2016

The Dark Triad beyond the SPI: Providing Incremental Validity in Predicting Prosocial and Risky Behaviours

rui sun
The University of Western Ontario, rsun33@uwo.ca

Don H. Saklofske Ph.D.
Western University, Psychology

Follow this and additional works at: https://ir.lib.uwo.ca/psychd_uht

Part of the Personality and Social Contexts Commons

The Dark Triad beyond the SPI: Providing Incremental Validity in Predicting

Prosocial and Risky Behaviours

Rui Rita Sun

Honours Psychology Thesis

Department of Psychology

University of Western Ontario

London, Ontario, CANADA

April, 2016

Thesis Advisor: Sampo V. Paunonen, Ph.D., Donald Saklofske, Ph.D.

Abstract

Personality measures have been criticized for their lack of coverage of some traits. As a result, researchers have examined and combined measures to better understand and predict target behaviours. The Supernumerary Personality Inventory (SPI; Paunonen, 2002) was designed to measure a wide range of personality traits, including antisocial tendencies. The Dark Triad (Paulhus & Williams, 2002) was developed specifically to measure the socially malevolent traits of psychopathy, narcissism, and Machiavellianism. Previous studies revealed significant correlations between the SPI traits and the Dark Triad traits, which suggest that the two measures may share some of the same theoretical underpinnings. The present study investigated the Dark Triad's incremental validity beyond the SPI in predicting both prosocial and risky behaviours. Participants were 118 university students (31 males, 87 females) who completed self-report measures of the SPI and the Dark Triad traits. Hierarchical linear regression analyses were conducted with the 10 SPI traits inputted in the first model, and the three Dark Triad traits inputted in the second model in order to predict a series of behavioural criteria. Results showed that the SPI significantly predicted risky behaviours, but not prosocial behaviours. It was also showed that the Dark Triad did not add incrementally to the SPI's prediction of prosocial and risky behaviours.

The Dark Triad beyond the SPI: Providing Incremental Validity in Predicting

Prosocial and Risky Behaviours

Researchers have developed measures to assess various personality constructs derived from

theory, which can then be used in research and clinical practice to further inform our

understanding of personality. Understanding the means by which behaviour change occurs, as

well as the prediction of various behaviours, are some of the cornerstones of scientific

psychology. Furthermore, the study of personality and individual differences plays a role in the

understanding of human behaviour. Personality psychology has a long history dating back to the

writings of Freud, and more current literature has identified personality as comprising both broad

personality factors and narrower traits. The most widely accepted view of personality is reflected

in the Five-Factor Model, which highlights five broad personality traits: Neuroticism,

Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Digman, 1990;

McCrae & Costa, 2011; McCrae & John, 1992). While there has been some suggestion that the

overlap between these factors may define a general personality factor, most studies of the

Five-Factor Model have shown promising results in predicting a large number of behaviours.

Some researchers have looked within each of these major traits to further understand the

'make-up' of each. For example, extraversion would include such narrow traits as sociability and

assertiveness (McCrae, Costa, & Martin, 2005).

The Supernumerary Personality Inventory (SPI) represents this narrow trait personality

perspective (Paunonen, 2002). The SPI assesses 10 traits that are covered by the broader

Five-Factor Model, and is described in detail in a section to follow. More recently, researchers

have focused attention on specific personality characteristics that have been extensively

described in clinical psychology with a particular focus on personality disorders,

psychopathology, and forensic psychology. There has been a recent in focus on these traits as

"subclinical" traits that can emerge within the general population. The most widely examined

group of these subclinical traits is labelled "The Dark Triad," consisting of three socially

malevolent constructs: Machiavellianism, narcissism, and psychopathy (Paulhus & Williams,

2002). Because of its focus, the Dark Triad has been used to assess and predict human antisocial

tendencies. Both broad (e.g., the Five-Factor Model) and narrow (e.g., the SPI and the Dark

Triad) personality measurements advance the knowledge about personality constructs and the

prediction of behaviours.

However, one of the major criticisms of all personality measures is the insufficient coverage

of some traits. Of course, the question is more a function of personality theories and models, and

therefore the actual measurement via questionnaires, observations, and interviews are necessarily

limited by practical considerations; the same may be said for intelligence tests. For example, the

Five-Factor model fails to encompass sufficient trait coverage in terms of socially malevolent

constructs. Therefore, it demonstrated weak predictability of antisocial behaviours such as

materialism and unethical behaviours (Hong, Koh, & Paunonen, 2012). Because it has been

argued that a personality measure does not encompass the full range of personality traits, many

studies have examined the incremental validity of one measurement over the other. For example,

Paunonen and Ashton (2001) showed that the SPI, a narrower measure of personality, was able to

substantially increase the prediction of health-risk behaviours that have been achieved by the

broad Five-Factor Model (Hong & Paunonen, 2009). Again this is not dissimilar to the

assessment of intelligence where one may use a Wechsler-type test but then add to that more

specific measures of memory, processing speed and executive functioning. Thus, it is important

to add or combine another personality scale to understand and predict targeting behaviours when

one model is inadequate. The present study examines this particular issue by examining the Dark

Triad's incremental validity beyond the SPI in predicting behaviours that reflect socially negative

actions

The Supernumerary Personality Inventory (SPI)

Paunonen (2002) identified 10 supernumerary traits that are beneath the Five-Factor model.

The 10 traits in the SPI include conventionality (want to preserve existing traditions; are opposed

to radical changes), seductiveness (intend to attract the romantic or sexual interests of others),

manipulativeness (like to manipulate others to achieve a goal), thriftiness (try not to waste

resources on self-gratification), integrity (inhibit stealing, cheating, or deceiving behaviours),

femininity (be more feminine for his or her own sex), religiosity (believe in a higher power that

controls human destiny), risk-taking (seek possible danger with excitement), and egotism

(exaggerated sense of self-importance). Research has demonstrated that the SPI captures a wider

range of personality traits partially because it covers antisocial traits that are not measured by the

Five-Factor model (Hong et al., 2012). However, although the SPI questionnaire assesses

antisocial tendencies such as Manipulativeness and Risk-Taking, it was not specifically designed

to assess socially malevolent traits. Although research demonstrated that the SPI successfully

predicted some socially malevolent traits such as materialism and unethical behaviours, further

research on the SPI predicting other antisocial behaviours is needed.

The Dark Triad of Personality

The Dark Triad (Paulhus & Williams, 2002) specifically identifies three major antisocial traits. Machiavellianism refers to the tendency of manipulating others (e.g., "Make sure your plans benefit you, not others"). Individuals who scored high on this trait tended to believe that interpersonal manipulation is the key for life success (Jones & Paulhus, 2009). Narcissism refers to dominance and a sense of superiority towards the self (e.g., "People see me as a natural leader"). Psychopathy represents callous social attitudes, erratic lifestyle, and criminal tendencies (e.g., "Payback needs to be quick and nasty"). Moderate positive correlations have been found among the three variables, suggesting that the variables overlap to an extent, but are essentially distinct constructs that measure different traits. Some researchers were interested in the positive correlation among the three variables and suggested that the variables may share a common underlying element. The trait of disagreeableness may explain the correlation because it was found that the Dark Triad was only correlated with agreeableness measured by the Five-Factor Model (Jakobwitz & Egan, 2006). However, other alternative explanations exist and therefore more research is needed to understand the construct of the Dark Triad.

The Dark Triad has been reported to predict socially malevolent behaviours. More specifically, it was found that psychopathy positively predicted health-risk behaviours such as tobacco and alcohol consumption that led to shorter life expectancy (Jonason, Baughman, Carter, & Parker, 2015). Machiavellianism was negatively correlated to altruism, the concern of others that is not motivated by self-interest (Stead & Fekken, 2014). Different types of aggression were

predicted by psychopathy and narcissism (Henderson & Bobadilla, 2011). Psychopathic

individuals were more likely to be identified as bullies (Baughman, Dearing, Giammarco, &

Vernon, 2012), and to cheat in a classroom (Nathanson, Paulhus, & Williams, 2006). Finally, a

behavioural genetic analysis indicated that the variance in the Dark Triad scores could be largely

attributed to genes and non-shared environment (Veselka, Schermer, & Vernon, 2011). This result

suggested that the dark traits may serve an evolutionary purpose by fostering reproductive

success (Brumbach, 2007; Jonason, Li, Webster, & Schmitt, 2009).

The Current Study

The purpose of this study was to examine how much of the variance in specific criterion

variables is predicted by the SPI and whether the addition of the Dark Triad adds to the variance

accounted for. The first reason for choosing the SPI and the Dark Triad was that they share some

theoretical content reflecting the more negative side of human behaviour (Hong et al., 2012). The

SPI traits of Manipulativeness, Integrity, Egotism and Risk-Taking are all relevant to malevolent

social relationships that may overlap with the Dark Triad (Paunonen, Haddock, Forsterling, &

Keinonen, 2003). Research has explored the two measurements and revealed the following

relationships: Machiavellianism was positively correlated with integrity and manipulativeness;

narcissism with egotism, manipulativeness and seductiveness, femininity, and risk-taking

(Veselka et al., 2011). Despite the strong association between the SPI and the Dark Triad, little

research assessed their strength for individually and additively predicting other behavioural

factors. The basic question addressed in this study is how well the SPI and the Dark Triad

separately and together predict socially malevolent traits.

Criterion behaviours reflecting more socially negative actions were selected from the

Behaviour Report Form that measures a series of daily behaviours (see Paunonen, 1998).

Behaviours that are likely linked to either or both the Dark Triad and the SPI were included and

assessed. The first selected criteria consist of altruistic or prosocial behaviours, identified by

blood donation and volunteering behaviour. These behaviours are associated with an

"other-oriented" motivational state (Batson, Ahmad, & Lishner, 2009). Prosocial individuals

engaged in more non-profit prosocial activities (Little, 1995), and scored higher on empathy

measures (Huber & MacDonald, 2012). Evidence showed that prosocial tendency was negatively

associated with the Dark Triad trait Machiavellianism (Stead et al., 2014). Furthermore,

Machiavellianism was negatively correlated with empathy (Jonason, Lyons, Bethell, & Ross,

2013). Lower empathy may further prevent Machiavellians from engaging in prosocial

behaviours. Thus, the Dark Triad scale of Machiavellianism will show a high negative

correlation with prosocial behaviours. On the other hand, there was no direct assessment of the

SPI and prosocial behaviours so far and none of the variables in the SPI showed a direct link to

prosocial tendency.

The second criterion variable is Risky behaviour. Behaviours such as tobacco consumption,

alcohol consumption, and driving fast were selected from the Behaviour Report Form. Both the

Dark Triad and the SPI traits are likely to have links to the risky behaviours. More specifically,

the Dark Triad trait psychopathy has revealed a positive correlation with health risk behaviours

(Jonason et al., 2015). In addition, it was identified that psychopathy is linked to shorter life

expectancy (Del Giudice, 2014). Also, the SPI's Risk-Taking and Integrity scales showed

positive and negative association with health risk behaviours such as smoking (Hong et al., 2009).

Although both the SPI and the Dark Triad can predict health risk behaviours, little is known

about whether the Dark Triad adds more predictability over the SPI.

The purpose of the current study was to examine the Dark Triad's incremental validity

beyond the SPI when focusing on less socially prescribed behaviours. In this study, the predictor

variables were the 10 SPI and the three Dark Triad scales, and the criterion variables are

prosocial and risky behaviours. It was hypothesized that the Dark Triad would add incrementally

to the prediction of prosocial and risky behaviours beyond the SPI.

Method

Participants

Participants were 118 first year undergraduate students (31 male and 87 female), age ranged

from 17 to 28, who were enrolled in an introductory psychology course from the Western

University Department of Psychology Research Participation Pool. Each participant received 2.0

research credits for participating. There were no exclusionary criteria applied to participation.

Materials

Supernumerary Personality Inventory (Paunonen, 2002). The SPI's 10 traits, which are

conventionality, seductiveness, manipulativeness, thriftiness, humorousness, integrity, femininity,

religiosity, risk-taking, and egotism, were measured with a total of 150 items (i.e., 15 items per

trait). Participants rated themselves on a 5-point Likert scale ranging from 1 (Strongly disagree)

to 5 (Strongly agree). Trait scores were calculated by averaging the 15 items of the trait. Higher

scores on the SPI subscales indicate higher levels of the trait. The focal trait subscales for the

current study were Seductiveness (e.g., "I try to make eye contact with people I find sexually

attractive"), Manipulativeness (e.g., "I will pretend to be extremely interested in what a person is

saying in order to get something"), Integrity (e.g., "I don't think there's anything wrong with

cheating a little on one's income tax forms"), Risk-Taking (e.g., "I have interest in riding fast on

a motorcycle"), and Egotism (e.g., "Other people associate with me in order to improve their

own self-image"). These traits have been previously related to socially malevolent behaviours

and correlated to the Dark Triad's traits (Veselka et al., 2011). Other SPI subscales are

Conventionality (e.g., "People should try to keep their traditions alive"), Thriftiness (e.g., "I find

it hard to leave a store without spending some money"), Humorousness (I am good at using

humor to lighten a serious mood), Femininity (e.g., "People consider me to be manly for my

sex"), and Religiosity (e.g., "I believe that science can explain virtually everything better than

religion can"). Previous research has reported a mean internal consistency of the SPI scales to

be .78 (range = .63 to .95; Hong & Paunonen, 2009).

The Dark Triad

The three Dark Triad traits were measured separately with three scales including the

MACH-IV (Christie & Geis, 1970) that assesses trait Machiavellianism, Narcissistic Personality

Inventory (NPI; Raskin & Hall, 1979) that assesses trait narcissism, and Self-Report

Psychopathy Scale III-R12 (Hare, 1985) that assesses trait psychopathy.

   MACH-IV (Christie & Geis, 1970). The MACH-IV (Christie & Geis, 1970) scale

measures Machiavellianism using a 5-point scale (1 = Disagree strongly, and 5 = Agree strongly)

to rate statements such as "Avoid direct conflict with others because they may be useful in the

future". The average score of the 20-item MACH-IV scale indicates a Machiavellianism trait

score.

Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979). Narcissism was measured

by a 40-item Narcissistic Personality Inventory. Each item in the NPI has two statements to

select from, with one item reflecting a more narcissistic attitude (e.g., "I have a natural talent for

influencing people") compared to the other one ("I am not good at influencing people"). The 40

narcissistic statements were summed to yield an index of trait narcissism. However, the current

study adopted a different scoring system to yield the narcissism trait score: for each item, instead

of participants selecting response A or B, one of the two A or B statements was provided to the

participants and they were asked to rate themselves on a scale ranging from 1 (strongly disagree)

to 5 (strongly agree). The total item score was the trait psychopathy score.

Self-Report Psychopathy Scale III-R12 (Hare, 1985). The Self-Report Psychopathy Scale

(SRP-III-R12; Hare, 1985) has 62 items. Participants indicated how much they agree (1 =

Disagree strongly, and 5 = Agree strongly) with a statement (e.g., "People often say I'm out of

control") on a 5-point scale. The average score of the SRP-III-R12 created a psychopathy trait

score. All three scales have demonstrated good psychometric properties with internal

consistencies ranging from .74 to .87 (Paulhus & Williams, 2002).

Behaviour Report Form (BRF, Paunonen, 1998). The BRF invites participants to

self-report the degree to which they engage in a variety of behaviours. It was first used in

Paunonen's (1998)'s study to measure potentially important criterion items that a personality

inventory might be expected to predict. However, only those items that are related to socially

malevolent behaviours were used as criterion variables in this study. Prosocial behaviour was measured with two yes-or-no items (i.e., "Do you donate blood occasionally" and "Do you participate in official volunteer activities"). Participants received a total prosocial score ranging from 0 to 2. Risky behaviour was measured using three items: cigarettes smoked on average per day, drinks consumed per week (one drink was defined as one-ounce spirits, one glass wine, and one bottle beer), and the maximum speed that one has driven. Participants were instructed to fill the blanks with a number. A higher total number of the three items indicated a higher tendency of engaging in risky behaviours.

Procedure

The current study used a subset of data that has already been collected by Dr. Paunonen. Students were required to sign up online to participate in the study. The study was conducted in a classroom at Western University. Participants were first provided with a letter of information, and then completed a written consent to participate in the study. Upon receipt of consent, they were asked to complete the XPI1, which consisted of a pseudo-randomly mixed questionnaire including both the Dark Triad and SPI items. Following a short break, the participants were administered with the BRF. Following administration of the BRF, participants completed the XPI2, which consisted of an additional pseudo-randomly mixed portion of the SPI and Dark Triad items. Participants were asked to return after 7 to 10 days to complete the same questionnaires (i.e., XPI1, BRF, and XPI2) again. Upon completion of all measures, participants were debriefed with a feedback sheet regarding the nature of the study. Each participant was then compensated with 2.0 research credits for the two sessions. However, for the purpose of the

current study, only one session's data was used to conduct analyses. The study was completed in

paper-and-pencil format and took approximately one hour to complete per session.

Results

Descriptive Statistics

The means and standard deviations of all measures are presented in Table 1. The internal

consistency reliabilities for both predictor measures (the SPI and the DT) are not available for

the current study because the data file compiled by Dr. Sampo Paunonen included only total

subscale scores, and did not contain scores on individual items. All means, standard deviations,

and ranges of variables were comparable to those reported in previous literature (Paunonen, 2002;

Paulhus & Williams, 2002).

Further background analyses were conducted to reveal correlations between the SPI traits,

the Dark Triad traits, and the facets of prosocial and risky behaviours. The correlations between

the predictors and the criteria are presented in Table 2. A Bonferroni correction was applied to

reduce the likelihood of incorrectly rejecting null hypotheses, such that the alpha level was set

at .003. The SPI trait seductiveness was positively correlated with number of drinks per week,

and integrity was negatively correlated with number of drinks per week. Notably, the SPI trait

risk-taking had a significant positive correlation with blood donation. Risk-taking was also

strongly and positively correlated with number of drinks per week, maximum speed driven, and

risky behaviours. The Dark Triad trait psychopathy was positively correlated with number of

cigarettes smoked per day and number of drinks per week. Neither the SPI nor Dark Triad traits

correlated significantly with prosocial tendencies.

Table 1

Descriptive Statistics of Major Study Variables (N = 118)

Scale	*M*	*SD*	Minimum	Maximum
Conventionality	49.28	6.33	34	64
Seductiveness	46.36	8.52	23	65
Manipulativeness	46.33	7.78	26	71
Thriftiness	44.00	7.78	19	67
Humorousness	50.81	8.73	25	69
Integrity	54.48	7.79	37	68
Femininity	48.73	8.76	28	69
Religiosity	40.83	14.51	15	75
Risk-taking	44.50	9.06	25	62
Egotism	49.99	7.49	23	67
SRP-III-R12	148.58	23.77	100	204
MACH-IV	56.73	8.56	31	77
NPI	124.42	18.32	78	170
Donating blood	.13	.34	0	1
Volunteer	.72	.45	0	1
Prosocial	0.85	0.58	0	2
Smoke per day	0.06	0.24	0	30
Drink per week	3.89	5.10	0	200

Table 1 Continued

Scale	M	SD	Minimum	Maximum
Max. Speed Driven	116.27	44.75	0	206
Risky Behaviour	120.39	46.43	0	2

Note. Maximum driving speed and risky behaviours (i.e., sum of smokes per day, drinks per week, and maximum

speed driven) had $N = 110$ because eight of the participants do not drive motor vehicles.

Table 2

Bivariate Correlations between Personality Variables and Criterion Variables

Personality traits	Donating blood	Volunteer	Prosocial	Smokes per day	Drinks per week	Max. speed driven (km/h)	Risky behaviour
SPI							
Conventionality	-.06	-.08	-.10	-.03	.14	.11	.12
Seductiveness	.07	-.19	-.10	.05	.39**	.10	.15
Manipulativeness	.15	.00	.09	.16	.26	.13	.15
Thriftiness	-.07	.20	.12	-.21	-.21	-.15	-.17
Humorousness	-.05	.12	.06	.07	.16	.02	.04
Integrity	-.05	.17	.11	-.17	-.27*	-.09	-.13
Femininity	-.15	-.04	-.11	-.21	-.18	-.16	-.18
Religiosity	-.10	.10	.02	-.13	-.16	-.01	-.03
Risk-taking	.29*	-.14	.06	.26	.30**	.36**	.38**
Egotism	.10	.10	.13	.11	.14	.05	.07
Dark Triad							
SRP-III-R12	.13	-.10	.00	.32**	.30**	.12	.15
MACH-IV	.08	-.21	-.12	.21	.20	.10	.12
NPI	.11	-.02	.05	.18	.19	.05	.07

*Note. *$p < .05$, **$p < .01$

Correlations between the SPI traits and the Dark Triad trait are presented in Table 3. Machiavellianism was positively correlated with manipulativeness and seductiveness, and negatively correlated with integrity. Also, narcissism was positively associated with egotism, manipulativeness, and seductiveness, and negatively associated with integrity. Lastly, psychopathy was positively correlated with manipulativeness, seductiveness, egotism, and risk-taking, and negatively correlated with integrity and femininity.

Correlations between the 10 SPI traits are presented in Table 4. Conventionality was positively correlated with manipulativeness and egotism. Seductiveness was positively correlated with manipulativeness, humorousness, and egotism, and negatively correlated with integrity. Manipulativeness was positively correlated with egotism and negatively correlated with integrity. Integrity was positively correlated with femininity and negatively associated with risk-taking. Femininity was negatively correlated with risk-taking

Correlations between the Dark Triad traits are presented in Table 5. All traits were significantly correlated. More specifically, Psychopathy was positively correlated with Machiavellianism and narcissism, and Machiavellianism was positively correlated with narcissism.

Table 3

Bivariate Correlations between the SPI and the Dark Triad

Personality traits	NPI	MACH-IV	SRP-III-R12
SPI			
Conventionality	.25	.18	.09
Seductiveness	.51**	.33**	.40**
Manipulativeness	.67**	.53**	.49**
Thriftiness	-.18	-.05	-.18
Humorousness	.20	.20	.18
Integrity	-.41**	-.43**	-.62**
Femininity	-.07	-.12	-.53**
Religiosity	.11	-.11	-.04
Risk-taking	.14	.19	.43**
Egotism	.77**	.23	.33**

Note. $*p < .05, **p < .01$

Table 4

Bivariate Correlations between the SPI traits

SPI traits	1	2	3	4	5	6	7	8	9	10
1 Conventional	1									
2 Seductiveness	.17	1								
3 Manipulative	.32**	.51**	1							
4 Thriftiness	-.20	-.15	-.26	1						
5 Humorous	.08	.27*	.16	.10	1					
6 Integrity	-.12	-.35**	-.35**	.20	-.03	1				
7 Femininity	.10	-.06	.00	-.04	-.17	.33**	1			
8 Religiosity	.25	-.03	.13	-.05	.03	.08	.07	1		
9 Risk-taking	-.09	.23	.14	-.19	.07	-.28*	-.36**	-.10	1	
10 Egotism	.31**	.40**	.65**	-.24	.13	-.21	-.01	.27	.00	1

Note. *$p < .05$, **$p < .01$

Table 5

Bivariate Correlations between the Dark Triad traits

Dark Triad Traits	1	2	3
1 NPI	1		
2 MACH-IV	.45**	1	
3 SRP-III-R12	.56**	.61**	1

Note. *$p < .05$, **$p < .01$

Lastly, the correlations between criterion behaviours are presented in Table 6. As predicted, total prosocial tendency (i.e., summed blood donation and volunteering scores) was positively correlated with blood donation and volunteer participation. Also, consistent with predictions, risky behaviour (i.e., summed scores on number of cigarettes smoked per day, number of drinks per week, and maximum speed driven) was positively correlated with number of cigarettes per day, number of drinks per week, and maximum speed one has driven. Additionally, number of cigarettes per day was positively correlated with maximum speed driven.

Regression Analyses

A series of hierarchical multiple regression models were tested to determine whether the Dark Triad demonstrates incremental validity over the SPI in the prediction of both prosocial behaviours and risk-taking behaviours. The 10 SPI traits were entered on step one, and the three Dark Triad traits were entered on step two.

In the first regression analysis, blood donation was regressed onto the SPI traits and the Dark Triad traits. The first model, $R^2 = .13$, $F(10, 107) = 1.67$, $p = .097$, did not show significant predictability of blood donation. The overall variance in predicting blood donation accounted for by the SPI traits and the Dark Triad of personality was not significant, $R^2 = .14$, $F(13, 104) = 1.31$, $p = .22$. In the final model, risk-taking had a significant standardized beta weight in predicting blood donation, $\beta = .28$, $p = .01$.

Table 6

Criterion Variable Bivariate Correlations

Personality traits	1	2	3	4	5	6	7
1 Blood donation	1						
2 Volunteer	.07	1					
3 Prosocial	.63**	.82**	1				
4 Smoke per day	.24	.00	.14	1			
5 drink per week	.18	-.04	.07	.24	1		
6 Max speed driven	.21	-.10	.04	.30*	.25.	1	
7 Risky behaviours	.23	-.10	.05	.32**	36**	.99**	1

*Note. *p < .05, **p < .01*

In the second analysis, participating in volunteer activities was regressed onto the SPI and the Dark Triad traits. The first model, $R^2 = .16$, $F(10, 107) = 2.07$, $p < .05$, showed significant predictability of volunteering. The overall variance in predicting volunteering accounted for by the SPI traits and the Dark Triad of personality was significant, $R^2 = .21$, $F(13, 104) = 2.13$, $p < .05$. In the final model, seductiveness ($\beta = -.29$, $p = .02$), thriftiness ($\beta = .21$, $p = .03$), and Machiavellianism ($\beta = -.31$, $p = .02$) had a significant standardized beta weight in predicting participation in volunteer activities.

For the third analysis, prosocial behaviour (i.e., summed blood donation and volunteering score) was regressed onto the SPI and the Dark Triad. Neither the first model with only the SPI traits included, $R^2 = .13$, $F(10, 107) = 1.63$, $p = .11$, nor the final model with the Dark Triad traits included, $R^2 = .16$, $F(13, 104) = 1.55$, $p = .11$, showed significant predictability of prosocial behaviours. Seductiveness ($\beta = -.23$, $p = .05$) and manipulativeness ($\beta = .29$, $p = .05$) revealed significant beta weights in the final model.

In the fourth analysis, number of cigarettes smoked per day was regressed onto the SPI and Dark Triad traits. In the first step, the SPI traits were entered and revealed significant predictability of cigarette smoking, $R^2 = .16$, $F(10, 107) = 2.01$, $p < .05$. The overall variance in predicting cigarettes smoked per day accounted for by the SPI traits and the Dark Triad of personality was not significant, $R^2 = .18$, $F(13, 104) = 1.77$, $p = .06$. No specific trait in the final model had a significant beta value.

In the fifth analysis, number of drinks per week was regressed onto SPI traits and the Dark Triad traits. Both the first model with only the SPI traits included, $R^2 = .26$, $F(10, 107) =$

3.82, $p < .001$, and the second model with the Dark Triad traits added, $R^2 = .27$, $F(13, 104) =$ 3.00, $p = .001$, significantly predicted number of drinks per week. Seductiveness ($\beta = .26$, $p = .02$), revealed a significant beta weight in the final model.

In the sixth regression analysis, maximum speed driven (measured in km/h) was regressed onto the SPI traits and the Dark Triad traits. SPI significantly predicted driving speed in the first model, $R^2 = .16$, $F(10, 99) = 1.93$, $p < .05$. The overall variance in predicting maximum speed driven accounted for by the SPI traits and the Dark Triad of personality was not significant, $R^2 = .18$, $F(13, 96) = 1.62$, $p = .09$. Risk-taking ($\beta = .38$, $p = .001$) had a significant standardized beta weight in predicting maximum speed driven.

In the final regression analysis, risky behaviour (i.e., summed scores on number of cigarettes smoked per day, number of drinks per week, and maximum speed driven) was regressed onto the SPI traits and the Dark Triad traits. The first model with the SPI traits included significantly predicted risky behaviour, $R^2 = .19$, $F(10, 99) = 2.29$, $p < .05$ and the second model remained significant by adding the Dark Triad, $R^2 = .20$, $F(13, 96) = 1.89$, $p < .05$. Risk-taking ($\beta = .38$, $p = .001$) had a significant standardized beta weight in predicting maximum speed driven.

Discussion

The current study investigated the Dark Triad's incremental validity beyond the SPI in predicting a series of prosocial and risky behaviours. Correlation analyses confirmed predictions that participants who score high on the SPI trait risk-taking also consumed more drinks per week, and reported higher maximum speed driven. Additionally, participants who scored higher on the

SPI trait risk-taking were more likely to donate blood. This relationship can potentially be explained by the invasive nature, as well as the risk and pain associated with blood donation. Higher scores on the SPI trait seductiveness were associated with increased alcohol consumption per week. This association can be explained by attending social activities. Past literature suggests that people who score higher on seductiveness are more likely to attend parties and social activities that will attract the potential sexual interest of others (Paunonen, 2002). Parties usually involve consuming alcohol and therefore seductive persons reported drink more alcohol. Participants who scored high on the Dark Triad trait psychopathy also reported consuming a higher number of drinks per week and a higher maximum driving speed. However, psychopathy was not related to overall risky behaviour scores. Also, contrary to prediction, neither the SPI traits nor the Dark Triad traits were related to overall scores on prosocial behaviours (i.e., summed blood donation and volunteering score).

The correlation between the SPI traits and the Dark Triad traits confirmed the findings in past research (Veselka et al., 2011). Namely, psychopathy correlated positively with manipulativeness and seductiveness, and negatively with integrity; Machiavellianism correlated positively with manipulativeness and negatively with integrity; narcissism correlated positively with seductiveness, manipulativeness, and egotism. The current study also identified some new relationships. Specifically, Machiavellianism revealed a strong association with seductiveness; narcissism was negatively associated with integrity, and psychopathy was positively associated with seductiveness. These findings confirmed that the SPI traits may share some of the same theoretical content with the Dark Triad (Hong, Koh, & Paunonen, 2012). Notably, the SPI trait

seductiveness, manipulativeness, and integrity were correlated with all three Dark Triad traits. It

was not surprising that SPI trait manipulativeness was related to the Dark Triad traits because

manipulativeness has been defined as planning and using others for personal interests, sometimes

involving ingratiation or deception (Paunonen, 2002). Likewise, seductiveness also involves

planning to attract sexual attention, which is in keeping with the Machiavellian's tendency to

satisfy personal interests using seductive tactics (Paulhus & Williams, 2002). Integrity, on the

other hand, is associated with the rejection of cheating and deceiving behaviours, and the

rendering of these behaviours as unacceptable. It is evident that integrity is negatively associated

with each of the triad traits because individuals high in integrity do not engage in cheating or

deceptive behaviours (Paulhus & Williams, 2002).

The correlation between the SPI and the Dark Triad also provided evidence for some

commonalities between the traits. For example, egotism revealed the highest correlation with

narcissism. Paunonen (2002) defined egotism as feeling superior and being contemptuous of

others. This definition shares some similarities with the characteristics of narcissism (Paulhus &

Williams, 2002). Additionally, integrity revealed a strong negative association with psychopathy.

The association can be explained by that psychopathy usually involves deception whereas

integrity involves rejecting cheating and deceiving behaviours.

The inter-correlations of the SPI traits revealed the traits that are potentially associated with

antisocial tendencies. More specifically, manipulativeness, seductiveness, and egotism were

positively inter-correlated and at the same time all negatively correlated to integrity. It suggests

that the three traits may share a common character that underlines antisocial tendencies. The

positive inter-correlation found in the Dark Triad confirmed past findings that the triad traits are correlated and all associated with antisocial tendency (Paulhus & Williams, 2002).

The hierarchical regression analyses revealed that the SPI traits seductiveness and manipulativeness significantly predicted prosocial behaviours, and the SPI trait risk-taking significantly predicted risky behaviours. By definition, seductiveness is related to sexually provocative behaviours used to attract sexual attention (Paunonen, 2002). It was also associated with using sex to satisfy exploitative intentions (O'Neill & Hastings, 2011). Because volunteering and blood donation does not provide the person with direct benefits, seductive individuals would be less likely to engage in such behaviours. Similarly, SPI trait manipulativeness is associated with profit-driven intentions. Manipulative individuals may not be willing to commit to prosocial behaviours without obvious benefits. Thus, individuals high in manipulativeness would be less likely to engage in prosocial behaviours. The SPI trait risk-taking predicted risky behaviours because risk-taking is by definition associated with seeking stimuli in dangerous situations that may cause bodily harm. In the current study, the components of risky behaviours, especially the driving speed, were related to stimuli that could be potentially dangerous and cause harm to the body so it is not surprising that the trait of risk-taking predicted risky behaviours.

Contrary to the prediction, none of the Dark Triad traits predicted overall prosocial or risky behaviours when the SPI traits were controlled for. The regression analyses revealed that, in general, the Dark Triad did not add incrementally to the SPI's prediction of a series of prosocial and risky behaviours. The SPI traits alone entered in the first step significantly

predicted volunteering behaviour, risky behaviour, and the components of drinks per week, number of cigarettes smoked per day, and maximum speed driven. When the three Dark Triad traits were added to the models, all traits together significantly predicted volunteering, drinks per week, and risky behaviours. However, based on the R^2 change values, it was evident that the Dark Triad did not add incremental validity to the SPI's prediction of these behaviours. The results indicated that the SPI itself was sufficient to capture the variance in most of the socially malevolent behaviours selected in the current study.

Contributions of the Current Study

The findings of the current study contribute to the study of personality and socially malevolent traits. The results revealed relationships between the SPI traits and the Dark Triad traits that confirm findings from previous research. More specifically, the SPI trait seductiveness was strongly correlated with all Dark Triad traits. Seductiveness may represent a core characteristic of the three Dark Triad traits. The correlations presented in the current study have added to the current literature on the relationship between the SPI and the Dark Triad, and provide evidence for some commonalities between the traits, such as the Dark Triad's narcissism and the SPI's egotism. The regression analyses revealed the SPI's strength in predicting both prosocial and risky behaviours, which provides further evidence for the SPI's broad coverage of personality traits.

Limitations and Future Directions

There were three possible limitations of the current study. The first limitation was the validity of criterion items. In the current study, prosocial behaviour consisted of only two

self-reported items: dichotomized reports of blood donation and participating in volunteer

activities. The two-item measure did not cover a wide range of prosocial behaviours and

therefore might not be sufficient to represent true prosocial behaviour. More comprehensive

questionnaires should be employed to capture a sufficient range of behaviours that belong to the

prosocial category. Similarly, the measures of risky behaviour employed in the current study

consisted of only three items: number of cigarettes smoked per day, number of drinks per week,

and the maximum speed one has driven in km/h. Also, the maximum speed one has driven may

not be representative of risky behaviours. For instance, responses to this item are dependent on

whether the participant has a driver's license, or drives on the highway. These problems may

challenge the representativeness of the items, and as such, more appropriate measures are needed

to assess risky behaviours.

The second limitation was that the range within some items was too small to capture

sufficient individual differences. Both blood donation and volunteering were yes-or-no

dichotomized questions. The restricted range of score was not enough to reflect variability in

these behaviours and therefore may have attenuated the relationships between these behaviours

and relevant personality variables. Number of cigarettes smoked per day also had a restricted

range in which the maximum number of cigarettes smoked per day was two. This may have

limited the capacity of both the SPI and the Dark Triad traits to predict smoking behaviours.

Because of the dichotomized scales, logistic regression procedures should be implemented in

future studies to avoid the violation of assumptions of regression.

The last possible limitation was the participant characteristics. Background analysis revealed

an unbalanced male-to-female ratio. Females outnumbered males in the current study so that the

results may have limited generalizability. Also, all participants were university students. The

results may not be generalizable to the population of lower socioeconomic status or other age

ranges. Future studies should control gender ratio and use samples with different demographics.

Future studies should continue exploring the relationship between the Dark Triad traits and

the SPI traits with more comprehensive measures of the criterion, given that these personality

measures are linked and may share theoretical content. Also, other personality measures can be

examined with the SPI, especially the ones that are associated with anti-social tendencies, such

as the HEXACO model (Lee & Ashton, 2004), to further establish the SPI's ability to capture

socially malevolent traits.

References

Batson, C. D., Ahmad, N., & Lishner, D. A. (2009). Empathy and altruism. (pp. 417–426). Oxford University Press (New York, NY, US).

Baughman, H. M., Dearing, S., Giammarco, E., & Vernon, P. A. (2012). Relationships between bullying behaviours and the Dark Triad: A study with adults. *Personality and Individual Differences*, *52*, 571–575. http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.paid.2011.11.020

Brumbach, B. H. (2007). *Effects of harsh and unpredictable environments in adolescence on development of life history strategies: A longitudinal test of an evolutionary model.* ProQuest Information & Learning (, US).

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

Del Giudice, M. (2014). An evolutionary life history framework for psychopathology. *Psychological Inquiry*, *25*, 261–300. http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1080/1047840X.2014.884918

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual.* Odessa, FL: Psychological Assessment Resources.

Digman, J. M. (1990). Personality Structure: Emergence of the Five-Factor Model. *Annual Review of Psychology*, *41*, 417–440.

Hare, R. D. (1985). Comparison of procedures for the assessment of psychopathy. *Journal of*

Consulting and Clinical Psychology, 53, 7–16.

Henderson, B. B., & Bobadilla, L. (2011). *Exploring the dark sides of personality development.*

(Vol. 56). American Psychological Association (, US).

Hong, R. Y., Koh, S., & Paunonen, S. V. (2012). Supernumerary personality traits beyond the Big

Five: Predicting materialism and unethical behavior. *Personality and Individual*

Differences, *53*, 710–715.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.paid.2012.05.030

Hong, R. Y., & Paunonen, S. V. (2009). Personality traits and health-risk behaviours in university

students. *European Journal of Personality*, *23*, 675–696.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1002/per.736

Huber, J. T., & MacDonald, D. A. (2012). An investigation of the relations between altruism,

empathy, and spirituality. *Journal of Humanistic Psychology*, *52*, 206–221.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1177/0022167811399442

Jakobwitz, S., & Egan, V. (2006). The dark triad and normal personality traits. *Personality and*

Individual Differences, *40*, 331–339.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.paid.2005.07.006

Jonason, P. K., Baughman, H. M., Carter, G. L., & Parker, P. (2015). Dorian Gray without his

portrait: Psychological, social, and physical health costs associated with the Dark Triad.

Personality and Individual Differences, *78*, 5–13.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.paid.2015.01.008

Jonason, P. K., Li, N. P., Webster, G. D., & Schmitt, D. P. (2009). The dark triad: Facilitating a

short-term mating strategy in men. *European Journal of Personality*, *23*, 5–18.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1002/per.698

Jonason, P. K., Lyons, M., Bethell, E. J., & Ross, R. (2013). Different routes to limited empathy

in the sexes: Examining the links between the Dark Triad and empathy. *Personality and

Individual Differences*, *54*, 572–576.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.paid.2012.11.009

Jones, D. N., & Paulhus, D. L. (2009). Machiavellianism. (pp. 93–108). Guilford Press (New

York, NY, US).

Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO personality inventory.

Multivariate   Behavioral   Research,   *39*,   329–358.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1207/s15327906mbr3902_8

Little, S. S. (1995, October). *Altruism in college volunteers: Relationships to prosocial

personality, constructive thinking, and parenting variables.* ProQuest Information &

Learning (, US).

McCrae, R. R., & Costa, P. T. (2011). *NEO Five-Factor Inventory--Revised*. Retrieved from

http://doi.apa.org/getdoi.cfm?doi=10.1037/t07553-000

McCrae, R. R., Costa, P. T., & Martin, T. A. (2005). The NEO-PI-3: A More Readable Revised

NEO Personality Inventory. *Journal of Personality Assessment*, *84*, 261–270.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1207/s15327752jpa8403_05

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its

applications. *Journal of Personality*, *60*, 175–215.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1111/j.1467-6494.1992.tb00970.x

Nathanson, C., Paulhus, D. L., & Williams, K. M. (2006). Predictors of a behavioral measure of

    scholastic cheating: Personality and competence but not demographics. *Contemporary*

    Educational Psychology, *31*, 97–122.

    http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.cedpsych.2005.03.001

O'Neill, T. A., & Hastings, S. E. (2011). Explaining workplace deviance behavior with more than

    just the "Big Five". *Personality and Individual Differences*, *50*, 268–273.

    http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/j.paid.2010.10.001

Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism,

    Machiavellianism and psychopathy. *Journal of Research in Personality*, *36*, 556–563.

    http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/S0092-6566(02)00505-6

Paunonen, S. V. (1998). Hierarchical organization of personality and prediction of behavior.

    Journal of Personality and Social Psychology, *74*, 538–556.

    http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/0022-3514.74.2.538

Paunonen, S. V. (2002). *Design and construction of the Supernumerary Personality Inventory*

    (*Research Bulletin 763*). London, Ontario: University of Western Ontario.

Paunonen, S. V., & Ashton, M. C. (2001). Big Five factors and facets and the prediction of

    behavior. *Journal of Personality and Social Psychology*, *81*, 524–539.

    http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/0022-3514.81.3.524

Paunonen, S. V., Haddock, G., Forsterling, F., & Keinonen, M. (2003). Broad versus narrow

    personality measures and the prediction of behaviour across cultures. *European Journal*

of Personality, *17*, 413–433.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1002/per.496

Paunonen, S. V., & Jackson, D. N. (2000). What is beyond the Big Five? Plenty! *Journal of*

Personality, *68*, 821–835.

http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1111/1467-6494.00117

Raskin, R. & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological*

Reports, 45, 590.

Stead, R., & Fekken, G. C. (2014). Agreeableness at the core of the dark triad of personality.

Individual Differences Research, *12*, 131–141.

Veselka, L., Schermer, J. A., & Vernon, P. A. (2011). Beyond the Big Five: The Dark Triad and

the Supernumerary Personality Inventory. *Twin Research and Human Genetics*, *14*, 158–

168. http://doi.org/http://dx.doi.org.proxy1.lib.uwo.ca/10.1375/twin.14.2.158

Appendix A

LETTER OF INFORMATION

1. Invitation to Participate

You are invited to participate in this research study being conducted by Sampo. V. Paunonen. The study concerns the responses of adult university students to the items of standard personality questionnaires. You are being asked to volunteer for this research as part of your involvement in the Psychology Research Participation Pool.

2. Purpose of this Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding your participation in this research.

3. Purpose of this Study

The purpose of this study is to investigate response consistency of university students to the items of certain personality questionnaires. As a result, you will be asked to complete the several such questionnaires on two separate occasions.

4. Inclusion Criteria

Anybody in the Department of Psychology Research Participation Pool is eligible to participate in this research.

5. Exclusion Criteria

There are no exclusion criteria.

6. Study Procedures

If you agree to participate, we ask that you commit to two separate testing sessions separated by a week. During these testing sessions you will complete a variety of questionnaires consisting of standard personality items. Each session will take approximately 60 minutes to complete. You will be compensated 1.0 course credits for your attendance at each session. Your total compensation will be 2.0 credits if you attend both testing sessions. All assessments will take place in 8426 SSC. Our target sample size is 120 participants.

7. Possible Risks and Harms

There is a possibility that you may feel discomfort or distress at answering some of the questions in this study. You can omit answering any question. You can also stop and withdraw from the

testing session at any time without loss of the 1.0 research credits.

8. Possible Benefits
You may benefit from participating in this study by learning about the pragmatics of doing psychological research. Society as a whole will benefit by a better understanding of personality assessment methods that are currently used by psychological researchers and practitioners.

9. Compensation
You will be compensated 1.0 course credits for your participation in Session 1 of the study. You will also be compensated 1.0 credits for your participation in Session 2.

10. Voluntary Participation
Participation in the study is voluntary. You may refuse to participate, refuse to answer any questions, or withdraw from the study at any time. There will be no effect on your future academic status.

11. Confidentiality
All data collected will remain confidential and accessible only to the investigators of the study. If the results are published your name will not be used. Although we do our best to protect your information, this cannot be guaranteed. Your name and student number are requested in order to match your answer sheets from Session 1 to Session 2. All names and student numbers on the paper forms (a) will be replaced by arbitrary code numbers in any computerized data file, and (b) will be stored along with the matching code numbers under lock and key. Representatives of the University Western University Health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of this research.

12. Further Information
You will be given a Feedback Sheet at the end of the second session. If you require any further information regarding this research project or your participation in this study, you can contact the principal investigator, Dr. S. Paunonen, at 519-661-2060 or at paunonen@uwo.ca. If you have any questions about your rights as a research participant or about the conduct of this study, you can contact the Office of Research Ethics at 519-661-3036 or at ethics@uwo.ca.

13. Publication
If the results of this study are published, your name will not be used. If you would like to receive a copy of any potential study results, please contact the principal investigator at 519-661-2060 or paunonen@uwo.ca.

14. Consent

If you agree to participate in this study, please sign the Consent Form on the next page.

Appendix B

Personality Retest Consistency

CONSENT FORM

I have read the Letter of Information,
the nature of the study has been explained to me,
all questions have been answered to my satisfaction,
and I agree to participate in this session of the study.

_____

Name (please print): _____

Signature: _____

Student Number: _____

Date: _____

_____

Experimenter: _____

S. V. Paunonen, Ph.D

Appendix C

Personality Retest Consistency
FEEDBACK SHEET

The principal investigator has developed a personality questionnaire called the Supernumerary Personality Inventory (SPI; Paunonen, 2002) to measure 10 standard traits of personality. Although various psychometric properties of the SPI scales have been reported, nothing is known of the test-retest reliability of those scales. Also, some researchers have related the SPI traits to the so-called Dark Triad of personality (Veselka, Schermer, & Vernon, 2011). The Dark Triad refers to three subclinical behavior domains that have negative interpersonal implications: Machiavellianism, Narcissism, and Psychopathy (Paulhus & Williams, 2002). However, as with the SPI, the Dark Triad measures most often used in research also have not been evaluated with regard to their test-retest reliability.

Yet other researchers have evaluated both the SPI traits and the Dark Triad traits in terms of their relations to the Big Five factors of personality (e.g., Vernon, Villani, Vickers, & Harris, 2008). Both SPI traits and the Dark Triad traits, however, are presumed to be outside of the domain of the Big Five, or the so-called Five Factor Model of personality (see Paunonen & Jackson, 2000). But these statistical relations as reported in the research literature have not always been consistent. Thus, the present study is designed to address these specific issues.

The primary purpose of this study is to evaluate the test-retest reliability of the 10 SPI trait scales and popular measures of the Dark Triad of personality. All participants will be evaluated with all measures twice, in two testing sessions separated by a week. Scores on each personality scale from the first assessment will then be correlated with the corresponding scores from the second assessment. It is expected that these correlations will be fairly high, indicating that the measures have good test-retest reliability. Low correlations will indicate suboptimal psychometric properties for the affected scales.

A secondary purpose of this study is to verify the correlations of the SPI scales and the Dark Triad scales with measures of the Big Five personality factors. As stated earlier, the SPI traits and the Dark Triad traits are thought to be independent of the Big Five factors. Thus, it is expected that these correlations will be fairly low, supporting the theory underlying the construction of the SPI and Dark Triad questionnaires.

For more information about these topics, see the readings below. It would be greatly appreciated if you would not discuss this study with other students to avoid biasing the results. Any questions can be addressed to the experimenter below.
(continued over...)

References

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

Paunonen, S. V. (2002). *Design and construction of the Supernumerary Personality Inventory*. (Research Bulletin 763). London, Ontario: University of Western Ontario.

Paunonen, S. V., & Jackson, D. N. (2000). What is beyond the Big Five? Plenty! *Journal of Personality*, *68*, 821-835.

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

Veselka, L., Schermer, J. A., & Vernon, P. A. (2011). Beyond the Big Five: The Dark Triad and the Supernumerary Personality Inventory. *Twin Research and Human Genetics*, *14*, 158-168.

Experimenter:
Sampo V. Paunonen, Ph.D.
Professor

paunonen@uwo.ca.