THE ROLE OF PSYCHOPATHY IN SCHOLASTIC CHEATING:
SELF-REPORT AND OBJECTIVE MEASURES

by

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ABSTRACT

Despite a wealth of studies, no consistent personality predictors of scholastic cheating have been identified. However, several highly-relevant variables have been overlooked. I address this void with a series of three studies. Study 1 was a large-scale survey of a broad range of personality predictors of self-reported scholastic cheating. The significant predictors were psychopathy, Machiavellianism, narcissism, low Agreeableness and low Conscientiousness. However, only psychopathy remained significant in a multiple regression. Study 2 replicated this pattern using a naturalistic, behavioural indicator of cheating -- plagiarism as indexed by the internet service Turn-It-In. The psychopathy association still held up after controlling for intelligence. Finally, Study 3 examined possible motivational mediators of the association between psychopathy and cheating. Unmitigated achievement and moral inhibition were successful mediators whereas fear of punishment was not. Implications for researchers and educators are discussed.
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INTRODUCTION

Student cheating remains a persistent problem for educators. Typical is the finding that two-thirds of college students report having cheated at some point during their schooling (Stern & Havlicek, 1986). If anything, the problem appears to have worsened in recent years (McCabe & Trevino, 1996) with students reporting lifetime cheating rates as high as 80 percent of all students (Robinson, Amburgey, Swank, & Faulker, 2004). A recent cover story in MacLean’s magazine (Gulli, Kohler, & Patriquin, 2007) further illustrated that this phenomenon is reaching epidemic levels in Canada, and is ultimately a significant threat to our country’s economy.

These startling facts have spurred researchers to identify the individual difference factors that best predict scholastic cheating. Among those that have been given close attention are intelligence, demographic factors and personality traits. Surprisingly, the reviews of this literature concluded that personality plays a minimal role in predicting which students cheat the most (Cizek, 1999; Whitley & Keith-Spiegel, 2002).

The present report comprises three studies designed to challenge that pessimistic view. The challenge is based on the fact that a number of highly relevant personality measures have been overlooked. Before detailing that research, however, a review of the existing research is warranted, including recent developments in the assessment of scholastic cheating.

Measurement of scholastic cheating

Scholastic cheating appears in several varieties. In their recent review of academic dishonesty, Whitley and Keith-Spiegel (2002) provide a taxonomy that
includes fabrication, plagiarism, facilitation, misrepresentation, and sabotage. For each variety, there are several methods for measurement and detection. In classroom settings, Cizek (1999) distinguishes two general categories of cheating detection methods: low-tech and high-tech. In research settings, a third type of cheating assessment may be added to this list – laboratory cheating. Each of these approaches to cheating measurement involves advantages and disadvantages.

*Low-tech cheating detection.* Low-tech methods of cheating detection rely on the vigilance and judgment of the instructor and teaching assistants. Cizek’s (1999) survey indicated that the huge majority of current college instructors rely entirely on direct observation to detect classroom cheating. Informal, indirect cues include disappearance of exam copies or answer keys, suspicious behaviour during an exam (e.g., constant trips to the washroom, glancing at other students’ exams), a dramatic improvement in a students’ performance compared to previous work, or unusual similarities between the works of two or more students.

The major form of scholastic cheating outside the classroom is essay plagiarism. Traditionally, instructors have detected plagiarism by examining essays for features such as writing style that is not commensurate with the student’s previous work, or that is inconsistent within the essay. They may actually recognize a quotation from a familiar source.

Such low-tech methods have a long history but rely on the experience, wisdom, and assertiveness of the instructor. Advantages include minimal cost, time and effort. Foremost among the disadvantages are the subjectivity, inaccuracy, and confrontational
nature of these methods. Even the direct observation of (what appears to be) an overt copying incident may have a legitimate alternative explanation.

*High-tech cheating detection.* As new technologies such as the internet, cellular phones, and personal digital assistants (PDAs) arrived, so too did new methods for engaging in scholastic cheating. Fortunately, the instructor’s arsenal of cheating detection methods has also benefited from technological innovation. Of particular importance is the availability of new computer software.

For the detection of *multiple-choice answer copying*, some programs are commercially available whereas others – notably, Signum (Harpp, Hogan, & Jennings, 1996) and S-Check (Wesolowsky, 2000) – are freely available from the authors. These programs conduct a pair-wise comparison of students’ responses to multiple-choice tests to search for excessive overlap in the answer patterns. For each possible pair of students, an index of similarity is calculated: Those with suspiciously high overlap (i.e., those that are identified as obvious outliers among the distribution of similarity scores) are flagged as potential cheating pairs (Frary & Tideman, 1997; Harpp & Hogan, 1993; Harpp et al., 1996; Wesolowsky, 2000). The validity of these methods is further corroborated by the fact that flagged pairs of students are almost invariably found to have been seated adjacent to each other (Nathanson, Paulhus, & Williams, 2006). Note that these two indicators (software flagging and adjacent seating) are independent because computer programs do not use information about the seating arrangement of the students.

For the detection of *essay plagiarism*, another category of anti-cheating software is available. The most widely-used program, Turn-It-In, is accessed via a commercial website (iParadigms, LLC; 2004). This program compares the text of a submitted paper
against the continually updated entries in its comprehensive database. Items in this
database range from previously submitted student papers to academic and professional
articles, as well as current and previous internet web pages. The program notes strings of
(at least) seven consecutive words that match previous papers and calculates an overall
percentage score of plagiarized text. In addition, the output provides a different colour
code for each source and the exact citation.

The program operates on the same principle as the more crude method of
inserting essay text into an internet search engine such as Google. Either way, instructors
are able to assess plagiarism rates more objectively and efficiently than could be achieved
with instructor judgment alone. Drawbacks include the fact that such programs can be
costly and may be complicated to use. Nonetheless, the success of these programs have
led them to become standard screening devices for major academic institutions across the
globe (iParadigms, LLC; 2004).

Laboratory cheating detection. In laboratory settings, it is possible to fashion a
tempting opportunity and assess cheating with concrete behavioural measures. For
example, students may be given the opportunity to grade their own tests or to exceed the
allotted time in completing an intellectual task. Such concrete indicators as discrepancy
in scoring or extra-time-taken are appealing to researchers. Because they are better
controlled, laboratory methods can also provide more detail about the psychological
processes involved in cheating behaviour. However, the contrived nature of the tasks
undermines the generalizability of the results

Self-report surveys. To estimate cheating rates in large samples, the simplest
method is to collect self-reports. In the same survey, one could pose questions about a
wide variety of cheating behaviours. The questions could also cover a substantial time period (e.g., how many times did you cheat on an exam during high-school?). Usually, this traditional survey technique is also the least expensive and labour-intensive.

Although some costs are involved, survey administration over the internet is gaining more and more credibility (Gosling et al., 2006).

The obvious concern is the credibility of self-reports (Paulhus, 1991). Socially desirable responding may be reduced, if not eliminated, by maximizing anonymity. Such high values as the 80% lifetime cheating rate found by Robinson and colleagues (2004) suggest that anonymous surveys are not substantially impaired by impression management.

**Research on demographic predictors**

The confirmation of demographic predictors has proved to be elusive. Although men are more likely than women to report having cheated (e.g., Jensen, Arnett, Feldman, & Cauffman, 2001; Lobel & Levanon, 1988; Newstead, Franklyn-Stokes, & Armstead, 1996; Whitley, 1998), concrete measures do not confirm such a sex difference (McCabe, Trevino, & Butterfield, 2001; Whitley, Nelson, & Jones, 1999). Given the unlikely possibility that men are over-reporting their actual cheating, it seems that women may be under-reporting.

A difference in cheating across college majors has been reported in only one study (Newstead et al., 1996). Students with science majors reported higher levels of cheating than those with arts majors. Given the sex difference in reporting cheating, however, the difference in arts vs. science cheating rates may be artifactual. That is, the higher rate in reported cheating among science students may result from the higher
proportion of men with those majors. Altogether, then, the literature gives little indication of demographic differences in actual cheating behaviour.

**Research on personality predictors**

There is a long history of research on personality predictors of cheating (for thorough reviews see Cizek, 1999; Whitley, 1998). A recent meta-analysis provided the effect sizes of a wide range of personality constructs including achievement motivation, alienation, industriousness, test anxiety, need for approval, religiosity, and self-esteem (Whitley & Keith-Spiegel, 2002). The reviews concluded that, on the whole, the associations of personality with cheating were null to weak.

However, a number of personality variables have not yet been given sufficient attention. The reason may be that standard measures of these variables have only been widely used in recent years. These include psychopathy, narcissism, and the Big Five personality dimensions (i.e., Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience). For possible inclusion in my own research, I will consider each in some detail.

*The Dark Triad.* The constructs of narcissism, Machiavellianism, and psychopathy are commonly referred to as the Dark Triad of personality (Paulhus & Williams, 2002). Those high in narcissism are characterized by grandiosity, entitlement, and a sense of superiority over others (Raskin & Hall, 1979). Such individuals are arrogant, self-centered, and consistently self-enhancing (John & Robins, 1994). These features lead narcissistic individuals to be highly aversive to others (Paulhus, 1998). But the key facet that makes narcissistic individuals candidates to be scholastic cheaters is their level of entitlement (Emmons, 1987). Narcissists feel *entitled* to recognition for
their intellectual superiority even when their academic accomplishments are mediocre. Therefore, attaining the plaudits they deserve may require cheating.

Individuals high in Machiavellianism are characterized by cynicism, low morality, and a belief in the value of manipulating others (Christie & Geis, 1970). A wealth of evidence confirms that these individuals exploit a wide range of duplicitous tactics to achieve their self-interested goals (e.g., Fehr, Samsom, & Paulhus, 1992; McHoskey, 2001). These features suggest that Machiavellian individuals would be among the most likely to engage in scholastic cheating. However, the few studies that have explored this possibility find that these links are smaller than anticipated (Cizek, 1999; Flynn, Reichard, & Slane, 1987; Whitley, 1998).

Recent work suggests that the four key features of psychopathy are impulsivity, manipulation, emotional coldness and antisocial behaviour (Hare, 2003; Williams et al., 2007). All four suggest that psychopaths are more likely to cheat. Psychopathy is strongly and consistently associated with a wide range of misconduct in nonoffenders, more so than other aversive and antisocial personality constructs (Williams & Paulhus, 2004). Therefore, it is probable that this trend will extend to scholastic cheating. However, only one previous study has addressed relations between psychopathy and cheating behaviour in nonoffender samples (Nathanson et al., 2006). Not surprisingly, then, psychopathy was not included in Whitley’s (1998) comprehensive review of personality and cheating.

It is worth noting that use of the term psychopathy throughout the paper is not limited to clinical or forensic levels. Accumulating research suggests that the construct

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1 Although the terms “psychopath” or “psychopathic” imply a dichotomy, psychopathy is scored and conceptualized here as a continuum. In fact, there is no evidence for distinct categories in self-report
tapped by self-report psychopathy scales is conceptually identical to that tapped by interview methods in clinical/forensic samples. Of course, the mean scores in college students are lower than in clinical/forensic samples. Forth, Brown, Hart, and Hare (1996) reported that the mean psychopathy score in their male university sample was roughly half that of male offenders, yet 3% still qualified for a clinical diagnosis of psychopathy. Terms such as “nonoffender psychopathy” or “subclinical psychopathy” are avoided in this paper, in order to minimize the assumption that nonoffender/subclinical psychopathy is qualitatively different from clinical/forensic psychopathy.

*The Big Five.* The Big Five personality traits – Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience – are widely considered to be the fundamental dimensions of personality (Costa & McCrae, 1992). Extraversion is characterized by being sociable, talkative, energetic, and prone to sensation-seeking. Agreeableness involves cooperating with others, maintaining harmony, and being seen as a ‘likable’ person. Conscientiousness involves a sense of duty, responsibility, and orderliness. Emotionally stable individuals are anxiety-free, well-adjusted, and resilient to stress. Finally, Openness entails autonomous, independent thinking, along with aesthetic and intellectual interests.

Given the consensus on their importance, it is surprising how few studies of personality and scholastic cheating have included the Big Five traits. Of the five, only Extraversion and Stability (vs. Neuroticism) have received any attention. The reason is that measures of those two factors were popularized by Eysenck (e.g., Eysenck, 1970) long before the Big Five became prominent.

*measures (Nathanson & Paulhus, 2006). For easy communication, these terms are used to refer to individuals with relatively high psychopathy scores, and not as members of a distinct psychopathic group.*
Unfortunately, the studies on extraversion and cheating have yielded equivocal results. Cizek (1999) reported that, in three out of four studies, Extraversion showed a small significant positive correlation with cheating. However, Jackson and colleagues recently obtained a negative, albeit weak, association between Extraversion and cheating (Jackson, Levine, Furnham, & Burr, 2002). Studies of Stability have shown weak positive correlations with cheating (Cizek, 1999; Jackson et al., 2002). Many of these data were collected from young children, making it difficult to generalize the results to college-aged students or adults. Overall, the body of existing research with college samples is not sizable enough to make any strong conclusions about the roles of Extraversion and Stability in cheating.

The roles of Openness and Agreeableness in cheating have yet to be studied. Low agreeableness seems particularly relevant to cheating, given that one of its central features is a tendency towards confrontation (Costa & McCrae, 1992). On the other hand, there is no obvious reason to expect Openness to be relevant to cheating behaviour.

The Big Five variable with the closest theoretical connection to cheating is low Conscientiousness. This trait seems particularly relevant given its associations with dishonesty and irresponsibility (i.e., poor study habits, low academic preparedness in general). The published research is minimal but Conscientiousness has clear conceptual links with honesty (Emler, 1999). In a study conducted before the Big Five labels became popular, Hetherington and Feldman (1964) showed that students low in trait responsibility were found to be more likely to cheat. Other related measures have been used in industrial settings. Those scoring low on conscientious-related traits show a
persistent pattern of dishonest behaviours such as theft, absenteeism, and bogus claims of worker compensation (Hogan & Hogan, 1989).

**Overview of the present research**

Three studies were conducted to investigate links between scholastic cheating and the unfairly overlooked personality variables noted above. Study 1 examined the role of eight personality variables – including the Dark Triad and the Big Five – in a large-scale survey of self-reported cheating behaviour. Study 2 sought to replicate these findings using a concrete, behavioural indicator of cheating. It also explored the possible confound of verbal ability with psychopathy. In Study 3, mechanisms underlying the personality-misconduct link were evaluated via mediation analysis.

**STUDY 1: PERSONALITY PREDICTORS OF SCHOLASTIC CHEATING**

The primary goal of Study 1 was to fill in the above-mentioned gaps in the research on personality correlates of scholastic cheating. The results may well challenge the claims of previous reviews indicating that personality plays little role in predicting cheating (Cizek, 1999; Whitley, 1998).

In particular, measures of the Big Five personality factors and the Dark Triad were evaluated as potential predictors of self-reported cheating. For reasons noted above, low Agreeableness, low Conscientiousness, and each of the Dark Triad variables should be associated with scholastic cheating. Each of the Triad and low Agreeableness share features such as deceptiveness and entitlement, whereas low Conscientiousness is tied to poor preparation and study skills. Of these eight variables, psychopathy should be the
strongest predictor, given the large body of research linking it to other types of misconduct.

Overall cheating rates should correspond with those of previous studies on college students. These estimates vary widely in the literature, ranging from 37% to 91% (Cizek, 1999). Therefore, the most reasonable point estimate is the median of these values – or roughly two-thirds of students. Following previous studies, the self-reported cheating rates should be higher in male than in female students (e.g., Whitley, 1998).

**Hypotheses**

- **Hypothesis 1.1**: The expected rate of self-reported cheating is best estimated by the median of previous studies (64% of students).
- **Hypothesis 1.2**: Rates of self-reported cheating will be higher for males than for females.
- **Hypothesis 1.3**: There will be no ethnic differences in self-reported cheating.
- **Hypothesis 1.4**: The significant personality predictors of self-reported cheating will be psychopathy, narcissism, Machiavellianism, low Agreeableness and low Conscientiousness.
- **Hypothesis 1.5**: Psychopathy will be the strongest predictor of self-reported cheating.
Method

Participants. Two-hundred and forty-nine students in second-year undergraduate psychology classes at the University of British Columbia participated in the study for course credit. 73% were female, and the majority were of either European (41.4%) or East Asian (32.5%) ethnicity. Missing data precluded analyses for 21 participants, leaving a sample size of 228.

Measures and procedure. Students enrolled by responding to an advertisement to participate in a study examining “Personality and Background Factors”. They were given a take-home questionnaire package that included various personality scales as well as a variety of misconduct scales embedded in a large-scale survey. Instructions cautioned students against including any personally identifying information (e.g., name, student number) anywhere on their questionnaire packages. Given the sensitive nature of some of the questionnaire items, this procedure was used to encourage honest and accurate responses. Students returned their completed and sealed questionnaire package at a predetermined time and location to receive their credit.

Personality questionnaires. The questionnaires used in this study were selected based on their reputable psychometric properties. Unless otherwise specified, all items are scored with a five-point Likert scale (1 = ‘Strongly disagree’ to 5 = ‘Strongly agree’).

Narcissism was assessed with the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979). The NPI contains 40 forced-choice items such as “I like to be the center of attention.” vs. “I like to blend in with the crowd.” In this example, endorsing the first option is considered indicative of narcissism. Currently considered the standard measure of subclinical narcissism, the NPI has well-established psychometric properties (e.g.,
Raskin & Terry, 1988). Non-narcissistic responses were given a score of ‘1’, and narcissistic responses were scored as ‘2’.

Machiavellianism was assessed with the 20-item Mach-IV (Christie & Geis, 1970). Students are asked to indicate their degree of agreement with such items as “Most people are basically good and kind” and “It is hard to get ahead without cutting corners here and there.” The Mach-IV is the most widely used measure of Machiavellianism, and is psychometrically robust (e.g., Christie & Geis, 1970). In this dataset, items were scored on a 6-point Likert scale ranging from -3 (disagree strongly) to +3 (agree strongly).

Psychopathy was measured using a 40-item version of the Self-Report Psychopathy scale (SRP-III; Paulhus, Hemphill, & Hare, in press). The SRP-III is patterned after the Psychopathy Checklist-Revised (PCL-R; Hare, 2003), the current standard of psychopathy assessment in forensic and clinical settings. The SRP-III generates sound results in psychometric studies covering areas such as concurrent and convergent/discriminant validity, including correlations with measures of general misconduct (Williams, Paulhus, & Hare, 2007). Example items include “Rules are made to be broken” and “I find it easy to manipulate people“.

The 44-item Big Five Inventory (BFI; John & Srivastava, 1999) was used to assess the Big Five factors of personality. Example items (and the Big Five trait they assess) include “is talkative” (Extraversion), “is considerate and kind to almost everyone” (Agreeableness), “is a reliable worker” (Conscientiousness), “remains calm in tense situations” (Stability), and “has an active imagination” (Openness). Substantial evidence has accumulated for the validity of all five factors (John & Srivastava, 1999).
Scholastic cheating. Items used to assess cheating were included in the Comprehensive Misconduct Inventory (CMI; Williams et al., 2001). The CMI consists of 42 items written to provide a comprehensive set of antisocial acts ranging from minor misbehaviours to felony crimes. Although revised, reformatted, and expanded, the CMI is modeled after the Self-Report Delinquency scale (Elliott & Ageton, 1980). Students are asked to estimate how many times in the past five years they had committed each of a variety of acts.

Two CMI items specifically address scholastic cheating: “I have cheated on school tests” and “I have handed in a school essay that I copied from someone else”. A cheating index was calculated as the mean of these two items. The validity of these items has been validated in previous research (e.g., Williams et al., 2007). Any items that overlapped between the personality scales and the cheating index were removed from the personality scale (see note in SRP-III, Appendix A).

Results

Frequency distributions for all major variables are listed in Appendix B. Cheating rates were estimated by coding students with non-zero scores on the cheating index as cheaters. According to this calculation, a surprising 73% of students admitted to cheating at least once in the last five years. There were no ethnic differences in cheating (i.e., Europeans vs. East Asians, $t(178) = -.07, p > .05; d = .00$). However, similar to previous research, males reported higher cheating rates than females: $t(243) = 3.37, p < .01; d$ 

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2 Personality correlates and demographic differences with each of the two separate cheating items were highly similar.
Statistically controlling for students’ sex had no impact on subsequent analyses, therefore these analyses were performed on the pooled sample.

Alpha reliability estimates for the personality scales were sound, ranging from .78 (Mach-IV, BFI-Openness) to .89 (SRP-III). The alpha reliability of the 2-item cheating index was .57. Means and standard deviations for each measure, as displayed in Table 1, were similar to those of previous research. Also displayed are the correlations among personality variables and scholastic cheating. Two-tailed significance tests are used given the exploratory nature of the study. The correlations among the personality variables are similar to those found in previous studies (e.g., Hicklin & Widiger, 2005; Paulhus & Williams, 2002; Williams & Paulhus, 2004).

Of particular interest are the correlations between the various personality constructs and scholastic cheating. As predicted, each of the Dark Triad constructs demonstrated significant positive correlations with scholastic cheating. Psychopathy showed the strongest correlation (.58) followed by Machiavellianism (.39) and narcissism (.20; all \( p < .01 \)). Also as expected, significant negative correlations were found for Conscientiousness (-.28) and Agreeableness (-.23; all \( p < .01 \)). Again, all significance tests are two-tailed in order to be conservative.

Statistical comparisons of these correlations revealed that psychopathy was the strongest correlate of cheating. For example, the difference between the psychopathy-cheating correlation and the next strongest cheating correlation (Machiavellianism) was significant: \( t(225) = -2.97 \ (p < .01) \). Once again, this significance test is two-tailed in order to be conservative.

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3 The significance test for the difference between two dependent correlations is provided by Glass and Hopkins (1999, p. 363).
Given the statistical overlap among the personality constructs, multiple regression analysis was conducted to determine the unique contribution of the relevant predictors. To avoid an unnecessarily large number of predictors, only the predictors that were hypothesized to correlate with cheating (i.e., Dark Triad, Conscientiousness, Agreeableness) were entered in the regression analysis. Results in Table 2 show that, after controlling for the other predictors, only psychopathy ($\beta = .50$, $t(222) = 6.71$; $p < .01$) remained a significant predictor of scholastic cheating.

**Discussion**

In general, the results were consistent with the hypotheses. Hypothesis 1.1 was supported by the fact the observed rate of self-reported cheating (73.1%) approximated the median of those values cited in the literature (64%) (Cizek, 1999). Apparently, cheating tendencies among college students continue at disturbingly high levels.

Hypothesis 1.2 was supported by the fact that males reported higher cheating rates than females. Cizek (1999) described the remarkable consistency of this finding across studies and considered several explanations. Included was the possibility that there are no gender differences in actual cheating rates, just the self-reports. Hypothesis 1.3 was also confirmed in that there were no ethnic differences (i.e., East Asian vs. European heritage) in self-reported cheating. There does not appear to be any compelling reason to suspect such ethnic differences.

**Personality correlates of self-reported cheating – The Dark Triad.** The high rate of self-reported cheaters in this sample highlights the need to determine the key predictors of cheating. Spurred by the claim that personality plays no role in predicting
scholastic cheating, Study 1 examined relationships between cheating and various personality constructs that had heretofore been understudied in this context. Consistent with Hypothesis 1.4, each of the Dark Triad constructs (psychopathy, Machiavellianism, narcissism) exhibited significant positive associations with cheating behaviour. There are plausible, though distinct, mechanisms for each of these associations.

Narcissists are known for their arrogance and sense of entitlement (Emmons, 1987). Accordingly, they tend to believe that they deserve superior results in their academic endeavours; therefore, cheating is a justified strategy. Nonetheless, no previous studies have established this association empirically.

Deceit is the hallmark characteristic of Machiavellianism. Therefore, it is not surprising to find that Machiavellian individuals admit to cheating in academic settings. The degree of cynicism that is also inherent in Machiavellianism suggests that these individuals likely believe that most people cheat, and that their own cheating is therefore necessary. More surprising, however, is that this association has seen little to no empirical support in previous research, despite this strong conceptual association (Christie & Geis, 1970; Cizek, 1999; Flynn et al., 1987). This trend may have occurred due to methodological flaws in previous studies. For example, both the Cooper and Peterson (1980) and the Flynn et al. (1987) studies used an inferior measure of Machiavellianism, artificially dichotomized students into high- and low-Machiavellian groups, and used a contrived cheating measure. Other studies used kindergarten and grade 6 students (see Cizek, 1999), making it difficult to generalize findings to college-aged students or adults. Conversely, the results of Study 1 support the idea that the duplicitous tactics of Machiavellians generalize to academic settings.
Nonetheless, psychopathy emerged as the predominant predictor of cheating behaviour, bolstering previous research on the dire nature of psychopathy in nonoffenders (e.g., Nathanson et al., 2006; Paulhus & Williams, 2002; Paulhus et al., in press; Williams & Paulhus, 2004; Williams, McAndrew, Learn, Harms, & Paulhus, 2001). This result supported Hypothesis 1.5. Psychopathy has been linked to a broader tendency to engage in illegal, antisocial, and generally offensive behaviours. This notion of a common factor was raised recently by Blankenship and Whitley (2000) when they found that scholastic cheaters were also likely to engage in a wide variety of antisocial behaviours including drug use and violence.

The Big Five. Correlations between the Big Five and cheating behaviour allow an understanding of academic dishonesty in the context of fundamental personality characteristics. Two of the Big Five traits demonstrated associations with cheating: low Conscientiousness and low Agreeableness. Each of these correlations was predicted in Hypothesis 1.4, and may be readily explained. Facets of low Conscientiousness such as irresponsibility, disorganization, and impulsivity likely contribute to cheating behaviour. Unconscientious individuals are likely to have poor preparation and study skills, which may then lead to cheating behaviour at examinations (Hogan & Hogan, 1989). Similarly, the tendency for confrontation associated with low Agreeableness presents a plausible explanation for its association with cheating. However, neither of these traits remained significant predictors of cheating after controlling for all relevant personality constructs. Given that the Dark Triad constructs consume many of the Big Five traits (Paulhus & Williams, 2002), the degree to which the Big Five represent robust predictors of cheating must be tested in future analyses.
Unsuccessful cheating predictors. Emotional Stability, Extraversion, and Openness were unsuccessful predictors of self-reported cheating. These results are consistent with the skepticism about Extraversion and Emotional Stability (Cizek, 1999; Jackson et al., 2002; Whitley, 1998) as predictors of cheating. The only previous study of Openness to Experience also failed to produce significant results (Nathanson et al., 2006).

Summary. Study 1 demonstrated significant personality contributors of scholastic cheating, despite the pessimistic claims of previous researchers. However, this research must be augmented with a replication using measures of more objective, behavioural indicators of cheating. Furthermore, another important correlate of scholastic cheating – cognitive ability – should be considered alongside personality factors.

STUDY 2: OBJECTIVE MEASUREMENT OF SCHOLASTIC CHEATING

The limitations of Study 1 led to two main improvements in Study 2. The first involved an improvement on self-report measures of scholastic cheating. The second involves the addition of a measure of cognitive ability.

Limitations of self-reports. The validity of self-report measures can be justified and their use in Study 1 was ideal for a large sample survey. However, the drawbacks of this methodology are well-known. For instance, the use of self-report measures for both the predictor (personality) and the outcome (misconduct) obscure our ability to detect valid associations, due to factors such as common method variance (Campbell & Fiske, 1959).
Particularly relevant to the current context, self-report responses may be obscured by differential tendencies to engage in impression management (Paulhus, 1991). This tendency becomes more likely when sensitive information is surveyed (Meston, Heiman, Trapnell, & Paulhus, 1998; Schroder, Carey, & Vanable, 2003). Along with sexual behaviour, scholastic cheating represents a most obvious example of such sensitive information that is vulnerable to underreporting or complete denial among college students.

To provide an objective measure of essay plagiarism, the internet-based computer program Turn-It-In (iParadigms, LLC; 2004) was used in Study 2. As reviewed above, this program compares a submitted paper against the constantly updated entries in its comprehensive database. Items in this database range from previously submitted student papers to academic and professional articles, as well as current and previous internet web pages. By examining strings of consecutive words, each paper receives a percentage score that indicates how much of the paper directly matches sources in the databank.

Previous research has already verified the relationship between personality and multiple-choice answer copying (i.e., S-Check; Nathanson et al., 2006), but personality predictors of behavioural plagiarism have yet to be studied. Although multiple-choice answer copying and plagiarism are forms of scholastic cheating, it is not entirely clear that the personality predictors would be identical. For example, multiple-choice answer copying may be characterized as spontaneous and unplanned, whereas plagiarism may be more deliberate and effortful. This analysis suggests that personality traits such as psychopathy (given its connection to impulsivity) and low Conscientiousness would be
more relevant to answer-copying than plagiarism. Nonetheless, the hypothesis is that psychopathy will again be the predominant predictor of plagiarism.

The role of cognitive ability. The association between (poor) cognitive ability and cheating has been studied extensively. It appears that students with poorer academic skills tend to cheat in order to compensate for their shortcomings. It is worth examining the evidence for this argument, which has recently been summarized by three major reviews.

Whitley and Keith-Spiegel (2002) were pessimistic about any link between cognitive ability and cheating but Cizek (1999) concluded that there is a negative association. The most comprehensive review was recently conducted by Paulhus, Nathanson, and Williams (2005). Only behavioural indicators of cheating were considered but measures of ability included various IQ tests, SAT scores, and other aptitude tests. The results were quite consistent across 13 studies: in every case, cheating rates were higher in students with lower cognitive ability. The mean effect size was -.26.

The possibility that psychopathic individuals have poorer cognitive ability suggests an alternative explanation for their higher cheating rates. Psychopaths may just be compensating for their low ability. However, the literature does not justify this claim. In several studies, self-report psychopathy measures have been found to be uncorrelated with measures of general intelligence and knowledge in students (Nathanson et al., 2006; Paulhus & Williams, 2002), community members (Ishikawa, Raine, Lencz, Bihrlie, & Lacasse, 2001) and patient/offender samples (Crocker, Mueser, Drake, Clark, McHugo, Ackerson, & Alterman, 2005; Raine, O’Brien, Smiley, Scerbo, & Chan, 1990).
However, psychopathy is occasionally found to be negatively correlated with verbal intelligence (Nathanson et al., 2006). Given these complexities in the psychopathy-cognitive ability relationship, it becomes necessary to disentangle their roles with respect to scholastic cheating. The fact that verbal ability is likely particularly relevant to plagiarism further highlights the need to include such a measure in empirical study.

Summary. To summarize, Study 2 will expand upon Study 1 by including a behavioural measure of scholastic cheating – the detection of plagiarism via Turn-It-In. Using the same set of personality predictors as in Study 1, Study 2 examined the unique predictive roles of personality and cognitive ability. I expect the rate of Turn-It-In plagiarism to be much lower than that of self-reported cheating.

Sex differences in behavioural plagiarism have been reported in at least two previous studies. Culwin (2006) found no sex differences, whereas Daly (2007) found higher scores in males. Research involving behavioural cheating more generally tends to find no sex or ethnic differences in these cheating rates (e.g., Nathanson et al., 2006; see review by Whitley, 1998). Therefore, I expect to find no demographic differences in behavioural plagiarism. I predict that psychopathy will again emerge as a strong personality predictor of scholastic cheating. Poor cognitive ability will also be related to plagiarism, but ability and psychopathy will represent independent predictors.

Hypotheses

• Hypothesis 2.1: The rate of Turn-It-In plagiarism will be less than 10%.
Hypothesis 2.2: There will be no sex differences in Turn-It-In plagiarism rates.

Hypothesis 2.3: There will be no ethnic differences in Turn-It-In plagiarism rates.

Hypothesis 2.4: The significant personality predictors of Turn-It-In plagiarism will be narcissism, Machiavellianism, psychopathy, low Agreeableness and low Conscientiousness.

Hypothesis 2.5: Low verbal ability will significantly predict Turn-It-In plagiarism.

Hypothesis 2.6: Psychopathy will predict Turn-It-In plagiarism independent of verbal ability.

Method

Participants. For students to be eligible for the study, they were required to be enrolled in a course that (a) was subsumed under the UBC Department of Psychology Subject Pool, and (b) included at least one essay as part of its grading requirement. Two sections of a first-year introductory psychology class met these two requirements. Of the students enrolled in these sections, one-hundred and seven agreed to participate in the study for course credit. Seventy-two (67.3%) of the students were female, and the majority of students were of either East Asian (43.0%) or European (31.0%) ethnicity.

Measures and procedure. Students enrolled in the study by responding to an advertisement to participate in a personality study listed on the department’s internet-based Research Participation System. Students completed a battery of personality scales
through an internet webpage, which was designed to restrict students from reporting any personally identifying information (e.g., name, student number) at any time. Instead, students created a random 8-digit student ID, which was used to obtain their credit at a predetermined location upon completing the survey.

*Personality and verbal ability scales.* The personality scales included on the webpage were identical to those used in Study 1 – namely, the Self-Report Psychopathy Scale (SRP-III; Paulhus et al., in press), Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979), Mach-IV (Christie & Geis, 1970), and Big Five Inventory (BFI; John & Srivastava, 1999). The verbal ability test was based on the Quick Word Test (QWT; Borgatta & Corsini, 1964), a 100-item power vocabulary test. In the past, the QWT has shown strong convergent validity with other standard intelligence tests such as the Wechsler Adult Intelligence Scales (see Bass, 1974; Glynn, Okun, Muth, & Britton, 1983). Internal consistency estimates on the full test average .91. The QWT items were updated and the revision was called the UBC Word test (Paulhus, 2003). Each item is five letters in length and respondents are asked to select the best synonym from four choices. Administration time was set to a maximum of 8 minutes. To control for variation in the number attempted, scores were calculated as the ratio of correct answers to questions answered.

*Scholastic cheating: Plagiarism via Turn-It-In.* Plagiarism data were based on two essays assigned to the students by their course instructor. The first paper required students to summarize a research project they conducted on social behaviour, whereas the second paper involved a description of a specific personal life experience in a social psychological context. Shortly before the essays were assigned, the students were given
an essay outline (Appendix C) that informed students that their papers would be 
scrutinized by Turn-It-In. The outline also pointed students to various UBC websites 
describing Turn-It-In, proper APA format guidelines, and clarifications of the definition 
of plagiarism. However, students were unaware that their Turn-It-In results would be 
included in our research project. This procedure was critical to the study, and was 
approved by the course instructor as well as the ethical review boards at both the 
departmental and university level (see Appendix D). The instructor was free to use the 
Turn-It-In results to penalize students at her discretion, as mandated by departmental and 
university disciplinary guidelines.

As described earlier, Turn-It-In examines students’ essays for plagiarism by 
comparing each one to a comprehensive database of other written works. This process 
results in each paper receiving a percentage score (referred to as a similarity index) that 
indicates how much of the paper directly matches sources in the databank. An example 
Turn-It-In output is displayed in Appendix E. The output displays the percentage of 
overlapping text, which is then categorized and colour-coded based on the original text 
source. In the Appendix example there are two sources of flagged text, each of which 
originates from an internet website.

Because Turn-It-In also flags legitimate overlapping text such as quotes and 
citations, it was necessary to have a research assistant further scrutinize the results. 
Common oversights such as improper citation or quotation were separated from true 
occurrrences of plagiarism. For instance, any material that was quoted or cited using APA 
format was not considered plagiarism. The example in Appendix E contains legitimately 
cited text as well as uncited text. The latter appears in bold and italicized font, which was
results

Alpha reliability estimates for the personality scales were sound, ranging from .71 (BFI-Openness) to .88 (SRP-III; BFI-Extraversion). Given that the UBC-Word was timed, reliability was calculated with an odd-even estimate (.90). A reliability estimate for the Turn-It-In index was calculated by correlating the scores from the two essays with each other – akin to a test-retest reliability estimate. The value of this estimate was .57.

A total of 16 students (15.0%) plagiarized on at least one of their essays, where plagiarism was defined as any percentage of cheating as detected by Turn-It-In after screening by the research assistant. Nine students (8.4%) plagiarized on only one essay, and seven students (6.6%) plagiarized on both essays (or, on one essay with missing data on the other). The distribution of Turn-It-In scores was extremely positively skewed, given the high percentage of non-plagiarists. Therefore, plagiarism scores were transformed into a dichotomous variable. Students who plagiarized on at least one essay were assigned a score of 1; all others were assigned a zero.

Replicating the results of Study 1, plagiarism rates did not differ according to ethnic background (European vs. East Asian; \( t(72) = -.44, p > .05; d = -.06 \)). Contrary to Study 1 results, there were no sex differences in plagiarism: \( t(105) = -.24, p > .05; d = -.03 \). Again, the correlations among the personality constructs (Table 3) were similar to

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4 Technically, APA style mandates that quotation symbols and page numbers should be used in instances such as these. We judged these instances to be common oversights on the part of the student.
those found in previous studies (e.g., Lee & Ashton, 2005; Paulhus & Williams, 2002; Williams & Paulhus, 2004; Salekin, Trobst, & Krioukova, 2001).

Having established various personality associations in Study 1, one-tailed tests of significance were used for Study 2 analyses. Of particular interest are the correlations between the various personality constructs and scholastic cheating (Table 3). For these correlations, one-tailed tests were used to account for predicted correlations. Psychopathy correlated significantly with plagiarism (.22, $p < .01$), as did low Agreeableness (-.20, $p < .01$). Several other correlates of plagiarism were significant at the $p < .05$ level, such as Machiavellianism (.14), narcissism (.12), and low verbal ability (-.14).

To examine the possibility of low cognitive ability as an alternative explanation for the psychopathy-plagiarism link, partial correlations were conducted. Specifically, the correlation between psychopathy and plagiarism was re-calculated, controlling for cognitive ability. This partial correlation (.21, $p < .01$) was virtually identical to the original correlation (.22, $p < .01$). The lack of a significant change may be traced to the fact that psychopathy and low cognitive ability were almost completely orthogonal ($r = -.04$, $p > .05$). This orthogonality of psychopathy and cognitive ability is a consistent finding in both clinical samples (e.g., Hare, 2003) and non-clinical samples (Paulhus & Williams, 2002).

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5 Results of cheating analyses involving demographic variables and psychopathy were replicated with chi-square tests of independence and Mann-Whitney tests, respectively.

6 Ideally, a logistic regression would have been used for this analysis. However, the distribution of the plagiarism variable violated assumptions of logistic regression, preventing such an analysis (see Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996).
Discussion

*Rates and demographic predictors of objective cheating.* Though not as low as predicted in Hypothesis 2.1, rates of Turn-It-In plagiarism (15%) were much lower than the self-report cheating rates from Study 1. This result is not unexpected, as self-reported cheating covers a much wider scope and time of cheating behaviour. There were no sex or ethnic differences (i.e., East Asian vs. European heritage) in cheating, consistent with Hypotheses 2.2 and 2.3, respectively. Although males were more likely to report cheating in Study 1, this sex difference disappeared when a behavioural indicator of cheating was used in Study 2. This trend echoes that of previous research (e.g., McCabe et al., 2001, Whitley et al., 1999). Apparently, males are simply more likely to report cheating (or females are underreporting), but in reality are no sex differences in cheating.

*Personality correlates of objective cheating.* Personality correlates of behavioural plagiarism were comparable to those of self-reported scholastic cheating, providing partial support for Hypothesis 2.4. For instance, psychopathy was again a strong predictor of plagiarism. However, Agreeableness was the only other significant correlate of plagiarism at p < .01. Also similar to Study 1, narcissism and Machiavellianism demonstrated small effect sizes in correlations with plagiarism. It appears that low Agreeableness and each of the Dark Triad constructs are consistent correlates of scholastic cheating, regardless of the methodology used to assess cheating. Traits that are common to each of these constructs, such as callousness and extreme self-interest, may lie at the heart of these associations. Scholastic cheating represents just one example of the general delinquent tendencies shared by these personality constructs.
The role of cognitive ability. Low verbal ability also demonstrated small effects in predicting behavioural plagiarism, providing partial support for Hypothesis 2.5. This association replicates the sentiment of previous studies (see Paulhus et al., 2005), suggesting that some students feel required to cheat on academic tasks due to poor cognitive ability. The fact that this correlation (along with narcissism and Machiavellianism) was nonsignificant in our study was likely due to the small sample size relative to Study 1. The complex relationship between psychopathy and cognitive ability demanded disentanglement in the context of cheating prediction. Controlling for cognitive ability in the psychopathy-plagiarism correlation did not result in a significant reduction of the effect, supporting Hypothesis 2.6. This result was likely due to the fact that, as demonstrated in most previous research, psychopathy and cognitive ability were virtually uncorrelated.

Behavioural indicators of cheating. One of the major advancements of Study 2 was the implementation of behavioural indicators of cheating. In general, personality correlates of cheating were similar in Studies 1 and 2. This consistency suggests that both methods detect cheating in meaningful ways. Also, psychopathy correlates similarly with concrete indicators of both plagiarism and multiple-choice answer copying (Nathanson et al., 2006), despite the subtle differences in the two forms of cheating. Together, this body of research reinforces the view of psychopathic individuals as versatile offenders (Hare, 2003), as well as the notion of a common factor related to cheating (Blankenship & Whitley, 2000).

Together, Studies 1 and 2 have established a robust personality predictor of scholastic cheating, rebuffing the claims of previous research (e.g., Whitley, 1998).
Specifically, psychopathy represents the strongest and most consistent predictor of scholastic cheating. This result was replicated despite differences in the method of scholastic cheating assessment. An obvious next step is to raise the question of the mechanisms by which the psychopathy-scholastic cheating link operates. In Study 3, the psychological mediators of this link are explored, in an attempt to understand why psychopathic individuals engage in scholastic cheating.

**STUDY 3: PSYCHOLOGICAL MEDIATORS OF SCHOLASTIC CHEATING**

Why do psychopaths cheat? What is the sequence of psychological events that precipitate this antisocial behaviour? Study 3 was designed to investigate possible psychological mediators.

To identify possible mediators, the literature was searched for reasons offered for engaging in or avoiding scholastic cheating. We then developed a questionnaire – the Reasons for Cheating Scale (Paulhus et al., 2004; see Appendix A) – to assess whether one of more of these may represent psychological mediators of psychopathic cheating. Three categories appear repeatedly in the literature (e.g., Belcheir, 2005; Cizek, 1999). One is a reason for cheating, namely, unmitigated achievement: That is, some students strive to attain academic goals via antisocial means. A common reason reported for not cheating is fear of punishment: Most students are concerned with repercussions such as suspension or expulsion from school. Another reason for not cheating may be labelled moral inhibition: That is, students who consider themselves honest and principled are less likely to cheat. The first of these three reasons may be considered an approach or
incentive motivation, whereas the final two are avoidance or deterrent motivations (i.e., avoiding punishment and guilt, respectively).

There is reason to believe that all three of these motivations are linked to psychopathy. Unmitigated achievement maps onto the unmitigated agency quadrant of the interpersonal circumplex (i.e., high dominance and low nurturance), which is empirically related to psychopathy (Salekin et al., 2001; Williams, Paulhus, Walker, & Zumbo, 2005). Psychopaths’ insensitivity to punishment was demonstrated in some of the earliest laboratory research on psychopathy (Hare, 1966). Finally, the lack of moral identity in psychopaths is also evident from the scientific literature (O’Kane, Fawcett, & Blackburn, 1996; Trevethan & Walker, 1989; Williams, Orpen, Hutchinson, Walker, & Zumbo, 2006). In short, their links to both psychopathy and cheating suggest that all three motivations (unmitigated achievement, fear of punishment, moral inhibition) are viable candidates to be mediators of psychopathic cheating. Their role may be evaluated statistically via mediation analysis.

**Overview of mediation analysis.** Mediation analysis provides a statistical framework for identifying the mechanisms that explain various bivariate relationships. First popularized by Baron and Kenny (1986), mediation analysis involves the relationships between the independent variable (X), the dependent variable (Y), and the proposed mediator (M), described within a multiple regression framework (see Figure 1). Before accounting for the effects of M, the total relationship between X and Y is denoted by $c$ (or in multiple regression terms, $b_{YX}$). After accounting for M, the direct relationship between X and Y is denoted by $c’$ (or $b_{YXM}$). The indirect relationship between X and Y through M is the product of the X-M relationship ($a$, or $b_{MX}$) and the
partial relationship between M and Y after controlling for X ($b$, or $b_{YM,X}$). This effect is also typically equivalent to $c – c’$ (or $b_{YX} – b_{YX,M}$).

The requirement for mediation is met if the indirect effect is significantly different from zero. Full mediation is said to occur if the direct effect of X on Y ($c’$) becomes nonsignificant after accounting for the indirect effect. Conversely, partial mediation occurs if the direct effect remains significant. Conceptually, full mediation illustrates that the relationship between X and Y is fully explained by the mediator. In other words, one might conclude that the original X-Y relationship is spurious after accounting for the mediator. On the other hand, partial mediation supports the notion that the mediator only partly explains the X-Y relationship, but not completely.

Recently, Shrout and Bolger (2002) introduced two significant modifications to the Baron and Kenny procedure. The first questioned Baron and Kenny’s initial requirement that the X-Y relationship be significant before mediation may be considered. An underlying X-Y relationship may be overlooked for reasons such as low power or suppression by a third variable (see Paulhus, Robins, Trzesniewski, & Tracy, 2004). Without a mediation analysis, such masked associations cannot be uncovered. Philosophically, this recommendation encourages researchers to trust their conceptual understanding of the relationship among their variables, rather than relying strictly on initial statistical results before completing the mediation analysis.

The second modification suggested by Shrout and Bolger (2002) involves the statistical test of the indirect effect, $ab$. Traditionally, this effect is tested using Sobel’s (1982) method, in which the indirect effect is converted into a z-score and its significance is determined using the normal z distribution. More recently however, researchers have
noted that the sampling distributions of product terms (such as $ab$) are not normally
distributed, especially in small to moderate sample sizes (see Shrout & Bolger, 2002).
Therefore, conclusions regarding the significance of product terms are inaccurate when
based on the z distribution.

Instead, Shrout and Bolger (2002) suggest bootstrapping as a method for
determining the significance of the indirect effect. Bootstrapping is a data-driven method
for estimating the standard error of a statistic, whereby the analysis of interest is repeated
using several random samples (with replacement) drawn from the study sample. The
empirical sampling distribution that results from this process is then used to determine
the standard error of the statistic of interest – in this case, the indirect effect $ab$ (see Efron
& Tibshirani, 1994). Statistical significance is then determined by constructing
confidence intervals around the observed $ab$ value, using the bootstrapped standard errors.
In sum, this process provides more accurate calculation of the standard error of $ab$ than
via the traditional Sobel method, leading to more precise statistical significance decisions.

The present study. The primary goal of Study 3 was to explore three potential
mediators of the psychopathy-cheating link. As a first step, a principal components
analysis of the Reasons for Cheating Scale was conducted to confirm the distinctiveness
of the three most common motivations.

To evaluate them as significant mediators of psychopathic cheating, appropriate
statistical analyses were conducted following recommendations suggested by Shrout and
Bolger (2002). I hypothesize that each of these motivations will at least partially
mediate the relationship between psychopathy and scholastic cheating.
Hypotheses

- Hypothesis 3.1: Psychopathy will correlate significantly with each of the motivations for cheating.

- Hypothesis 3.2: Each of the motivations for cheating will correlate significantly with self-reported cheating.

- Hypothesis 3.3: Each of the motivations for cheating will represent partial mediators of the link between self-reported cheating and psychopathy.

Method

Participants. Two-hundred and twenty-three students enrolled in undergraduate psychology classes participated for course credit. One-hundred and forty-one (63.2%) were female, and the majority were of either East Asian (44.4%) or European (28.3%) ethnicity. Similar to Study 1, males again reported more cheating – $t(221) = 2.30, p < .05, d = .31$ – but there were again no ethnic differences – $t(160) = -1.26, p > .05, d = -.20$. Results were otherwise similar within gender and ethnicity, therefore the analyses were based on the pooled sample.

Measures and procedure. The data collection procedure was similar to Study 2. Students enrolled in the study by responding to an advertisement to participate in a personality study listed on the department’s internet-based Research Participation System. They completed a battery of personality scales on a lab webpage. The procedures were designed to maximize anonymity by preventing participants from reporting any personally identifying information (e.g., name, student number). Instead, they selected a random 8-digit student ID, which was later used to obtain a course credit of one percent.
Personality and cheating questionnaires. Unless otherwise specified, all items are scored with a five-point Likert scale (1 = ‘Strongly disagree’ to 5 = ‘Strongly agree’). The Self-Report Psychopathy Scale (SRP-III; Paulhus et al., in press) was again used to assess psychopathy (alpha reliability = .89).

Cheating behaviour was measured with the Self-Report Cheating Scale (Paulhus, Williams, & Nathanson, 2004). Twenty-six items assess misconduct behaviours such as “Brought hidden notes to a school test” and “Copied someone else’s answers on a school test without them knowing”. Eighteen of the items specifically assess cheating behaviours, whereas the remaining eight were fillers measuring general misconduct. When combined to generate an overall self-report cheating score, the alpha reliability of these eighteen items was .85.

Potential mediators of cheating were measured using the Reasons for Cheating Scale (Paulhus et al., 2004). Based on results from previous studies and reviews (e.g., Belcheir, 2005; Cizek, 1999), twenty items were generated. Respondents were asked to rate various factors that have influenced their decision to cheat (or refuse to cheat) on previous academic tasks, or might influence their decision to cheat (or refuse to cheat) in the future. Example items include “I needed to do it to get (or keep) a scholarship”, “I’m not concerned about the punishments involved if I am caught” and “I pride myself in being a good and trustworthy person” (reverse-scored).

Results

Principal components analysis of motivations for cheating. To isolate a manageable number of distinct motivations for cheating, a principal components analysis
was conducted on the twenty items of the Reasons for Cheating Scale. Maximum Likelihood extraction generated similar results, but Principal Axis Factoring results were not as clear. Principal components analysis was chosen over other extraction methods in order to summarize the data. Given the exploratory nature of this analysis, an oblique rotation (direct oblimin) was used. The pattern of eigenvalues suggested that between one and five factors would be appropriate. After comparing these five possible solutions for interpretability, a three-factor solution was deemed most suitable. These three factors corresponded with the three main motivations for cheating described earlier. Following the suggestions of common PCA practice, pattern matrix coefficients above .30 were considered significant (e.g., Tabachnick & Fiddell, 2007), though several loadings were above .50. The pattern matrix is displayed in Table 4.

The first factor was named *Unmitigated Achievement*, and accounted for 28.5% of the variance in Reasons for Cheating scores. The items loading on this factor concern the acceptability of cheating to gain some academic goal, for example, high grades, winning a scholarship, or receiving praise. Although most students seek these goals, only a certain subset feel that cheating is an appropriate strategy for obtaining these and other goals. It is this subset of individuals who are of particular relevance in this context. Seven items loaded above .30 on this factor: They were combined to form a composite score with an alpha reliability of .71.

The second factor, labelled *Fear of Punishment*, accounted for 7.9% of the total variance in Reasons for Cheating scores. High loading items dealt with concerns about detection by professors and teaching assistants, and punishment such as suspension or
expulsion from the academic institute. Four items loaded at least .30 on this factor, which were combined to form a composite score. The reliability of this score was .51.

The third factor was named *Moral Inhibition*, and accounted for 7.0% of the variance in total Reasons for Cheating scores. This factor involves personal beliefs about one’s own character and morals. Some students view themselves as honest individuals who stick to their principles. Presumably, such individuals would be less likely to engage in scholastic cheating. Conversely, individuals who neither value these attributes nor feel they possess them would be more likely to cheat. Furthermore, students with high scores on this factor were less likely to make excuses about their cheating behaviour (e.g., test taking surroundings make it too easy to cheat). Example items include “I pride myself in being a good and trustworthy person” and “Being honest and moral is not a high priority for me” (reverse-scored). Nine items loaded at least .30 on this factor, which were combined to form a composite score. The reliability of this score was .62. The three motivations were largely orthogonal to each other. The exception was a moderate negative correlation between Unmitigated Achievement and Moral Inhibition ($r = -.40, p < .01$).

*Intercorrelations.* Correlations among psychopathy, self-reported cheating and the motivations for cheating are displayed in Table 5. Psychopathy correlated significantly with cheating ($r = .55; p < .01$), after removing overlapping items. Psychopathy also correlated significantly with each of the three motivations: Positively with Unmitigated Achievement ($r = .23, p < .01$), and negatively with Fear of Punishment ($r = -.20, p < .01$), and Moral Inhibition ($r = -.49, p < .01$). Only Moral
Inhibition ($r = -.61, p < .01$) and Unmitigated Achievement ($r = .39, p < .01$) showed significant associations with cheating behaviour.

Mediation analyses. Three mediation analyses were conducted in which each of the cheating motivations was tested as a potential mediator of the psychopathy-cheating link. Using SPSS syntax developed by Preacher and Hayes (2004), which follows the recommendations of Shrout and Bolger (2002), the indirect effect for each of these three models was tested for statistical significance. In each analysis, 5,000 bootstrap samples were drawn. Results of these analyses are displayed in Figures 2 through 4, and in Table 6.

Figure 2 displays the results of the mediation analysis involving Moral Inhibition. All of the values listed in this section are standardized partial regression coefficients, using the notation from Figure 1 for conceptual clarity. The indirect effect in this model was significant: $ab = .22, p < .01$, illustrating that Moral Inhibition is a significant mediator of the psychopathy-scholastic cheating link. The psychopathy-scholastic cheating link was reduced from a total effect of $c = .55 (p < .01)$ to a direct effect of $c' = .33 (p < .01)$. Therefore, given that the direct effect remained significant after accounting for the mediator, Moral Inhibition represents only a partial mediator of the psychopathy-scholastic cheating link.

Figure 3 illustrates the results of the Unmitigated Achievement mediation analysis. The indirect effect in this model was significant: $ab = .06, p < .01$, illustrating that Unmitigated Achievement is a significant mediator of the psychopathy-scholastic cheating link. The psychopathy-scholastic cheating link was reduced from a total effect of $c = .55 (p < .01)$ to a direct effect of $c' = .49 (p < .01)$. Therefore, given that the direct
effect remained significant, Unmitigated Achievement also represents only a partial mediator of the psychopathy-scholastic cheating link. Finally, as displayed in Figure 4, the indirect effect in the Fear of Punishment model was not significant: $ab = .00, p > .05$, suggesting that Fear of Punishment is not a significant mediator of the psychopathy-scholastic cheating link.\(^7\)

**Discussion**

*Identifying motivations for cheating.* After establishing the connection between psychopathy and scholastic cheating in Studies 1 and 2, the main purpose of Study 3 was to examine potential mediators for this association. Principal components analysis revealed three fundamental motivations for cheating: Unmitigated Achievement, Fear of Punishment, and Moral Inhibition. Psychopathy correlated significantly with each of these motivations, corroborating Hypothesis 3.1. These associations are readily understandable. For example, the correlation between psychopathy and fear of punishment is consistent with the notion that psychopathic individuals are generally not responsive to punishment (see Hare, 2003). There is also precedence for empirical associations between psychopathy and low morality (Williams et al., 2006) and unmitigated achievement (Salekin et al., 2001). Partial support for Hypothesis 3.2 was illustrated in correlations between each of the mediators and cheating. Although Unmitigated Achievement and Moral Inhibition each demonstrated expected associations with cheating, Fear of Punishment did not.

\(^7\) Disattenuating the Reasons for Cheating scales for unreliability did not alter the pattern of mediation results.
Successful mediators. Mediation analyses provided a means for quantifying the explanatory power of these three motivations for cheating. In other words, it is possible to determine not only if these factors provide any explanatory power, but also whether they reduce the original psychopathy-misconduct link to null levels. The latter result could be viewed as evidence that the role of psychopathy in predicting scholastic cheating is in fact spurious.

Partial support for Hypothesis 3.3 was demonstrated in that two of the three motivations for cheating represented partial mediators of the psychopathy-scholastic cheating link. Of these two, moral inhibition proved to be the strongest mediator. When vocalizing their motivations for cheating, psychopathic individuals are much less likely to profess their self-identity as honest and moral. Not only do such individuals readily admit that they do not possess these characteristics, they are likely proud of this fact and devalue these qualities in general. This self-image represents a partial explanation of the motivations for the cheating of psychopathic individuals. The moral inhibitions that are triggered in the nonpsychopathic mind whenever cheating opportunities arise are nonexistent in psychopathic individuals.

Unmitigated Achievement represents a second partial mediator of the psychopathy-scholastic cheating link. It is important to reiterate that goals such as high grades, scholarships, and general academic success do not differentiate psychopathic individuals from nonpsychopaths. Psychopathic and non-psychopathic individuals are equally ambitious, believe in their ability to succeed at scholastic tasks and are internally motivated (Williams et al., 2005). Instead, psychopathic individuals achievement striving is so extreme and obsessive that anti-cheating inhibitions are overridden or ignored.
Therefore, cheating is seen as an appropriate strategy for achieving success. Indeed, such mechanisms are activated by psychopathic individuals as methods for achieving all of their life goals – academic or otherwise (Hare, 2003). For instance, it is likely that cheating cognitions are automatically activated for psychopathic individuals once opportunities for instrumental gains are presented. Conversely, nonpsychopathic individuals likely believe that their goals are best achieved through honest effort and perseverance.

_Unsuccessful mediator._ Evaluation of the third type of motivation – fear of punishment – did not provide any explanatory power for the association between psychopathy and scholastic cheating. The respective strengths of the various bivariate connections among the variables in this study may provide some insight into why this mediation analysis failed. Recall that the indirect relationship in mediation is the product of the associations between (a) the independent variable and the mediator, and (b) the mediator and the dependent variable. Although psychopathy correlated significantly (negatively) with fear of punishment, there was no relationship between fear of punishment and cheating. This pattern resulted in a negligible indirect relationship between psychopathy and cheating via fear of punishment.

However, fear of punishment was not correlated with scholastic cheating suggests that the threat of punishment does not play a role in students’ decisions regarding cheating. This finding should not be taken to suggest that fear of punishment does not motivate students to avoid cheating. Instead, there is a wealth of evidence to suggest that punishment does in fact deter students from cheating (Cizek, 1999).
This null correlation reflects that all four combinations of high/low fear of punishment scores and high/low cheating scores were found in these data. Two of these combinations – high fear/low cheating and low fear/high cheating – are obvious to explain. The other two combinations require some discussion. The low fear/low cheating associations suggest there are some students who are not afraid of punishment but have other reasons to refrain from cheating (e.g., morality, etc.). The high fear/high cheating pairings indicate that students who fear punishment are cheating regardless. For these students, it may be that the perceived consequences of not cheating/failure are too great to deter cheating. Future research may shed light on these associations, possibly by identifying moderator variables.

**Conclusion**

By evaluating possible psychological mediators of cheating, Study 3 provided several insights into the dynamics of psychopathic individuals. Incentives such as high grades and scholarships seem to activate dishonest courses of action in these individuals. It is intriguing that the achievement goals common to most university students only trigger cheating in psychopaths.

Also confirmed was a second contributor to psychopathic cheating – the lack of moral inhibitions. Even if temptations to cheat are activated, most students avoid acting on them because it compromises their self-image. The mechanisms by which moral self-images are internalized (or not) are beyond the scope of this paper. As the final roadblock to cheating, this identity may be seen as the ultimate deterrent.
In sum, there appear to be both internal (self-image) and incentive (goals) factors behind psychopathic individuals’ scholastic cheating. Put another way, achievement situations appear to activate unsavoury psychopathic strategies and fail to activate the inhibitory mechanisms typical in non-psychopaths.

**GENERAL DISCUSSION**

The impetus for the three studies reported here was the skepticism in two major reviews about the value of personality in predicting scholastic cheating (Cizek, 1999; Whitley & Keith-Spiegel, 2002). Those two reviews showed minimal effects for important traits such as achievement motivation, alienation, industriousness, test anxiety, need for approval, religiosity, and self-esteem. However, a number of recently developed, but highly relevant, measures have been overlooked.

Study 1 addressed this limitation by measuring the Big Five and Dark Triad traits in a large-scale study of self-reported scholastic cheating. Study 2 followed up with a behavioural measure of plagiarism, and a control for intellectual ability. Although traits such as Machiavellianism, narcissism, low Agreeableness and low Conscientiousness each showed some degree of association, psychopathy was the strongest and most consistent predictor. Indeed, psychopathy stood out as a significant predictor in all three studies reported here\(^8\). Controlling for verbal ability did not alter this association.

This robust link between psychopathy and scholastic cheating is consistent with a large body of research linking psychopathy to a broad range of misconduct in both offenders and non-offenders. In offender samples, psychopathy is a notoriously strong

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\(^8\) Again, although the terms “psychopath” or “psychopathic” have been used here to facilitate communication, the variable has been conceptualized and scored as a continuum.
correlate of criminal behaviour and recidivism (see Hare, 2003). Non-offender samples (e.g., students) exhibit a similar pattern of results. For example, Williams, Paulhus, and colleagues (Nathanson et al., 2006; Williams & Paulhus, 2004; Williams et al., 2001; 2007) have repeatedly demonstrated associations between psychopathy and a wide range of misconduct indicators, including concrete behaviours.

The fact that psychopathy surpassed other personality predictors such as narcissism, Machiavellianism, the Big Five, and Antisocial Personality Disorder (e.g., Hare, 2003) is also consistent with previous research. Compared to these other constructs, psychopathy contains an especially volatile combination of manipulativeness, callous affect, erratic impulsiveness, and antisocial tendencies. Only subsets of this combination are found in any of the other constructs.

These broader implications of the psychopathy-cheating link parallel Blankenship and Whitley’s (2000) supposition about an underlying cheating personality: This notion arose from their demonstration that scholastic cheaters were also likely to engage in a wide variety of antisocial behaviour including drug use and violence. The present findings complement that research and further promote the view of psychopathy as perhaps the single most destructive personality syndrome. Furthermore, these results provide further evidence for the viability of psychopathy as a conceptually similar construct in both offender and nonoffender settings.

**Other individual difference predictors of cheating**

Whereas psychopathy demonstrated strong and replicable associations with cheating, other personality predictors were less successful. The identification of weak or
null predictors also contributes to our understanding of cheating behaviour. Weak or moderated predictors require more detailed study, whereas consistently null predictors can safely be excluded from further research.

*Narcissism and Machiavellianism.* Of the remaining Dark Triad constructs, Machiavellianism did show some associations with cheating, albeit not as strongly as psychopathy. Although often predicted, the empirical association of Machiavellianism with actual cheating behaviour has proved to be surprisingly weak (Christie & Geis, 1970; Cizek, 1999; Flynn et al., 1987). Interestingly, this association remained even after controlling for the remaining Dark Triad constructs, Conscientiousness, and Agreeableness. Lacking the impulsive tendency of psychopaths, Machiavellians may be more deliberate in their mischief and more attentive to possible negative consequences.

Finally, narcissism was the least successful predictor of cheating among the Triad constructs. Regression analyses demonstrated that any cheating behaviour initially attributed to narcissism could be explained by its overlap with psychopathy and Machiavellianism. These results harmonize with previous research in showing that narcissists are not especially prone to antisocial behaviour unless they are provoked (e.g., Baumeister, Bushman, & Campbell, 2000). Apparently, narcissists’ sense of entitlement and need for recognition are not sufficient to elicit cheating.

*The Big Five.* Hypotheses were offered regarding two of the Big Five factors. One was that Conscientious students should cheat less. Although this hypothesis was in fact confirmed in Study 1, the association disappeared when other predictors were included in the regression equation. Moreover, Conscientiousness failed to work in Study 2. This results is somewhat expected, given that low Conscientiousness – and more
specifically, the facet of impulsivity – is likely more relevant to spontaneous forms of cheating (e.g., multiple-choice answer-copying; Study 1) than deliberate forms (e.g., plagiarism; Study 2).

The rationale for the original hypothesis was that conscientious students tend to be better prepared academically and, therefore, have less need to cheat (Hogan & Hogan, 1989). Note however, that conscientiousness also has a strong ambition component (Costa & McCrae, 1998). This desire to excel may motivate some conscientious individuals to cut corners, no matter how well-prepared they are. In short, conscientiousness combines two components that work in opposite directions: The net result may have been minimal because of this cancelling effect. Future research should take advantage of measures that disentangle these two components (e.g., Jackson et al., 1996). Measures that capture Conscientiousness at the more detailed facet level would be ideal (see Costa & McCrae, 1998).

Similarly, initial associations between low Agreeableness and cheating were eliminated after accounting for overlap with the Triad constructs and Conscientiousness. These results are most likely attributable to the sizable overlap between Agreeableness and the Triad constructs. Of the Big Five traits, only Agreeableness is found to overlap with each of the Triad, and typically to a substantial degree (Paulhus & Williams, 2002). It appears that low Agreeableness alone is not a sufficient requirement for cheating behaviour; only when it exists in combination with other unsavoury attributes (as in psychopathy) does cheating occur. Finally, Openness, Stability, and Extraversion were consistently unrelated to cheating behaviour. There was insufficient previous research and no compelling theoretical reason to expect any of these factors to predict cheating.
However, future research that examines these constructs at the facet level may be enlightening.

*Low verbal ability.* Another hypothesis involved the role of low verbal ability as a predictor of cheating. Several reviews (Cizek, 1999; Paulhus et al., 2005) have noted sizable associations between poor cognitive ability and cheating. The underlying principle is that students with poor cognitive ability are less well prepared for tests and essays and therefore choose to compensate by cheating. This disadvantage is even clearer when verbal ability is isolated. After all, the majority of academic examination formats (primarily, multiple-choice exams and essays) primarily gauge verbal ability as opposed to other realms of intelligence, such as mathematical or spatial ability. The hypothesis was tested and confirmed in Study 2 with small but significant effect of verbal ability on plagiarism. Ironically, plagiarism itself may require as much verbal ability as the essays assigned in the course. That is, some degree of verbal ability is required in evaluating which external sources of information contain subject matter relevant to the assigned essay. Replication of this study will be required before the role of verbal ability in behavioural plagiarism is fully understood.

*Sex differences.* The pattern of sex differences in cheating found in Studies 1 and 3 mimicked those of previous research (McCabe et al., 2001, Whitley et al., 1999): That is, self-reported rates of cheating were higher in males than in females. However, this sex difference disappeared in Study 2 when a behavioural indicator of cheating was introduced. To date, explanations for the sex difference in self-reported cheating styles have been elusive and largely speculative (Cizek, 1999). Results involving objective cheating rates further support the notion that there is no real sex difference in cheating. It
is possible that the self-report difference may result from sex differences in self-presentational strategies (Paulhus, 1991).

*Ethnic differences.* Finally, a lack of ethnic differences was found consistently throughout the series of studies. Specifically, there were no differences in cheating rates between students of East Asian and European heritage, the two largest ethnic groups in these samples. Though there are no compelling reasons to expect any such differences, future studies may examine other ethnic groups that were not represented in abundance in these three studies.

**Explaining the psychopathy-cheating link**

Once the relationship between psychopathy and scholastic cheating had been confirmed, a logical follow-up was to explore the psychological mechanisms explaining this link. Study 3 demonstrated that unmitigated achievement and (a lack of) moral inhibition each partially explained this relationship. Apparently, there are both internal and external factors involved in the thought process underlying psychopathic cheating.

It would be valuable to expand the present research to include other nonoffender samples. In the business world, for example, it may be that psychopaths commit other acts of misconduct – such as fraud or assault – in order to achieve goals such as promotions, wealth, or power. Although many strive to attain these goals, it is likely that only psychopathic individuals would believe that such devious and aggressive tactics are acceptable as means to ambitious ends. Offender studies have demonstrated that psychopathic homicides tend to be driven by instrumental factors rather than reactive or emotional ones (Woodworth & Porter, 2000). It is also possible that psychopathic
individuals’ self-image as tough, deceitful and callous explains their general tendencies towards misconduct. Indeed the dynamics uncovered here may apply to all psychopathic misconduct. A clearer understanding may eventuate in successful strategies for predicting, preventing, or reducing such behaviour.

It is important to note that each of the mediating factors found in Study 3 represented only partial explanations of the psychopathy-misconduct link. This pattern suggests that other mediators are operating.

One possibility is biased perceptions among psychopaths. Individuals’ perceptions of cheating rates are not unrelated to their own cheating behaviour: Cheaters typically overestimate the frequency of cheating committed by their classmates (Cizek, 1999). However, it is improbable that this bias would explain psychopathic cheating, given that the generalization of this bias to other forms of misconduct seems unlikely. For example, the notion that such typical psychopathic misconduct as sexual assault is explained by their overestimation of similar behaviour by others seems implausible.

On the other hand, successful mediators have been isolated in previous studies involving psychopathy and other types of misconduct in students (e.g., Nathanson, Paulhus, & Williams, 2004; Williams & Paulhus, 2006). Generally, these factors involve social cognition or interpersonal perception. For example, several types of psychopaths’ misconduct are mediated by hostile cognitive biases (i.e., the tendency to infer hostility in ambiguous situations and interactions; Nathanson et al., 2004). As in Study 3, however, these factors represented only partial mediators. Studying the degree to which similar mechanisms underlie the psychopathy-scholastic cheating link is an important avenue for
future research. Society would benefit from more complete explanations of the various forms of misconduct behaviours perpetrated by psychopathic individuals.

**Limitations**

Introducing a behavioural indicator in Study 2 addressed the criticisms of self-report methods, but may have also introduced other limitations. Specifically, the eligibility requirements necessary for students in Study 2 led to a relatively small sample size, which hindered the ability to detect significant associations. However, a simple focus on effect sizes rather than significance levels helps address this potential problem. For the most part, the effect sizes were similar across the self-report and behavioural measures.

Aside from the relatively small sample size, another methodological handicap in Study 2 likely hampered the ability to find significant correlates. Specifically, the low frequency of plagiarists identified in this dataset (i.e., roughly 6.5% – 15%) restricted the range in the dependent variable and produced a highly skewed measure of cheating (see Cohen, Cohen, West, & Aiken, 2002). These rates may seem low compared to previous estimates based on self-report (Newstead et al., 1996), which are upwards of two-thirds of students (Robinson et al., 2004; Stern & Havlicek, 1986). Indeed, our own self-report estimate in Study 1 was quite high: 73.1%.

Those self-report measures, however, cover a wider scope and time: Typically, they ask whether a student has cheated at any time during his/her schooling. They also include all varieties of cheating (e.g., answer copying, plagiarism, using hidden notes, etc.). In contrast, our Turn-It-In coverage was restricted to two discrete opportunities to
plagiarize essays in one university course: Hence our rates – about 7 percent – represent typical rates of cheating per opportunity (Lavin, 1965). This fact highlights part of the trade-offs involved in using Turn-It-In and similar programs. These programs capture naturalistic cheating behaviour, as opposed to other behavioural methodologies which, though typically capturing higher frequencies of cheating, may be contrived, involve entrapment scenarios, or are otherwise unrealistic (e.g., Hoff, 1940; Leveque & Walker, 1970). Furthermore, the essays used in the Study 2 course were designed to minimally susceptible to cheating: Students were instructed to write about personal experiences rather than a traditional literature review or other essay style that could be plagiarised much more readily. These instructions undoubtedly reduced rates of plagiarism even further. Therefore, the correlations found in this study were handicapped, which suggests that they are conservative estimates. The ability to detect significant associations despite these obstacles is noteworthy.

Causal inferences. In general, one may be more confident in inferring causality if (a) the measurement of independent variables temporally precedes that of dependent variables, (b) it is empirically demonstrated that changes in the independent variable lead to changes in the dependent variable, on average, (c) changes in the dependent variable do not lead to changes in the independent variable, or (d) other potential causal variables are ruled out (Cohen et al., 2002).

As with all correlational studies, causal inferences in the present studies must be qualified. One can safely assume that personality constructs precede other variables, given the strong genetic component of personality (see review by Bouchard & Loehlin,
Moreover, the plagiarism measure was collected after the personality measures were collected.

However, caution is advised in conclusions about the mediation analyses conducted in Study 3. The variables were not collected in any distinct temporal order. Those mediators – interpreted as motivations – could be construed as either justifications (which occurred after the cheating behaviour) instead of motivations (which occur before the cheating behaviour).

However, justifications tend to reduce feelings of guilt. Therefore, in the psychopathy-cheating context, it is unlikely that these mediators are justifications because psychopathic individuals do not experience guilt (Hare, 2003). Future studies that include more precise temporal measurement of these mediators may allow the dynamics of this process to be explicated.

**Future Directions and Recommendations**

*Behavioural indicators.* Our findings suggest recommendations for researchers of cheating behaviour and educators in general. Both groups can benefit from the use of concrete, objective criteria such as the Turn-It-In program used here. Researchers are justifiably concerned about the biases inherent in self-report measures – especially those that assess socially undesirable behaviours such as cheating (Paulhus, 1991). Individuals who admit to cheating may also admit to undesirable personalities: Spurious correlations are the result. Software indices are more objective, unobtrusive, and can be used to capture cheating at naturalistic rates in naturalistic settings.
The similarity of the results obtained from self-report (Studies 1 and 3) and computer-based criteria (Study 2) suggests that both methods are valid as cheating indicators. Their convergence eliminates any doubt about the personality correlates of self-reported cheating.

On the other hand, there may be a self-presentational issue regarding sex differences in cheating. Recall that there was a sex difference in self-reports despite its absence on the behavioural index. This suggests that one sex or the other was engaging in self-presentation – either impression management or self-deception – on the self-report measure. The latter is more likely given the anonymity of the data collection method.

This would hardly be the first time in social science that different methods yielded different results. Undoubtedly, the choice of cheating measurement introduces various pragmatic and statistical trade-offs. The ideal approach involves the use of self-report and behavioural methods in tandem, whenever possible.

Given the choice, behavioural results are always more convincing to behavioural scientists. The success of research involving Turn-It-In and S-Check suggests that behavioural indicators of other forms of misconduct would be ideal in future studies. However, the logistics of using such measures may prove difficult, if not impossible, among nonoffender samples. Among the most legitimate measures are criminal records, though most students and community members are unlikely to have anything other than a blank criminal record. Obtaining ethical approval and student consent for the use of such measures would also be complicated. Nonetheless, researchers have been creative in their efforts to obtain behavioural indicators of misconduct, including the collection of official university records and workplace reports (e.g., Gustafson & Ritzer, 1995).
Again, use of these measures entails several trade-offs compared to self-report measures (e.g., sample size, time considerations).

*The copier-source dynamic.* Wide open for future research is the interpersonal process that leads one student to copy or plagiarize from another student or conversely, the process that results in one student permitting another student to plagiarize from them. In our previous multiple-choice answer copying studies, our method could not distinguish between the copier and the source, as with most methods of cheating identification. However, Turn-It-In provides some relief for this problem, given that the submitted papers are compared to previous works. Thus, it is assumed – if not understood – that the submitted paper represents the work of the copier, and the existing database to which it is being compared represents the source. Therefore, the Turn-It-In results may represent a cleaner picture of the cheaters’ personality profile than could be obtained via multiple-choice answer copying programs. In clarifying this interpersonal dynamic, other possibilities for future research include follow-up surveys or direct interviews of cheaters (both the copier and the source), or sophisticated statistical procedures that have recently been proposed (van der Linden & Sotaridona, 2006).

*Implications for educators – contending with cheaters.* Educators are more directly concerned about minimizing cheating and, when it occurs, about identifying the perpetrators (Whitley & Keith-Spiegel, 2002). The increased accessibility of programs such as Turn-It-In will help overcome some of the problems with traditional techniques. When suspicious behaviour has been noted during a course, for example, confirmation of excessive similarity with computer software is an invaluable tool. In fact, simply publicizing the fact that such techniques are in use should reduce the prevalence of
cheating on any given exam.

Effecting improvements in students’ cognitive ability and character is a more challenging goal: To the extent such changes are even possible, they seem beyond the mandate of the typical educator. Psychopathic individuals are notoriously unresponsive to treatment interventions applied by highly trained clinicians, and sometimes become even more dangerous following treatment (Hare, 2003). Instead, a preventative approach to cheating is more likely to be fruitful. There is no shortage of useful techniques for preventing cheating, such as alternate exam forms, clear warnings about the use of cheating detection programs, banning cell-phones and other electronic devices, random or assigned seating arrangements, and assigning essays that involve writing about personal experiences that could not be easily plagiarized from external sources (Cizek, 1999; Gulli et al., 2007; Whitley & Keith-Spiegel, 2002).

More generally, educators should benefit from awareness that the most probable cheaters are those low in scholastic preparedness and high in psychopathy. Awareness of the first group suggests redoubling efforts to prevent students from falling behind. Another approach may be to reduce the degree of competitiveness among the students. That is, by creating an environment where relative achievement is de-emphasized, the disadvantaged students would feel less threatened and may not resort to cheating.

Dealing with those high in psychopathy, on the other hand, is more of a challenge. The emergence of psychopathy as the primary predictor of cheating is intriguing but somewhat disturbing. The fact that cheating is just one in their history of antisocial behaviours suggests that psychopaths top the ‘most likely to be expelled’ list. Yet early diagnosis and surveillance of such individuals raises a host of practical and ethical
controversies. For example, it seems unlikely that school boards and university senates would approve of mass pre-screening of students for psychopathy. Any attempt to determine probability-of-expulsion in advance suggests an unsavoury “guilty until proven innocent” approach toward the students.

Even if pre-screening were to be approved, there is no established cutoff score for psychopathy in nonoffender populations. Although some researchers have argued that psychopaths form a distinct group in student samples (Book & Quinsey, 2004), recent evidence has supported a normal distribution of psychopathy scores (Edens, Marcus, Lilienfeld, & Poythress, 2006; Lilienfeld & Andrews, 1996; Marcus, John, & Edens, 2004; Nathanson & Paulhus, 2006). Either way, the diagnosis of psychopathy in a nonoffender population is a comparatively more subjective endeavour than that in a clinical or forensic context. Even if scores were kept confidential, labelling could be extremely harmful to the student. The surveillance of high scoring individuals would be highly problematic ethically and practically. Indeed, it is possible that such labels might translate into self-fulfilling prophecies. Furthermore, our examination of potential mediators, combined with the results of several forensic studies (see Hare, 2003), suggests that threats of punishment are likely to go unheeded by psychopathic individuals. On the whole, our character analysis suggests that the only way to eliminate cheating among psychopaths is to make cheating an impossibility.

Overall, these cheating reduction strategies may be grouped into two main categories: Altering teaching philosophy and modifying test administration techniques. The former, which includes reducing the competitive nature of the classroom environment, may be most effective for reducing cheating stemming from cognitive
ability deficits. The latter, which includes the use of alternate test forms, should be most beneficial in eliminating cheating by psychopathic individuals. Ideally, a combination of philosophical and methodological approaches may be most effective in abolishing cheating.

**FINAL CONCLUSIONS**

Three studies established psychopathy as the most consistent personality predictor of scholastic cheating. This association held up whether self-report or computer-based indices of cheating were used. Such results further implicate psychopathy as the most malevolent personality variable, even in non-offender samples. Machiavellianism, narcissism, low Agreeableness, low Conscientiousness and poor verbal ability were all weaker predictors of cheating, but none of their contributions were independent of psychopathy. Mediation analyses suggested that a belief in antisocial achievement methods and a lack of a moral inhibition facilitated psychopathic cheating. Implications for educators were discussed, and several avenues for future research remain open.
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cheating scandal. *Maclean’s,* 120, 32-36.


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Table 1. Study 1 – Intercorrelations and descriptive statistics for personality measures and self-reported cheating.

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<td><strong>Dark Triad</strong></td>
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</tr>
<tr>
<td>1. Psychopathy</td>
<td>(.89)</td>
<td>.53</td>
<td>.44</td>
<td>.18</td>
<td>-.48</td>
<td>-.33</td>
<td>.19</td>
<td>.08</td>
<td>.55</td>
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<tr>
<td>2. Machiavellianism</td>
<td>(.78)</td>
<td>.26</td>
<td>-.09</td>
<td>-.50</td>
<td>-.36</td>
<td>-.09</td>
<td>-.01</td>
<td>.39</td>
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<td>3. Narcissism</td>
<td>(.87)</td>
<td>.48</td>
<td>-.29</td>
<td>.12</td>
<td>.24</td>
<td>.23</td>
<td>.20</td>
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<td><strong>Big Five</strong></td>
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<td>4. Extraversion</td>
<td></td>
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<td></td>
<td>(.86)</td>
<td>.05</td>
<td>.21</td>
<td>.35</td>
<td>.24</td>
<td>.09</td>
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<tr>
<td>5. Agreeableness</td>
<td></td>
<td></td>
<td></td>
<td>(.81)</td>
<td>.31</td>
<td>.16</td>
<td>.02</td>
<td>-.23</td>
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<tr>
<td>6. Conscientiousness</td>
<td></td>
<td></td>
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<td>(.82)</td>
<td>.25</td>
<td>.12</td>
<td>-.28</td>
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<td>7. Stability</td>
<td></td>
<td></td>
<td></td>
<td>(.83)</td>
<td>-.02</td>
<td>.10</td>
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<td>8. Openness</td>
<td></td>
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<td></td>
<td>(.78)</td>
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<td><strong>Cheating criterion</strong></td>
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<td>9. Self-reported cheating</td>
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<td>(.57)</td>
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Mean          2.28  -.40  1.40  3.30  3.72  3.33  2.90  3.56  2.12
Standard deviation  .46  .73  .19  .79  .67  .78  .78  .60  .99

Note: N = 228. Correlations greater than .17 (bold) significant at p < .01, two-tailed. Values along the main diagonal represent alpha reliability estimates.
Table 2. Study 1 – Regression results for personality predictors of self-reported cheating.

<table>
<thead>
<tr>
<th>Personality predictor</th>
<th>Regression coefficient</th>
<th>Standard error</th>
<th>t</th>
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<tbody>
<tr>
<td></td>
<td>Unstandardized</td>
<td>Standardized</td>
<td></td>
</tr>
<tr>
<td>Psychopathy</td>
<td>1.10</td>
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<td>.16</td>
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<tr>
<td>Machiavellianism</td>
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<td>.15</td>
<td>.09</td>
</tr>
<tr>
<td>Narcissism</td>
<td>-.06</td>
<td>-.01</td>
<td>.33</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.17</td>
<td>.12</td>
<td>.10</td>
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<tr>
<td>Conscientiousness</td>
<td>-.14</td>
<td>-.10</td>
<td>.09</td>
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Note: N = 228. t-values greater than 2.61 are significant at p < .01, two-tailed.
Table 3. Study 2 – Intercorrelations and descriptive statistics for personality measures and plagiarism.

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<tr>
<td>1. Psychopathy</td>
<td>.88</td>
<td>.49</td>
<td>.33</td>
<td>.03</td>
<td>-.58</td>
<td>-.39</td>
<td>.03</td>
<td>-.04</td>
<td>-.04</td>
<td>.22</td>
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<tr>
<td>2. Machiavellianism</td>
<td>.77</td>
<td>.23</td>
<td>-1.0</td>
<td>-.45</td>
<td>-.30</td>
<td>-.08</td>
<td>-.13</td>
<td>.01</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>3. Narcissism</td>
<td>.81</td>
<td>.36</td>
<td>-.21</td>
<td>-.06</td>
<td>.19</td>
<td>.17</td>
<td>-.10</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Big Five</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Extraversion</td>
<td></td>
<td>(.88)</td>
<td>.11</td>
<td>.13</td>
<td>.24</td>
<td>.19</td>
<td>-.04</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Agreeableness</td>
<td></td>
<td>(.77)</td>
<td>.22</td>
<td>.32</td>
<td>.22</td>
<td>-.02</td>
<td>-.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Conscientiousness</td>
<td>(.78)</td>
<td>.22</td>
<td>.14</td>
<td>.05</td>
<td>-.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Stability</td>
<td></td>
<td>(.80)</td>
<td>.14</td>
<td>.21</td>
<td>-.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Openness</td>
<td></td>
<td>(.71)</td>
<td>.38</td>
<td>-.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Verbal ability</td>
<td></td>
<td>(.90)</td>
<td>-.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cheating criterion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.57)</td>
</tr>
<tr>
<td>10. Turn-It-In plagiarism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.12</td>
<td>2.82</td>
<td>1.36</td>
<td>3.29</td>
<td>3.70</td>
<td>3.31</td>
<td>2.84</td>
<td>3.58</td>
<td>.38</td>
<td>.18</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>.40</td>
<td>.42</td>
<td>.16</td>
<td>.76</td>
<td>.57</td>
<td>.64</td>
<td>.72</td>
<td>.54</td>
<td>.13</td>
<td>.45</td>
</tr>
</tbody>
</table>

Note: N = 107. Correlations at least .19 significant at p < .05 (bold), values at least .25 significant at p < .01 two-tailed. Note that hypothesized correlations are described in the text as one-tailed tests.
Table 4. Study 3 – Pattern matrix loadings from principal components analysis of Reasons for Cheating scale.

<table>
<thead>
<tr>
<th></th>
<th>Unmitigated Achievement</th>
<th>Fear of Punishment</th>
<th>Moral Inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unmitigated Achievement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheat to get a scholarship</td>
<td>.735</td>
<td>.034</td>
<td>.255</td>
</tr>
<tr>
<td>Cheat to pass a course</td>
<td>.711</td>
<td>-.125</td>
<td>.091</td>
</tr>
<tr>
<td>Cheat because exam difficult</td>
<td>.660</td>
<td>.084</td>
<td>-.098</td>
</tr>
<tr>
<td>Cheat because of social pressure</td>
<td>.657</td>
<td>.002</td>
<td>-.048</td>
</tr>
<tr>
<td>Cheat because school competitive</td>
<td>.640</td>
<td>-.013</td>
<td>-.180</td>
</tr>
<tr>
<td>Cheat to get a high grade</td>
<td>.617</td>
<td>.071</td>
<td>-.263</td>
</tr>
<tr>
<td>Cheat out of desperation</td>
<td>.528</td>
<td>.198</td>
<td>-.183</td>
</tr>
<tr>
<td><strong>Fear of Punishment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punishment is severe</td>
<td>.026</td>
<td>.716</td>
<td>-.054</td>
</tr>
<tr>
<td>Too many TAs</td>
<td>.188</td>
<td>.631</td>
<td>-.161</td>
</tr>
<tr>
<td>Punishments are empty threats</td>
<td>.378</td>
<td>-.391</td>
<td>-.234</td>
</tr>
<tr>
<td>Not concerned about punishment</td>
<td>.286</td>
<td>-.379</td>
<td>-.178</td>
</tr>
<tr>
<td><strong>Moral Inhibition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheat because it’s easy</td>
<td>-.035</td>
<td>-.091</td>
<td>-.676</td>
</tr>
<tr>
<td>Cheat because no one will know</td>
<td>.178</td>
<td>-.170</td>
<td>-.635</td>
</tr>
<tr>
<td>Don’t cheat cause I’m a good person</td>
<td>.210</td>
<td>-.060</td>
<td>.580</td>
</tr>
<tr>
<td>Cheat because I’m not honest/moral</td>
<td>-.017</td>
<td>-.374</td>
<td>-.566</td>
</tr>
<tr>
<td>Cheat without thinking</td>
<td>.145</td>
<td>.150</td>
<td>-.533</td>
</tr>
<tr>
<td>Cheat because everyone does it</td>
<td>.273</td>
<td>.120</td>
<td>-.508</td>
</tr>
<tr>
<td>Cheat to help a friend</td>
<td>.178</td>
<td>.003</td>
<td>-.472</td>
</tr>
<tr>
<td>Cheat because I didn’t study</td>
<td>.351</td>
<td>-.040</td>
<td>-.428</td>
</tr>
<tr>
<td>Don’t cheat because it’s pointless</td>
<td>-.051</td>
<td>-.150</td>
<td>.372</td>
</tr>
</tbody>
</table>

Note: N = 223. Analysis conducted with direct oblimin rotation. Bold entries are the highest loading items.
Table 5. Study 3 – Intercorrelations and descriptive statistics for psychopathy, self-reported cheating and the potential mediators.

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychopathy</td>
<td>(.89)</td>
<td></td>
<td></td>
<td></td>
<td>.55</td>
</tr>
<tr>
<td></td>
<td>.23</td>
<td>-.20</td>
<td></td>
<td>-.49</td>
<td></td>
</tr>
<tr>
<td>Motivations for cheating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Unmitigated achievement</td>
<td>(.71)</td>
<td>-.02</td>
<td>-.40</td>
<td>.39</td>
<td></td>
</tr>
<tr>
<td>3. Fear of Punishment</td>
<td>(.51)</td>
<td>.01</td>
<td>-.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Moral Inhibition</td>
<td></td>
<td></td>
<td>(.54)</td>
<td>-61</td>
<td></td>
</tr>
<tr>
<td>Cheating criterion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Self-reported cheating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.85)</td>
</tr>
<tr>
<td>Mean</td>
<td>2.11</td>
<td>2.42</td>
<td>2.30</td>
<td>1.69</td>
<td>1.95</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>.42</td>
<td>.85</td>
<td>.62</td>
<td>.73</td>
<td>.54</td>
</tr>
</tbody>
</table>

Note: N = 223. Correlations greater than .17 are significant at p < .01 (two-tailed). All items collected on 5-point scales. Note that hypothesized correlations are described in the text as one-tailed tests.
Table 6. Study 3 – Evaluating three possible mediators of the association between psychopathy and self-reported cheating.

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Indirect effect ((ab))</th>
<th>Components of indirect effect</th>
<th>Total effect ((c))</th>
<th>Direct effect ((c'))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Psychopathy-mediator ((a))</td>
<td>Mediator-cheating ((b))</td>
<td></td>
</tr>
<tr>
<td>Unmitigated achievement</td>
<td>.06</td>
<td>.23</td>
<td>.28</td>
<td>.55</td>
</tr>
<tr>
<td>Fear of Punishment</td>
<td>.00</td>
<td>-.20</td>
<td>.00</td>
<td>.55</td>
</tr>
<tr>
<td>Moral Inhibition</td>
<td>.22</td>
<td>-.49</td>
<td>-.45</td>
<td>.55</td>
</tr>
</tbody>
</table>

Note: N = 223. Tabled values are standardized regression coefficients (betas). Values in bold are significant at p < .01, one-tailed.
Figure 1. Path models of total effect (top panel) and mediated effect (bottom panel) of X on Y.
Figure 2. Analysis of Moral Inhibition as a possible mediator of the relation between psychopathy and cheating. All values represent standardized regression coefficients (betas). Total effect of psychopathy on cheating appears in parentheses. ** denotes statistical significance at $p < .01$, two-tailed.
Figure 3. Analysis of Unmitigated achievement as a mediator of the relation between psychopathy and cheating. All values represent standardized regression coefficients (betas). Total effect of psychopathy on cheating appears in parentheses. ** denotes statistical significance at $p < .01$, two-tailed.
Figure 4. Analysis of the possible mediating effect of Fear of Punishment on the relation between psychopathy and cheating. All values represent standardized regression coefficients (betas). Total effect of psychopathy on cheating appears in parentheses. ** denotes statistical significance at $p < .01$, two-tailed.
APPENDIX A:

INDIVIDUAL DIFFERENCE MEASURES
Narcissistic Personality Inventory (NPI)

Read each pair of statements and then choose the one that is closer to your own feelings. Indicate your answer by circling the letter “A” or “B” to the left of the item. Please do not skip any items.

1. A  I have a natural talent for influencing people.
   B  I am not good at influencing people.

2. A  Modesty doesn’t become me.
   B  I am essentially a modest person.

3. A  I would do almost anything on a dare.
   B  I tend to be a fairly cautious person.

4. A  When people compliment me I sometimes get embarrassed.
   B  I know that I am good because everybody keeps telling me so.

5. A  The thought of ruling the world frightens the hell out of me.
   B  If I ruled the world it would be a much better place.

6. A  I can usually talk my way out of anything.
   B  I try to accept the consequences of my behaviour.

7. A  I prefer to blend in with the crowd.
   B  I like to be the center of attention.

8. A  I will be a success.
   B  I am not too concerned about success.

9. A  I am no better or no worse than most people.
   B  I think I am a special person.

10. A  I am not sure if I would make a good leader.
    B  I see myself as a good leader.

11. A  I am assertive.
    B  I wish I were more assertive.

12. A  I like having authority over people.
    B  I don’t mind following orders.

13. A  I find it easy to manipulate people.
    B  I don’t like it when I find myself manipulating people.

14. A  I insist upon getting the respect that is due me.
    B  I usually get the respect that I deserve.
15. A I don’t particularly like to show off my body.
   B I like to display my body.

16. A I can read people like a book.
    B People are sometimes hard to understand.

17. A If I feel competent I am willing to take responsibility for making decisions.
    B I like to take responsibility for making decisions.

18. A I just want to be reasonably happy.
    B I want to amount to something in the eyes of the world.

19. A My body is nothing special.
    B I like to look at my body.

20. A I try not to be a show off.
    B I am apt to show off if I get the chance.

21. A I always know what I am doing.
    B Sometimes I am not sure of what I am doing.

22. A I sometimes depend on people to get things done.
    B I rarely depend on anyone else to get things done.

23. A Sometimes I tell good stories.
    B Everybody likes to hear my stories.

24. A I expect a great deal from other people.
    B I like to do things for other people.

25. A I will never be satisfied until I get all that I deserve.
    B I take my satisfactions as they come.

26. A Compliments embarrass me.
    B I like to be complimented.

27. A I have a strong will to power.
    B Power for its own sake doesn’t interest me.

28. A I don’t very much care about new fads and fashions.
    B I like to start new fads and fashions.

29. A I like to look at myself in the mirror.
    B I am not particularly interested in looking at myself in the mirror.
30. A I really like to be the center of attention.
   B It makes me uncomfortable to be the center of attention.

31. A I can live my life in any way I want to.
   B People can’t always live their lives in terms of what they want.

32. A Being an authority doesn’t mean that much to me.
   B People always seem to recognize my authority.

33. A I would prefer to be a leader.
   B It makes little difference to me whether I am a leader or not.

34. A I am going to be a great person.
   B I hope I am going to be successful.

35. A People sometimes believe what I tell them.
   B I can make anybody believe anything I want them to.

36. A I am a born leader.
   B Leadership is a quality that takes a long time to develop.

37. A I wish somebody would someday write my biography.
   B I don’t like people to pry into my life for any reason.

38. A I get upset when people don’t notice how I look when I go out in public.
   B I don’t mind blending into the crowd when I go out in public.

39. A I am more capable than other people.
   B There is a lot that I can learn from other people.

40. A I am much like everybody else.
    B I am an extraordinary person.
Mach-IV

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>disagree</td>
<td>neutral</td>
<td>agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

1. Anyone who completely trusts anyone else is asking for trouble.
2. Most people who get ahead in the world lead clean moral lives.
3. It is safest to assume that all people have a vicious streak and it will come out.
4. One should take action only when sure it is morally right.
5. Generally speaking, people won’t work hard unless they’re forced to do so.
6. It is wise to flatter important people.
7. It is hard to get ahead without cutting corners here and there.
8. People suffering from incurable diseases should have the choice of being put painlessly to death.
9. Most people are brave.
10. The best way to handle people is to tell them what they want to hear.
11. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.
12. Honesty is the best policy in all cases.
13. Barnum was very wrong when he said there’s a sucker born every minute.
14. Most people are basically good and kind.
15. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.
16. It is possible to be good in all respects.
17. Most people forget more easily the death of a parent than the loss of their property.
18. Never tell anyone the real reason you did something unless it is useful to do so.
19. There is no excuse for lying to someone else.
20. All in all, it is better to be humble and honest than to be important and dishonest.

Note: In Study 1, Mach-IV used a 6-point scale (-3 disagree strongly, +3 = agree strongly)
Self-Report Psychopathy Scale (SRP-III)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>Strongly</td>
<td></td>
<td></td>
<td></td>
<td>Strongly</td>
</tr>
</tbody>
</table>

___1) Not hurting others’ feelings is important to me.

___2) I think I could “beat” a lie detector.

___3) I’m a rebellious person.

___4) I like to change jobs fairly often.

___5) It’s amusing to see other people get tricked.

___6) I am usually very careful about what I say to people.

___7) I have often done something dangerous just for the thrill of it.

___8) I don’t think of myself as tricky or sly.

___9) I am often rude to other people.

___10) I get a kick out of “conning” someone.

___11) I get in trouble for the same things time after time.

___12) It bothers me to see children or animals in pain.

___13) I enjoy taking chances.

___14) I almost never feel guilty over something I’ve done.

___15) I enjoy hurting people I care about.

___16) I would be good at a dangerous job because I like making fast decisions.

___17) It’s sometimes fun to see how far you can push someone before they catch on.

___18) On average my friends would probably say I am a kind person.

___19) I have sometimes broken an appointment because something more interesting came along.

___20) I don’t enjoy driving at high speed.
<table>
<thead>
<tr>
<th></th>
<th>1 Disagree</th>
<th>2 Disagree</th>
<th>3 Neutral</th>
<th>4 Agree</th>
<th>5 Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21)</td>
<td>I’m not afraid to step on others to get what I want.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22)</td>
<td>When I do something wrong, I feel guilty even though nobody else knows it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23)</td>
<td>I find it easy to manipulate people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24)</td>
<td>I’m a soft-hearted person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25)</td>
<td>I enjoy drinking and doing wild things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26)</td>
<td>I am the most important person in this world and nobody else matters.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27)</td>
<td>Conning people gives me the “shakes.” (i.e. I become nervous and jittery)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28)</td>
<td>Rules are made to be broken.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29)</td>
<td>I don’t enjoy gambling for large stakes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30)</td>
<td>People can usually tell if I am lying.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Everyone misbehaves during their teenage years. Different people misbehave in different ways and different amounts.

The following information will be used for survey purposes only. It cannot be used against you in any way. Recall that there is no way for us to connect your responses to your identity.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td></td>
<td>Strongly</td>
<td></td>
<td></td>
<td></td>
<td>Strongly</td>
</tr>
</tbody>
</table>

In the last five years I have…

___31) Shoplifted.

___32) Had (or tried to have) sexual relations with someone against their will.

___33) Avoided paying for things, such as movies, bus or subway rides, and food.

___34) *Copied answers on a school test.

___35) Been arrested.

___36) *Plagiarised a school essay or paper.

___37) Been involved in delinquent gang activity.

___38) Stolen (or tried to steal) a motor vehicle, such as a car or motorcycle.

___39) Broken into a building or vehicle (or tried to break in) to steal something or to vandalize.

___40) Attacked someone with the idea of seriously hurting him or her.

Note: Items marked with an asterisk were not included in analyses involving scholastic cheating.
### Big Five Inventory (BFI-44)

<table>
<thead>
<tr>
<th>Disagree strongly</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
<td><strong>C</strong></td>
<td><strong>D</strong></td>
<td><strong>E</strong></td>
</tr>
</tbody>
</table>

*I See Myself as Someone Who . . .*

- **1.** Is talkative
- **2.** Tends to find fault with others
- **3.** Does a thorough job
- **4.** Is depressed, blue
- **5.** Is original, comes up with new ideas
- **6.** Is reserved
- **7.** Is helpful and unselfish with others
- **8.** Can be somewhat careless
- **9.** Is relaxed, handles stress well
- **10.** Is curious about many different things
- **11.** Is full of energy
- **12.** Starts quarrels with others
- **13.** Is a reliable worker
- **14.** Can be tense
- **15.** Is ingenious, a deep thinker
- **16.** Generates a lot of enthusiasm
- **17.** Has a forgiving nature
- **18.** Tends to be disorganized
- **19.** Worries a lot
- **20.** Has an active imagination
- **21.** Tends to be quiet
- **22.** Is generally trusting
- **23.** Tends to be lazy
- **24.** Is emotionally stable, not easily upset
- **25.** Is inventive
- **26.** Has an assertive personality
- **27.** Can be cold and aloof
- **28.** Perseveres until the task is finished
- **29.** Can be moody
- **30.** Values artistic, aesthetic experiences
- **31.** Is sometimes shy, inhibited
- **32.** Is considerate and kind to almost everyone
- **33.** Does things efficiently
- **34.** Remains calm in tense situations
- **35.** Prefers work that is routine
- **36.** Is outgoing, sociable
- **37.** Is sometimes rude to others
- **38.** Makes plans and follows through with them
- **39.** Gets nervous easily
- **40.** Likes to reflect, play with ideas
- **41.** Has few artistic interests
- **42.** Likes to cooperate with others
- **43.** Is easily distracted
- **44.** Is sophisticated in art, music, or literature
# UBC Word Test

**Directions:**
Circle the word that *means the same* as the first word.
Don’t jump around – attempt each question in order.
If you don’t know, GUESS. You will have 8 minutes for this activity.

## Sample

<table>
<thead>
<tr>
<th>00) happy</th>
<th>dull</th>
<th>seem</th>
<th>glad</th>
<th>fast</th>
</tr>
</thead>
</table>

| 1) stuff | cram | junk | hard | lout |
| 2) hovel | shed | tool | rare | want |
| 3) exude | oust | lead | rule | ooze |
| 4) trust | oral | group | hold | file |
| 5) harry | bother | male | join | wait |
| 6) caper | romp | wrap | game | roll |
| 7) cheer | good | bode | lift | send |
| 8) think | whit | nick | knew | muse |
| 9) craft | wile | rank | sail | tool |
| 10) avast | heap | huge | hole | stop |
| 11) adorn | gilt | gold | gild | barb |
| 12) chump | mete | drag | dolt | bump |
| 13) brace | pair | rash | clap | hard |
| 14) smoke | fire | heat | blow | cure |
| 15) canon | shot | rule | ball | soon |
| 16) flout | hurt | fool | drop | jeer |
| 17) valid | deed | cold | just | weak |
| 18) heady | vast | rash | shod | firm |
| 19) clasp | hand | sort | game | hasp |
| 20) taunt | lean | send | twit | scat |
| 21) chuck | wood | toss | bade | trim |
| 22) vogue | good | nice | hazy | mode |
| 23) rough | rude | wave | hard | deep |
| 24) reign | stem | fall | sway | ride |
| 25) opine | tree | deem | pick | drug |
| 26) flock | tame | game | coat | bevy |
| 27) crown | hair | brag | hail | pate |
| 28) arder | zeal | iron | gilt | vine |
| 29) bully | hard | haul | fine | evil |
| 30) allot | lend | mete | wear | much |
| 31) salve | salt | ease | seek | work |
| 32) alter | self | mind | vary | wend |
| 33) inane | loco | pert | void | wise |
| 34)  | argot         | gold   | drug  | peak  | cant  |
| 35)  | chafe         | fret   | cook  | hilt  | dish  |
| 36)  | order         | send   | beat  | cash  | rank  |
| 37)  | trunk         | sack   | body  | bunk  | rank  |
| 38)  | irate         | rant   | lift  | ired  | like  |
| 39)  | sward         | dirk   | turf  | fend  | hive  |
| 40)  | elate         | only   | lift  | flew  | lack  |
| 41)  | chest         | hope   | case  | lung  | dump  |
| 42)  | feign         | sway   | sham  | rule  | glad  |
| 43)  | banned        | wood   | mine  | taboo | help  |
| 44)  | quirt         | emit   | bend  | whip  | bale  |
| 45)  | trick         | loft   | send  | joke  | ruse  |
| 46)  | snare         | bark   | trap  | leer  | sulk  |
| 47)  | grove         | cave   | wane  | wood  | hole  |
| 48)  | whorl         | coil   | bell  | spin  | rite  |
| 49)  | barge         | vast   | bark  | pull  | abet  |
| 50)  | omega         | dose   | last  | salt  | lens  |
| 51)  | awful         | dire   | load  | fear  | vast  |
| 52)  | dowry         | acid   | gift  | wife  | grin  |
| 53)  | parry         | wear   | hunt  | bear  | fend  |
| 54)  | callous       | damp   | weed  | cold  | moss  |
| 55)  | shaft         | pole   | deep  | high  | move  |
| 56)  | covet         | envy   | rill  | coat  | vest  |
| 57)  | usurp         | grab   | slop  | glut  | sate  |
| 58)  | facet         | pain   | side  | turn  | easy  |
| 59)  | ember         | heat   | glow  | coal  | seem  |
| 60)  | crook         | jail   | lout  | deal  | bend  |
| 61)  | sober         | wash   | side  | weep  | cool  |
| 62)  | glaze         | lens   | look  | pane  | coat  |
| 63)  | average       | mean   | pint  | meek  | safe  |
| 64)  | angle         | fish   | rage  | ring  | line  |
| 65)  | flair         | lair   | dare  | bent  | game  |
| 66)  | elide         | dash   | trod  | omit  | skim  |
| 67)  | crisp         | dare   | firm  | cookie| code  |
| 68)  | store         | nest   | coup  | hold  | snag  |
| 69)  | shape         | neat   | chap  | cote  | mold  |
| 70)  | natty         | bold   | blue  | flay  | trim  |
| 71)  | swirl         | tide   | eddy  | rise  | swim  |
| 72)  | crawl         | riot   | knee  | skin  | inch  |
| 73)  | whine         | pule   | coil  | beer  | weir  |
| 74)  | stead         | foal   | rely  | lieu  | bear  |
| 75)  | queue         | what   | mane  | line  | shop  |
| 76)  | foray         | food   | wood  | take  | raid  |
| 77)  | fatal         | dire   | evil  | omen  | wish  |
| 78)  | storm         | wild   | wash  | rend  | climb |
| 79)  | shoot         | bang   | push  | twig  | jump  |
| 80)  | taper         | leer   | slope | worm  | bind  |
| 81)  | eject         | oust   | emit  | cart  | rush  |
| 82)  | crack | high  | quip | file | cake    |
| 83)  | abyss | rule  | duet | urge | gulf    |
| 84)  | thick | dull  | illy | ruse | cart    |
| 85)  | sully | soil  | deny | brag | cart    |
| 86)  | suave | leak  | prig | urbane | lean |
| 87)  | butte | goat  | goad | soft | hill    |
| 88)  | stern | rear  | glum | rage | shop    |
| 89)  | force | cope  | grit | dint | wade    |
| 90)  | levee | raze  | lift | flat | dike    |
| 91)  | hokum | clod  | lout | bunk | doze    |
| 92)  | girth | wide  | band | awry | glee    |
| 93)  | helot | rise  | hail | evil | serf    |
| 94)  | niter | soda  | late | bomb | show    |
| 95)  | tome  | text  | wide | term | book    |
| 96)  | taint | deny  | spot | fill | fall    |
| 97)  | heart | beat  | draw | core | vein    |
| 98)  | trawl | boat  | fish | cape | sing    |
| 99)  | genre | peer  | waft | sort | norm    |
| 100) | edict | fiat  | talk | root | oust    |
Self-Report Cheating Scale

Instructions: Please use the guide below to answer the following questions.

During high school and university, I have often:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

_____ 1) Gotten into a physical fight with someone
_____ 2) *Copied someone else’s answers on a school test without them knowing
_____ 3) *Copied someone else’s answers on a school test with them knowing
_____ 4) *Agreed to have someone copy your answers on a school test
_____ 5) Downloaded free music from the internet
_____ 6) *Handed in a school essay or assignment that you copied (at least in part) from some other source (e.g., another person, the internet, books, etc.)
_____ 7) Participated in a street race.
_____ 8) *Brought hidden notes to a school test
_____ 9) *Stolen a copy of a school test
_____ 10) Downloaded free ‘pirated’ movies from the internet
_____ 11) *Had someone else write a school test for you
_____ 12) *Actively refused to let someone copy your answers on a school test
_____ 13) *Used an electronic device (e.g., cell phone, calculator) to cheat on a school test
_____ 14) Knowingly bought, sold, or held stolen goods (or tried to do any of these things)
_____ 15) *Sold a school essay or assignment that you wrote to someone else
_____ 16) Carried a hidden weapon.
_____ 17) *Bullied or intimidated someone into helping you cheat on a school test
_____ 18) *Paid someone to help you cheat on a school test
_____ 19) *Tricked someone into helping you cheat on a school test
_____ 20) Received a speeding ticket.
_____ 21) *Written a school test, essay or assignment for someone else
_____ 22) *Reported witnessing someone cheating on a school test
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<td>5</td>
</tr>
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</table>

_____ 23) *Made a false excuse (e.g., illness, death in family) to avoid writing a school test
_____ 24) *Been caught cheating on a school test (e.g., by the teacher/professor, parents, TA’s, etc.)
_____ 25) *Gotten away with cheating on a school test
_____ 26) Copied computer software that you should have paid for yourself

Note: Items marked with an asterisk are included in self-reported cheating score.
Reasons for Cheating Scale

Instructions: Use the scale below to rate your agreement with each of the following statements.

Part I:

Which of the following statements are reasons why you have cheated in the past, or why you might cheat in the future:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

_____ 1) I cheated because of the competitive atmosphere at my school.
_____ 2) I was desperate.
_____ 3) I didn’t study for the test.
_____ 4) I needed to do it to get (or keep) a scholarship.
_____ 5) Everyone else does it.
_____ 6) I’m not concerned about the punishments involved if I am caught.
_____ 7) I needed to do it to get a passing grade in a course.
_____ 8) Being honest and moral is not a high priority for me.
_____ 9) The test-writing surroundings make it too easy for me to cheat (e.g., the seats are too close to each other).
_____ 10) I felt pressured by my family or other people.
_____ 11) I don’t think my cheating will be detected.
_____ 12) I needed to do it to get a high grade (e.g., an ‘A’ or ‘A-plus’)
_____ 13) Professors usually make the exams too difficult.
_____ 14) The punishments that universities use to warn students are just empty threats.
_____ 15) It was spontaneous (i.e., did it without planning on it ahead of time).
_____ 16) To help a friend get a better grade.
Part II:

Which of the following statements are reasons why you refused to cheat in the past, or why you would refuse to cheat in the future:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<td>5</td>
</tr>
</tbody>
</table>

_____ 17) I pride myself in being a good and trustworthy person.
_____ 18) Cheating on exams is pointless.
_____ 19) The number of TA’s assigned to watch students during exams makes it too difficult to cheat.
_____ 20) The punishments for cheating are too severe.
APPENDIX B:

FREQUENCY DISTRIBUTIONS OF MAJOR VARIABLES
Study 2 – Corrected Turn-It-In scores (Essay 2)

Study 2 – Overall plagiarism scores

Study 3 – SRP-III scores

Study 3 – Self-report cheating scores
APPENDIX C:

INSTRUCTIONS PROVIDED TO STUDENTS REGARDING COURSE ESSAY IN STUDY 2
PSYCHOLOGY 100
SECTIONS 001 & 002

TERM 2 BEHAVIOUR CHANGE PROJECT

PURPOSE:
To outline a programme to improve some aspect of your behaviour related to stress or health. This will be based on an analysis of one particular aspect of your behaviour, and the subsequent application of relevant psychological principles and techniques in order to change that behaviour. Please read “Warnings” at the end of this handout.

PROJECT FORMAT:
Length: 5 pages (plus a title page, references page, and diagrams), double-spaced, 11 point Times New Roman font.
APA format: The library gives a good guide to this format and provides further links as well: see http://www.library.ubc.ca/home/about/instruct/apastyle.html
Also the APA (American Psychological Association) Manual is available in the reference section of the library.
Submission:
The project is to be submitted in both paper and electronic form on the due date:
1) Paper form to be submitted in class with a title page, stapled in the upper left-hand corner and with NO FOLDER OF ANY KIND.
2) Electronic form: Papers will be submitted to TurnItIn, a service that checks textual material for originality. For more information see: http://www.vpacademic.ubc.ca/integrity/turnitin/
The purpose of this is to prevent plagiarism. If you are not sure what that is please see: http://www.library.ubc.ca/home/plagiarism/. Further instructions on submitting to TurnItIn will be provided on the course web page nearer the date of submission.
APPENDIX D: ETHICAL ISSUES IN STUDY 2

A number of ethical issues arose in the collection of plagiarism data in Study 2. To ensure that we followed all appropriate guidelines, we went through four steps of approval. First, my advisor, Del Paulhus, met with Margery Fee, Dean of Arts for Students. He also met with Neil Guppy, Associate Vice President for Students. Dr. Guppy agreed to write a letter of support to be sent to the UBC ERB Committee.

The primary concern was whether plagiarism scores calculated by the research team would be used for course evaluation purposes. In principle, students can be expelled for plagiarism. However, all parties agreed that the research objectives should be separated as much as possible from course evaluations.

In July 2004, we submitted the study for approval by the ERB. The research was approved in August, 2004.
APPENDIX E:

SAMPLE TURN-IT-IN OUTPUT
Changing Stress in My Life
In today’s society, many individuals are faced with several stressful problems or events, which, in essence, can very well be good or bad. These stressful problems are classified as stressors, which are defined as stimuli that are perceived as endangering one’s well being (G. Watson, personal communication, February 4, 2005). People may not always be able to predict when and where they will encounter stressors, but we can mitigate their damaging effects by adopting coping strategies that are consistent with our lifestyles. In this paper, a particular aspect of behaviour that I will be focusing on is increasing my sleep duration from six to about eight hours per night. Lack of sleep is one of the major causes of stress in my...
for normal brain functioning (Buskist, 2000). I will explain how I intend to change this behaviour through time management, but primarily through the application of psychological principles, such as Reinforced Desire Behaviour, Response Cost, and Covert Reinforcement, that will hopefully achieve my main goal of increasing my sleep duration.

Adverse Effects of Sleep Deprivation

The brain contains a biological clock that is responsible for altering sleeping patterns. This clock controls the circadian rhythm, which is the daily rhythmical change in behaviour or physiological process. **Light is believed to be the most powerful synchronizer of circadian rhythms.**

Recent studies on humans have shown that the amounts of artificial indoor light to which people are exposed per day can resynchronize the body’s cycle of sleep and wakefulness (Encarta, 1998). This clock is reset when light strikes the retina in the morning because the body is very sensitive to light in the early morning.

Reducing the amount of sleep can negatively affect work performance and increase the risk of possible accidents. Research shows that losing one and a half hours of sleep in a night can reduce alertness the following day by one-third (Golub, 2000). Research also shows that forgoing sleep can lead to elevated levels of the steroid hormone cortisol, which influences the metabolism of glucose, as well as cause a prolonged increase in blood insulin levels. The time shift in hormone release could contribute to alterations in blood sugar metabolism, possibly resulting in insulin resistance or obesity (Golub, 2000).

Behaviour Analysis

As a young adult, it is important and beneficial to get enough sleep in order to be able to carry out daily activities. The average amount of sleep a person should get each night is around eight hours (Golub, 2000). However, for a while now, due to my very busy schedule, I have been currently averaging about five to six hours of sleep a night, especially since I have a tendency to go to bed no earlier than 2AM. There are many reasons why I am motivated to try and attempt to change this abnormal behaviour, including preventing the adverse effects of sleep deprivation mentioned above. One reason is because I have noticed how tired and blood-shot my eyes have been every time I wake up in the morning before school due to lack of sleep. I do not want to keep on relying on caffeine to keep myself from falling asleep during classes. So with sufficient amount of sleep, I believe that I will be able to stay more focused and concentrated during my classes.

Another reason is because I am an active person in many extracurricular activities and sports, which can be very strenuous on both the mind and body. I hold executive positions in many clubs, which requires me to do a lot of planning and organizing of events. I am also an athlete on two cheerleading teams, training five days a week for three hours each. Lately, I have noticed how unfocused and tired, both mentally and physically, I have become during practices and club meetings, when I used...
to be very upbeat and enthusiastic. Therefore, I need to get plenty of sleep in order to re-energize my brain and give it an opportunity to rest so it will be able to function properly and efficiently the next day (Buskist, 2000). Lastly, another reason why I would like to alter my sleeping behaviour is because I tend to procrastinate in doing my work and end up going to bed late, when I have to get up early the next day for school or work. I finish my homework very late at night, as I am easily distracted by the TV, the computer, and the telephone. Being able to manage my time effectively would definitely provide additional sleep time for resting and recuperating for the following day’s activities.

Program for Change

A coping strategy is simply a plan of action that we follow, either in anticipation or encountering a stressor or as a direct response to stress as it occurs (Buskist, 2000). There are a few techniques that I can use to help change my sleeping pattern. Firstly, I will start managing my time more efficiently by creating a detailed calendar to plan out all my events each day of the month making sure that I do not cram so many activities in one day that I will not be able to sleep at night. I will minimize the amount of time I spend idly by allocating my time towards getting as much work done as possible. This will ensure that I am able to attend my extracurricular functions and cheerleading practices, as well as allow me some leisure time, without any worries or anxiety that I do not have time to do my work. Through this form of effective time management, I am hoping to be able to achieve my goal of going to bed early and acquiring enough sleep, thus allowing my body to restore and heal itself, repair damaged muscle tissue, and replenish the immune system.

Another way I will alter my sleeping pattern in which I am able to go to bed earlier is to stop procrastinating whenever I have free time to do work. I will try to start my work as early as I can, instead of putting it off until later in the evenings. In order to reduce my procrastination, I will turn off my cell phone or put it on silent while studying. I will also not study in front of the television, but if I get really tempted to do so, I will give myself no reason to go near it by unplugging the cable. I will also turn off the computer while I study, unless it is needed for typing and researching for a paper. If I am able to stay on track and accomplish the work I want to get done, I will reward myself by taking short ten to thirty minute breaks in between studying. I can relax and maybe watch some TV or search the internet, or maybe even enjoy eating a small snack. This reward system is a principle known as Reinforce Desired Behaviour. However, if I am unable to carry out this new scheme, I will have to implement the Response Cost Principle, where I impose a reliable punishment for not meeting my goal, such as not allowing myself to go to the next cheerleading practice or upcoming social event or even watch any television for the week. Additionally, I will have to condition my sleeping pattern such that my body will be accustomed to going to bed earlier and waking up early, whether it is for school, for work, or just waking up early in general. As
mentioned previously, light can be used to change sleeping patterns, particularly the timing of sleep. This is evidently seen as my circadian rhythm can be inadvertently reset or altered by performing work-related tasks requiring a bright lamplight in the middle of the night. Therefore, by making sure I go to sleep earlier at night, such as no later than midnight, for at least a few weeks, I will ensure that my biological clock is set to a proper sleeping schedule. In order to make sure that I can obtain the required eight hours of sleep per night, I can time my sleeping duration with an alarm clock indicating when I should sleep and wake up. The whole process, of course, will be done so in a gradual manner so as to not subject my body to a drastic and hasty change that may negatively disrupt my body processes. By following this new sleep schedule, I am able to get enough sleep and allow the brain to rest. The idea of knowing I will feel more refreshed in the morning and will be able to properly function the next day is known as Covert Reinforcement, which is associating desired behaviour with positive images. Therefore, I believe all these methods will help me achieve my sleeping pattern, as they are fairly simple and straightforward concepts, but at the same time very effective.

Conclusion
In carrying out this strategic plan, I hope to improve my time management abilities, which will in turn improve my sleeping pattern. It would be great if I am able to get eight hours of sleep a night by finishing all my work and going to bed early so I can be well-rested and more alert for anything I am faced with the next day. Success for this program will be measured by keeping track of my daily sleep pattern. I will make a weekly schedule and record the time I go to bed and get up. Then I will compare each day and observe if I have progressed in managing to increase my sleep time and move towards my goal of obtaining at least eight hours, from originally five to six hours. If I have managed to consistently maintain my new sleeping pattern of about eight hours a night for a few weeks and notice myself being well-rested, I can imply that my body has adapted to the new schedule and therefore, I have achieved my goal of obtaining more sleep.

On the other hand, I anticipate that there will be difficulties and challenges in conducting this new program. I still believe that there will be some confounding factors that will attempt to draw me away from productivity and towards procrastination. In addition, at the beginning of implementing this program, my body will undergo a tough transition and adjustment with regards to sleeping earlier because it has been accustomed to normal late night sleep patterns. But while it will definitely take some time adjusting my body to this new schedule, I am willing to try my best to achieve my goal.

*Note:* Material judged to be plagiarism appears in bold and italicized.