set rules. Williams, Nathanson, and Paulhus (2010) examined the correlation between the Dark Triad and retrospective reports of academic cheating, a form of rule breaking. They found that after controlling for the influence of the other two factors, psychopathic traits showed a positive correlation to scholastic cheating. Other studies have also found strong links between Machiavellianism, psychopathy, and narcissism to academic cheating and general rule violations (Coyne & Thomas, 2008; Brunell et al, 2011; Nathanson, Paulhus, & Williams, 2006) as well as links between rule breaking and personality traits often associated with the Dark Triad, such as impulsivity (Callender et al, 2010; Anderman, Cupp, & Lane, 2009), sensation seeking (DeAndrea et al, 2009), and social aggression (Underwood, Beron, & Rosen, 2001).

Rule breaking and cheating among non-criminal populations has been studied in a variety of different ways. The majority of the studies looking into the relationship between personality characteristics and cheating tend to focus on academic cheating and dishonesty through self report scales and observational studies. These studies have found that men tend to self-report higher levels of cheating (Thorpe, Pittenger, & Reed, 1999; Nathanson, Paulhus, & Williams, 2006; Vandehey, Diekhoff, & LaBeff, 2007), even though there is seemingly no sex difference when using concrete measures (McCabe, Trevino, & Butterfield, 2001; Whitley, Nelson, &

Jones, 1999). Gender aside, approximately 40-60% of participants report cheating at some point during high school and college. A 20 year longitudinal study by Vandehey, Diekhoff, and LaBeff (2007) found that 54-62% of students admitted to cheating during college. Thorpe, Pittenger, and Reed (1999) found that people tend to report cheating more in high school than in college, and Coyne and Thomas (2008) found that 40% of the students they studied admitted to some form of academic cheating.

When cheating is expanded to refer to some sort of general rule breaking behavior, these percentages do not change significantly. Schwieren and Weichselbaumer (2010) found that, depending on the condition, 37-42% of their participants would cheat on a 30 minute task asking them to solve mazes. Other studies have found larger numbers in both children and adults (Callender et al, 2010; Underwood, Beron, & Rosen, 2011), although there have been some findings with smaller numbers, closer to around 25% (DeAndrea et al, 2009). Studies like this that measure non academic cheating are more likely to use experimental tasks to establish a baseline for cheating as opposed to self-report questionnaires, which can account for the higher variability of cheating across studies. Depending on the difficulty of the task set and the age of the participants, some samples may have disproportionately high or low percentages of cheating found.

The amount of research about the relationship between the factors of the Dark Triad, specifically psychopathy, and general rule breaking and cheating behaviors is severely limited. Most studies rely on self report data about academic cheating. Of those studies utilizing experimental tasks to measure cheating, the findings have been varied and the tasks themselves are not uniform across studies, creating differences in data that may not actually be there.

1.1 The Present Study

The present study attempts to fill in some of these research gaps by conducting a study that ties in self reported measurements of academic cheating, criminal behavior, and the Dark Triad with an experimental rule breaking task that has been previously used by Schwieren and Weichselbaumer (2010) in looking at competition and cheating. By using a measure of rule breaking that has been used in the past, as well as comparing these with self reports of academic cheating and criminal behavior, it is hoped that results will be more conclusive than previous studies when looking at correlations between personality and rule breaking.

Hypothesis 1: Psychopathy will show a significant, positive correlation to rule breaking, even after stripping the influence of Machiavellian and narcissistic traits, replicating past studies (Nathanson, Paulhus, & Williams, 2006; Williams, Nathanson, & Paulhus, 2010). Those who score higher on the psychopathy measure will also be seen as breaking explicit rules sooner and more often than those who score lower on the measure (Callender et al, 2010).

Hypothesis 2: Narcissism and Machiavellianism will be positively correlated to rule breaking upon initial analyses, but after regressions, these correlations will no longer be significant. None of the Big Five personality factors will show significant correlations (Nathanson, Paulhus, & Williams, 2006; Williams, Nathanson, & Paulhus, 2010; Brunell et al, 2011).

Hypothesis 3: Secondary psychopathy will show a stronger correlation with rule breaking than primary psychopathy (Coyne & Thomas, 2008).

Hypothesis 4: A history of criminal behavior and/or academic cheating will show a positive correlation to rule breaking and psychopathy (Nathanson, Paulhus, & Williams, 2006; Williams, Nathanson, & Paulhus, 2010; Brunell et al, 2011).

2. Methods

2.1. Participants

Subjects (N=29; 72.4% women) were on average 18.8 years old (*SD*=0.98, range 18 to 21) with diverse races and ethnicities (48.4% Caucasian, 27.6% Hispanic, 10.3% Other/Multiple Races, and 3.4% African American, 3.4% Asian, and 3.4% Indian). All were students at a southwestern university. 86.2% of subjects had never been arrested or referred to court, and 65.5% had never been cited for any sort of traffic ticket. Over half of the subjects (55.2%) reported cheating on a test or exam in high school or college and not being caught.

2.2 Materials

2.2.1 Big Five Inventory (BFI)

The 44 item Big Five Inventory (BFI; John & Srivastava, 1999) was used to assess the general Big Five factors of personality—openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Responses are measured on a 5 point Likert scale (1=Disagree strongly; 5=Agree Strongly). Questions are phrased as "I am someone who _____" (is a reliable worker, has an active imagination). Substantial evidence has accumulated for the validity of all five factors (John & Srivastava, 1999).

2.2.2 Narcissism Personality Inventory (NPI)

This 40 item inventory was used to assess narcissism (Raskin & Terry, 1988). All statements were forced choice, and one point was assigned for each narcissistic response. Sample items include "A. My body is nothing special or B. I like to look at my body." It is currently considered the standard measure of subclinical narcissism and has well-established validity (Morf & Rhodewalt, 2001).

2.2.3 Mach-IV

Machiavellianism was measured with the 20-item Mach-IV (Christie & Geis, 1970). Items were scored on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". An example item is "Generally speaking, people won't work hard unless they're forced to do so." The Mach-IV is the most widely used measure of Machiavellianism, and has well established psychometric properties (Jones & Paulhus, 2011).

2.2.4 Psychopathic Personality Inventory-Short Form (PPI-SF).

Psychopathy was assessed using the short form of the Psychopathic Personality Inventory (PPI-SF; Lilienfeld & Andrews, 1996; Lilienfeld & Widows, 2005), a 56 item inventory with 8 identified subscales: Machiavellian egocentricity, stress immunity, blame externalization, impulsive nonconformity, fearlessness, carefree nonplanfulness, social potency, and coldheartedness. Prior research has found that these subscales can be grouped into two sections: primary and secondary psychopathy. Primary psychopathy was measured using the scales of stress immunity, impulsive nonconformity, fearlessness, coldheartedness, and social potency. Secondary psychopathy was measured using Machiavellian egocentricity, carefree nonplanfulness, and blame externalization (Lilienfeld & Hess, 2001; Lee & Salekin, 2010; Wilson, Frick, & Clements, 1999; Ray, Poythress, Weir, & Rickelm, 2009). Items were scored on a 4 point Likert scale (False, mostly false, mostly true, and true). The short form of the PPI was used instead of the 154 item PPI-R in order to keep it at a similar length as the other measures used in the study. The PPI-SF has no significant validity differences from the PPI when used in non-criminal, college student populations (Kastner, Sellbom, & Lilienfeld, 2012).

2.2.5 Rule Breaking Questions

In order to compare results with previous studies that relied only on self report, a section of questions about rule breaking behaviors was included in the online questionnaire. This section

included questions such as "How many times have you committed a criminal charge", "how many times have you been suspended from school", and "how many times have you cheated on a test/exam and not been caught (high school or higher)?" These questions created a base of self report rule breaking.

2.3 Procedure

Participants enrolled to participate in order to receive experimental credit for their introductory psychology course. The name of the study they signed up for was called "Personality Correlates of Behavioral Game Playing". First they were given a link to the online questionnaire, which included all of the personality scales and questions about demographic information and rule breaking behavior.

After completing the online questionnaire, they came and participated in the second part of the study. Participants were directed to complete a series of mazes on a computer that was set up for them. The maze task is a popular game on games.yahoo.com. This maze task has been used in past studies in order to test cheating (Gneezy et al, 2003; Schwieren & Weichselbaumer, 2010) because it provides multiple opportunities for the participant to break established rules. Subjects were instructed to complete a total of 25 mazes, 5 at each difficulty level, and explicitly told not to use the path verify or auto-solve buttons and not to press 'new maze' until they had successfully completed a maze. They were also given a "maze sheet" in order for them to record the mazes they completed, the difficulty of each one, and the time they took to complete it. After being given the instructions, the subjects were left alone in a room to complete the mazes until they finished or after an hour had gone by. Subjects were under the impression that the study was being conducted to look at their maze solving ability (spatial navigation) and how it relates to different aspects of personality.
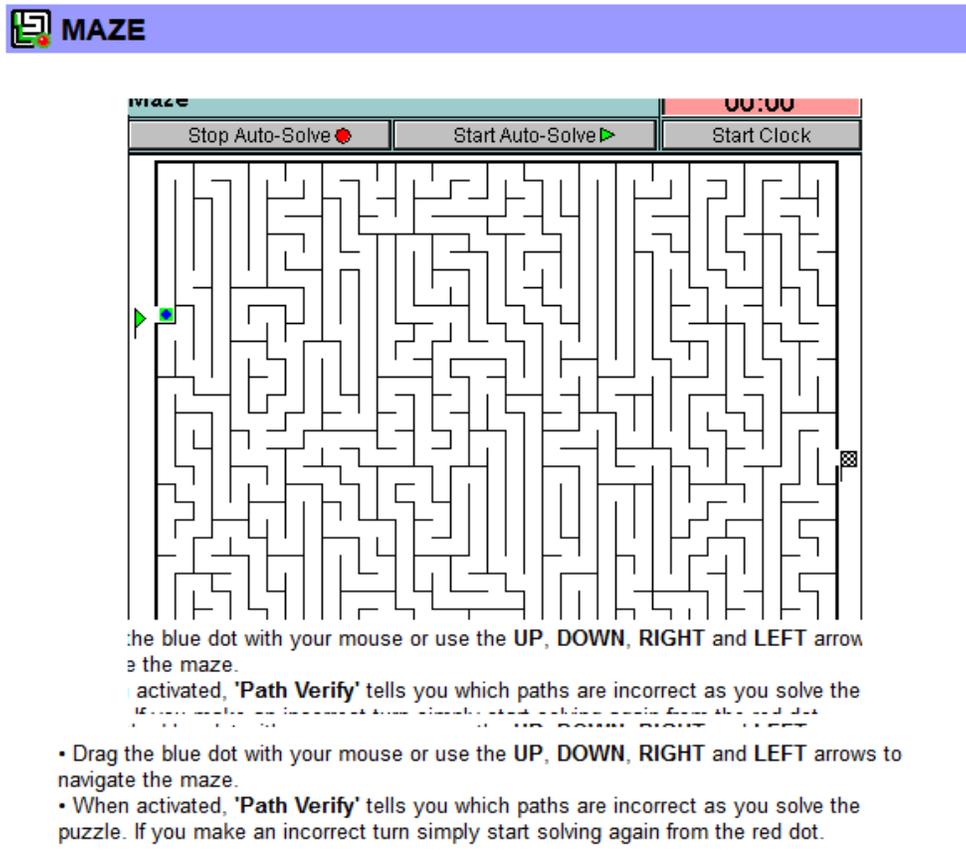
Figure 1: The Maze Task

During the course of the experiment each computer was monitored by a spyware program that took second by second screenshots of the screen. This allowed us to identify all forms of cheating, such as using auto-solve or path verify or not changing the difficulty of the maze. It also allowed us to compare the maze sheets that the subject filled out to the number of mazes that were actually solved.

2.4 Statistical Analyses

The maze data was coded by two undergraduate research assistants and double checked and transferred into SPSS format by an additional research assistant. Inter-rater reliability was acceptable (Cohen's Kappa=.754). Coders recorded information on the following: discrepancies between the maze sheet and actual data, use of autosolve, use of path verify, clear path use, new

maze use, abnormally long pauses, leaving the maze website. From this, a number of cheating variables were created and put into the following categories: 'breaking an explicit rule' and 'breaking a non-explicit rule'. Explicit rule breaking variables were those actions that subjects were verbally instructed not to do, such as number discrepancy between mazes recorded and completed, not changing the difficulty, autosolve use, path verify use, and new maze use. The non-explicit variables were those actions that, while not specifically warned against, deviated from proper completion of the task. They included counting the practice maze, clear path use, pausing for over a minute, and leaving the maze browser.

All analyses were done using IBM SPSS Statistics 20. Data was transformed using both log 10 transformations and inverse transformations.

3. Results

3.1 Descriptive Statistics

Table 1 presents the descriptive statistics of the major variables. Additionally, a majority of the participants broke at least one rule during the maze task (65.5%). 51.7% of participants broke an explicit rule (such as using autosolve or path verify), and 48.3% of subjects broke a non-explicit rule, such as using clear path or counting the practice maze as a completed maze. 34.5% of subjects who broke rules broke both explicit and non-explicit rules.

Table 1: Descriptive Statistics

Measure	Mean	St. Dev
BIG FIVE INVENTORY		
extraversion	3.15	0.74
agreeableness	3.89	0.45
conscientiousness	3.50	0.56
neuroticism	3.00	0.65
openess to experience	3.34	0.62
THE DARK TRIAD		
Narcissism	13.90	6.95
Machiavellianism	54.79	8.30
Psychopathy	121.55	16.86
Primary Psychopathy	77.79	13.04
Secondary Psychopathy	43.76	8.19
RULE BREAKING HISTORY		
Have you been arrested?	0.14	0.44

Have you been cited for a traffic ticket?	0.34	0.51
Have you been convicted of a crime?	0.03	0.27
Have you been suspended from school?	0.07	0.35
Have you used an illegal substance?	0.59	0.50
Have you cheated on a test/exam?	0.55	0.51
MAZE TASK		
Rule Breaking occurrence	4.59	6.48
Explicit Rule Breaking	3.34	5.63
Non-explicit Rule Breaking	1.24	1.99

3.2 Correlations

Next, we created a correlation matrix of all of the variables. The relevant correlations can be found in Tables 2 and 3. Table 2 presents the inter-correlations of the personality measures. Much of the data corresponded to previous findings (Williams, Nathanson, & Paulhus, 2010; Paulhus & Williams, 2002; Vernon et al, 2008;). Both Narcissism and Machiavellianism showed moderately strong correlations with psychopathy, but were not significantly correlated with each other. When broken down into primary and secondary psychopathy, Narcissism was positively correlated (.542) with primary psychopathy, but had no correlation with secondary psychopathy, and Machiavellianism was positively correlated (.506) with secondary psychopathy, but was not significantly correlated with primary psychopathy.

Table 2: Personality Measure Correlates

	1	2	3	4	5	6	7	8	9	10
1. Extraversion	1	.392*	.589**	.139	.068	.138	-.435*	.003	-.015	-.005
2. Agreeableness		1	.162	.049	.332	-.046	-.653**	-.325	-.402*	-.447*
3. Conscientiousness			1	.084	.117	.204	-.457*	.147	-.205	.014
4. Neuroticism				1	-.247	-.071	.008	-.396*	.332	-.145
5. Openness to Experience					1	.307	-.266	.347	-.092	.224
6. Narcissism						1	-.118	.542**	.067	.452*
7. Machiavellianism							1	.200	.506**	.400*
8. Primary Psychopathy								1	.221	.881**
9. Secondary Psychopathy									1	.656**
10. Total Psychopathy										1

* Indicates significance at $p < .05$, two-tailed. ** Indicates significance at $p < .01$, two tailed.

Table 3 shows the correlations of the personality measures to both criminal and cheating history as well as the results from the maze task. Secondary psychopathy showed moderately strong positive correlations with both general rule breaking (.446) and explicit rule breaking

(.488), supporting our third hypothesis. Within explicit rule breaking, the strongest correlation came from use of the path verify button (.592). Extraversion also showed positive correlations with these measures, and Neuroticism showed positive correlations to both general and explicit rule breaking. Primary psychopathy (and total psychopathy) had positive correlations to a history of arrest, but psychopathy did not show significant correlations with a history of cheating or with the measures from the maze task, contrary to the initial hypotheses.

Table 3: Personality Measure Correlates with Rule Breaking

	General rule breaking	explicit rule breaking	non explicit rule breaking	path verify use	Previously arrested	School suspensions	Exam cheating
Extraversion	.358	.414[*]	-.007	.456[*]	-.076	-.199	-.204
Agreeableness	.161	.166	.054	.010	-.311	-.298	-.376[*]
Conscientiousness	.101	.138	-.060	.136	.152	.130	-.368[*]
Neuroticism	.404[*]	.440[*]	.072	.262	-.317	-.383[*]	0.000
Openness to Experience	-.108	-.157	.090	-.246	.283	.123	-.231
Narcissism	.217	.162	.249	-.125	.475[**]	.192	-.267
Machiavellianism	-.024	-.058	.087	.030	.125	.217	.247
Primary Psychopathy	.026	-.017	.131	-.045	.471[**]	.352	-.038
Secondary Psychopathy	.446[*]	.488[**]	.071	.592[**]	.113	.040	.352
Total Psychopathy	.237	.224	.136	.253	.419[*]	.292	.141

* Indicates significance at $p < .05$, two-tailed. ** Indicates significance at $p < .01$, two tailed.

3.3 Regressions

We then proceeded to run as series of multiple regressions. We started with the most general measures and worked down towards the specific. First, regressions were run with all the total personality scores and general rule breaking. Then the same personality scores were run with explicit and non-explicit rule breaking. Next, the personality scores were broken down for general rule breaking, then explicit, and then non-explicit. As we kept digging deeper, we continued to approach significance. Table 4 shows the final result. After controlling for all other personality variables, it was found that both extraversion and Machiavellian egocentricity (a subscale of secondary psychopathy) predicted path verify use. This explained 77.9% of the variance in the sample for path verify use. The adjusted R^2 was .635.

Table 4: Regression

Summary of multiple regression for the relationship between personality measures and path verify use

	B	SE(B)	β	t	Sig. (p)
Constant	-14.787	11.154		-1.326	0.202
Step 1					
Extraversion	2.381	0.856	0.48	2.782	0.013
Agreeableness	1.645	1.515	0.202	1.086	0.293
Conscientiousness	-0.483	1.479	-0.073	-0.327	0.748
Neuroticism	-0.531	0.881	-0.095	-0.602	0.555
Openness	-1.021	0.908	-0.172	-1.123	0.277
Step 2					
NPI	-0.157	0.082	-0.297	-1.914	0.073
Step 3					
MACH-IV	-0.122	0.085	-0.275	-1.432	0.17
Step 4					
Primary Psychopathy	0.021	0.055	0.075	0.38	0.708
Step 5					
Carefree Nonplanfulness	0.129	0.249	0.102	0.521	0.609
Machiavellian Egocentricity	0.724	0.166	0.749	4.347	0
Blame Externalizatiion	0.194	0.124	0.25	1.057	0.135

R2=.779, Adjusted R2=.635, p=.001

4. Discussion

Most of our data from the self reported measures matched what we expected to find from previous studies. In conjunction with Vandehey et al, about 55% of our participants reported cheating on exams at a high school or higher level (2007). However, we found much higher reports of maze task cheating than had previously been found. For example, using the same maze task, only 42.4% of subjects cheated in the competitive condition (Schwieren & Weichselbaumer, 2010), whereas over half of the subjects in our study broke explicit rules that they were told not to break.

Our first two hypotheses were not supported. Although psychopathy did show a positive correlation to rule breaking, it was not significant. Additionally, neuroticism showed a significant positive correlation to rule breaking, which was not expected. This could be due in part to the number of participants in the study. Due to such a small number of subjects, it is quite

possible that effects cannot yet be detected. For example, not only was psychopathy overall not significantly positively correlated to rule breaking on the maze task, but it was also not significantly correlated to academic cheating history, unlike previous results (Williams et al, 2010).

The third hypothesis, that secondary psychopathy would show a stronger relationship to rule breaking on the task than primary psychopathy, was supported. Secondary psychopathy showed a positive and significant relationship to explicit rule breaking, and after multiple regression analyses, a subscale of secondary psychopathy: Machiavellian Egocentricity significantly predicted the use of the path verify button during the maze task. This second finding was very surprising. Due to the small sample size, the regression analyses should not have been able to detect any power. A post-hoc power analysis indicates that almost triple the number of subjects are needed to successfully and reliably detect effects. It will be interesting to see if this result will still be found after the minimum required number of subjects to detect effects has been run.

The fourth hypothesis was only partially supported. Psychopathy did indeed show a significant and positive correlation to arrest history, but none of the criminal history or academic cheating measures were correlated with cheating on the maze task. On an interesting note, the factor of psychopathy correlated to the arrest history was primary psychopathy, but secondary psychopathy is the factor that was positively correlated to cheating on the maze task. This is likely because of the task used. As mentioned before, secondary psychopathy was measured using the subscales of Machiavellian egocentricity, carefree nonplanfulness, and blame externalization. If a participant felt the maze was too difficult, they could cheat and say that it wasn't their fault for cheating—the maze was too difficult. Overall, the maze task could not

evoke the guilty conscience present in secondary psychopaths that generally leads them to break fewer rules than primary psychopaths (Coyne & Thomas, 2008).

An interesting finding that we did not predict or foresee came from the data presented in Table 3 between the correlations of narcissism and Machiavellianism to primary and secondary psychopathy. As stated, narcissism had a moderately strong correlation to primary psychopathy but not with secondary psychopathy, and Machiavellianism had a moderately strong correlation to secondary psychopathy, but not to primary psychopathy. Previous research on the Dark Triad has only looked at psychopathy as a single construct (Paulhus & Williams, 2002). Finding such results help explain why we did not see a significant correlation between Machiavellianism and narcissism: while they both may be strongly correlated with psychopathy, they are related to completely different constructs of psychopathy: primary and secondary. It would be interesting to delve deeper into this relationship and attempt to explain why this data may have been found.

The major limitation of this study was its sample size. An addendum to this study is currently being conducted in order to increase the number of subjects in order to detect effects with better accuracy. This addendum also includes a second condition during the maze task: a self enhancement condition where subjects are told that previous findings suggest that those people who solve all the mazes in a significantly short time are much more likely to be successful out of college. This condition hopes to address some of the rule breaking that occurs due to narcissistic behaviors.

Additionally, future studies should experiment with different rule breaking tasks that may elicit different responses dependent on the personality of the subject. While the maze task used had been previously utilized with great results, it is evident that for this type of study, the rule breaking assessed from the task may not translate properly into real world rule breaking

scenarios. Future studies should attempt to fill in this gap by testing different rule breaking tasks to understand how varied rule breaking is and how it relates to the Dark Triad.

References

Anderman, E. M., Cupp, P. K., & Lane, D. (2009). Impulsivity and academic cheating. *Journal of Experimental Education*, 78(1), 135-150.

Brunell, A. B., Staats, S., Barden, J., & Hupp, J. M. (2011). Narcissism and academic dishonesty: The exhibitionism dimension and the lack of guilt. *Personality and Individual Differences*, 50, 323-328.

Callender, K. A., Olson, S. L., Kerr, D. R., & Sameroff, A. J. (2010). Assessment of cheating behavior in young school-age children: Distinguishing normative behaviors from risk markers of externalizing psychopathology. *Journal of Clinical Child and Adolescent Psychology*, 39(6), 776-788.

Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York: Academic Press.

Coyne, S. M., & Thomas, T. J. (2008). Psychopathy, aggression, and cheating behavior: A test of the Cheater-Hawk hypothesis. *Personality and Individual Differences*, 44(5), 1105-1115.

DeAndrea, D. C., Carpenter, C., Shulman, H., & Levine, T. R. (2009). The relationship between cheating behavior and sensation-seeking. *Personality and Individual Differences*, 47(8), 944-947.

Gneezy, U., Niederle, M., & Rustichini, A. (2003). Performance in competitive environments: Gender D=differences, *Quarterly Journal of Economics,* 118(3), 1049-1074.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed.,pp. 102–138). New York: Guilford Press.

Jones, D.N., & Paulhus, D.L. (2011). Differentiating the Dark Triad within the interpersonal circumplex. In *L.M. Horowitz & S. Strack, Handbook of interpersonal psychology:*

Theory, research, assessment, and therapeutic interventions, 249-169. New York: Wiley & Sons.

Kastner, R. M., Sellbom, M., & Lilienfeld, S. O. (2012). A Comparison of the Psychometric Properties of the Psychopathic Personality Inventory Full-Length and Short-Form Versions. *Psychological Assessment, 24,* 261-267.

Lee, Z., & Salekin, R. T. (2010). Psychopathic traits in non-institutional sample: Differences in primary and secondary subtypes. *Personality Disorders: Treatment Research and Theory, 1,* 153-169.

Lilienfeld, S.O., & Andrews, B.P. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. *Journal of Personality Assessment*, 66(3), 488-524.

Lilienfeld, S.O., & Hess, T. (2001). Psychopathic personality traits and somatization: Sex differences and the mediating role of negative emotionality. *Journal of Psychopathology and Behavioral Assessment*, 23, 11-24.

Lilienfeld, S. O., & Widows, M. R. (2005). *Psychopathic Personality Inventory–Revised: Professional manual*. Lutz, FL: Psychological Assessment Resources.

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12, 177-196.

Nathanson, C., Paulhus, D., & Williams, K. (2006). Predictors of a behavioral measure of scholastic cheating: Personality and competence but not demographics. *Contemporary Educational Psychology*, 31, 97-122.

Paulhus, D.L., & Williams, K.N. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy, *Journal of Research in Personality*, 36(6), 556-563.

Raskin, R., & Terry, H. (1988). A principal components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54, 890–902.

Ray, J., Poythress, N.G., Weir, J., & Rickelm, A. (2009). Relationships between psychopathy and impulsivity in the domain of self-reported personality features. *Personality and Individual Differences*, 46, 83-87.

Schwieren, C., & Weichselbaumer, D. (2010). Does competition enhance performance or cheating? A laboratory experiment. *Journal of Economic Psychology*, 31, 241-253.

Skeem, J. L., Johansson, P., Andershed, H., Kerr, M., & Eno Louden, J. (2007). Two subtypes of psychopathic violent offenders that parallel primary and secondary variants. *Journal of Abnormal Psychology*, 116, 395-409.

Thorpe, M. F., Pittenger, D. J., & Reed, B. D. (1999). Cheating the researcher: A study of the relation between personality measures and self-reported cheating. *College Student Journal*, 33(1), 49-59.

Underwood, M. K., Beron, K. J., & Rosen, L. H. (2011). Joint trajectories for social and physical aggression as predictors of adolescent maladjustment: Internalizing symptoms, rule-breaking behaviors, and borderline and narcissistic personality features. *Development and Psychopathology*, 23(2), 659-678.

Vandehey, M., Diekhoff, G., LaBeff, E. (2007). College cheating: A twenty-year follow-up and the addition of an honor code. *Journal of College Student Development*, 48, 468-480.

Vernon, P., Villani, V., Vickers, L., & Harris, J. (2008). A behavioral genetic investigation of the Dark Triad and the Big 5. *Personality and Individual Differences*, 44(2), 445-452.

Williams, K., Nathanson, C., & Paulhus, D. (2010). Identifying and profiling scholastic cheaters: Their personality, cognitive ability, and motivation. *Journal of Experimental Psychology: Applied*, 16, 293-307.

Wilson, D.L., Frick, P.J., & Clements, C.B. (1999). Gender, somatization, and psychopathic traits in a college sample. *Journal of Psychopathology and Behavioral Assessment,* 21, 221-235.