Two models of dark triad traits and self-regulation dilemma predicting IP theft through self-deception

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**TWO MODELS OF DARK TRIAD TRAITS AND SELF-REGULATION
DILEMMA PREDICTING IP THEFT THROUGH SELF-DECEPTION**

**YEO MUI KHENG DIANA
SCHOOL OF SOCIAL SCIENCES
2019**

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PREDICTING IP THEFT THROUGH SELF-DECEPTION**

YEO MUI KHENG DIANA

SCHOOL OF SOCIAL SCIENCES

A thesis submitted to the Nanyang Technological University
in partial fulfilment of the requirement for the degree of
Doctor of Philosophy

2019

Statement of Originality

I hereby certify that the work embodied in this thesis is the result of original research, is free of plagiarised materials, and has not been submitted for a higher degree to any other University or Institution.

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ABSTRACT

Despite the increasingly serious and common acts of crime by employees towards their organizations, research findings on why employees turn bad are sparse. This study aimed to examine how dark triad personality traits and self-regulation dilemma is related to intellectual property (IP) theft. Using the results of data-driven studies on IP theft and the integrated model of employee theft, I developed two process models, one involving conflict of goals that meet ego needs and the other, conflict of goals that do not serve ego needs. I hypothesized that when motivated by personal goals, Dark Triad traits may moderate the relationship between goal conflict and cognitive and affective self-regulation dilemma, and, self-deception may mediate the relationship between Dark Triad traits, self-regulation dilemma and IP theft. I also proposed that Machiavellianism and psychopathy are connected to IP theft in both models, but narcissism is related to IP theft only in the model where personal goals serve ego needs.

Two studies were designed to empirically evaluate the models. In the first study, I examined the measurement equivalence of the Short Dark 3, the measurement of Dark Triad traits, using an undergraduate sample (N=208). Parcelled-item confirmatory factor analysis was utilized to establish a three-factor model of Short Dark 3 for the local population, and correlational analysis and path analysis to was used to demonstrate the convergent-discriminant properties of Short Dark 3. Results of first study confirmed that the Short Dark 3 measures identical constructs consistently across different groups.

The second study was an experiment where goal conflict, ego and audience effects were manipulated. MANOVA and path analysis were used to investigate the model fit of our proposed models on a sample, N=246. Model re-specification was performed, and goodness of fit indices indicated good model fit for both models. Motivation of personal goal led to cognitive and

affective self-regulation dilemma in both models. In the model where personal goal did not serve ego needs, affective self-regulation dilemma and narcissism resulted in self-deception and narcissism also directly led to IP theft. Cognitive self-regulation dilemma led to opportunistic IP theft. In the model where personal goal served ego needs, self-deception fully mediated the relationship between Machiavellianism and IP theft, and, the relationship between affective self-regulation dilemma and IP theft. Psychopathy had a direct effect on IP theft.

The findings further research in insider threat by empirically providing evidence of the psychological influences in the decision-making process that might lead an employee to commit acts of IP theft. Aside from contributing to the literature on insider threat, results of this research integrating self-regulation dilemma and Dark Triad traits to the mediation of IP theft through self-deceptive cognitive strategies can contribute to preventive intervention programs that organizations can develop to contain insider threat.

Keywords: Dark Triad, Machiavellianism, narcissism, psychopathy, IP theft, insider threat, cognitive self-regulation dilemma, affective self-regulation dilemma, self-deception, organizational deviance.

CHAPTER ONE: INTRODUCTION

The inter-connectedness of businesses and organizations in this internet age have rendered organizations vulnerable to fraud, theft, and other criminal acts on their digital networks by people seeking so-called ‘trade secrets’ and proprietary corporate information for financial gain (Warkentin & Willison, 2009). Such malicious attacks could come from sources outside of the organizations as well as from within. The rapid rise of cyber-crimes committed by individuals within organizations has led to the term “insider threat” being coined to address the threat arising from this group. A commonly used definition of an insider threat is provided by CERT (Computer Emergency Readiness Team), an expert group that handles computer security incidents in the United States since 1988. Insider threat is the threat of trusted individuals who are either members of an organization or who have authorized access, knowledge or privileges to organizational resources such as network, system, or data, engaging in activities from within the organization that threaten the interests of that organization. IT consultancy and research firms, Accenture and HfS Research highlighted the prevalence of insider threat by uncovering that 69% of enterprise security executives have reported experiencing an attempted theft or corruption of data by insiders in 2016 (“The State of Cybersecurity and Digital Trust 2016”, 2016). Another study conducted by the Association of Certified Fraud Examiners (ACFE) pointed out that 77% of workplace fraud is committed by individuals working within the organization, and that this insider fraud could end up costing firms US\$3.7 trillion globally (ACFEE, 2014).

The magnitude of the insider threat problem has drawn researchers to study this trend in order to mitigate risks. Substantial work has been done in the last decade in this area and a large proportion of these studies focused on engineering approaches such as logging software and

algorithmic modelling to articulate attack characteristics such as the insiders' online and computer activities prior or during attacks (Legg et al., 2013; Nurse et al., 2014). Compared to these engineering and IT-related studies, relatively less work has been done to describe the psychological influences of insider threat. Most of these psychological studies are also data-driven, centred on gathering information from known cases to identify the insider threat profile (for example, Moore et al., 2011). Theory-driven studies such as Axelrad, Sticha, Brdiczka, and Shen (2013), which proposed a model using Big Five traits to predict interest in potentially malicious insider actions, are few.

Researchers from the domains of criminology and organizational psychology largely also consider insider threat and workplace crimes in the digital age to be an area that is under-researched. For instance, Elias (2013) described how criminologists give preference to street crime even though white-collar crime and occupational crime are on the rise. Furnham and Taylor (2011) commented that although acts of crime by employees towards their organizations, including insider attacks, are increasingly serious and common, research on why employees turn bad are scarce compared to the abundance of work done on management topics such as employee retention and job performance.

Background

The insider threat of intellectual property (IP) theft is the subject of my research interest. The paucity of theory-backed studies amidst the predominance of data-driven studies in insider threat, as well as the scarcity of research on insider threat in the domains of criminology and organizational psychology, have paved the way for my study to amalgamate both theory and information gleaned from data-driven studies to meet the gap in the research on insider threat. Data-driven psychological research done on insider threat forms the background for my research

rationale. I will begin by providing a brief overview of these studies followed by the challenges arising from their results.

Earlier studies on insider threat compiled information to identify insider characteristics and compose the insider threat profile. Research of this nature are continuing. For example, Gordon, Rebovich, Choo, and Gordon (2007) provided a detailed analysis of the age, ethnicity, arrest history, etc., for insider profile of identity theft. Chang and Lim (2016) furnished information on insider age, tenure and shareholdings to predict the likelihood of insiders engaging in unethical behaviour such as delayed trade disclosure. Although demographic characteristics of insiders may be useful as descriptive information on insiders, a major disadvantage of such studies is the absence of information on how and why insiders become a threat to the organization. Studying person-specific psychological factors will enable researchers to explain the motives behind the actions of insiders and examine the proclivity of certain individuals to become insiders. This would improve the predictive validity of the studies.

Results from studies of psychological factors connected with insider threat suggest that the desire for financial gain is one of the key motives behind such crimes in the financial sector (Cappelli, Moore, Randazzo, Keeney, & Kowalski, 2004). Other explicit motives for insider threat cited in this literature ranged from revenge, dissatisfaction with the organization and desire for respect. Another group of researchers, Moore et al. (2011) presented two insider profiles specifically in the area of IP theft based on the empirical examination of 48 cases. Two profiles of insiders, the ‘entitled independent’ and the ‘ambitious leader’, were imparted from their data-driven study. The ‘ambitious leader’ recruits others to steal proprietary information, and he does it to serve a larger purpose than personal gain. He is more calculated, planful and carries out his

attacks in a covert manner. The ‘entitled independent’ on the other hand, acts alone to obtain information beneficial to himself and for personal gain.

Moore et al. (2011) evinced that the motivation for insider theft include a predisposition to feeling entitled. Prior to carrying out insider attacks, the ‘entitled independent’ reports feeling disgruntled and dissatisfied with the organization. Besides surfacing as a factor in the study by Moore et al. (2011), disgruntlement had also showed up in other studies to be a reason for insider attacks. Shaw, Payri, Cohn, and Shaw (2013) documented feelings of discontent, resentment and frustration in digital communication of insiders. Additionally, Willison and Warkentin (2009) reported that the negative sentiments built up over time and Charney (2004) informed that the disgruntlement of insiders are ego related.

Lastly, Dark Triad personality traits have emerged as possible predictors from recent studies of insider threat cases (e.g., Maasberg, Warren, & Beebe, 2015). These researchers introduced ten propositions for future researchers to explore concerning the relationship between Dark Triad personality traits and insider threat behaviour. One such proposition is to examine whether Dark Triad traits positively influence negative attitudes that are associated with insider attacks.

Although results from these studies are promising in describing insider behaviour, data-driven studies tend to have lower predictive validity than scientific enquiry which formulates hypotheses based on theory, and then testing them by experimentation using empirical behavioural data (e.g., Van Helden, 2013). Furthermore, there are limitations in the way data are analysed in these previous studies. First, in describing motives, most researchers of insider threat define motivation as the explicit reasons which the attackers attribute to themselves for engaging in the attack. These motives were also attributed to the attackers by the researchers

after insider acts are committed based on known triggers, or through extrapolation from personal circumstances (Pang, 2016). Empirically testing if motives such as financial or ego-related goals will lead to insider attacks will validate these variables as triggers of insider threat.

Second, although disgruntlement arose consistently as a variable associated with insider threat cases, because of the correlational nature of previous studies, it is uncertain whether the disgruntlement was a response to genuine workplace injustice, or if disgruntlement was used by the perpetrators as a justification for committing workplace crime. It is common for people in organizations to feel revengeful now and then especially when they are angry and hurt. As explained by equity theory (Adams, 1963), people make social comparisons between themselves and others because they are motivated to be treated fairly. But it does not mean that all cases of disgruntlement will lead to insider behaviour.

In the workplace, a host of issues, such as unequal pay, unfair work assignments, unjust treatment or discrimination may easily cause employees to perceive that there is inequity, which motivates them to redress the situation. Feelings of disgruntlement are subjective experiences of discontent that can vary considerably between individuals. Two people in the same job might see workplace issues, such as superior-subordinate disagreements, differently; one could feel put down when the supervisor points out an error, and the other could see the humour in the situation.

Thus data-driven studies tend to provide a person-centric and individualistic explanation for their insider attacks which might lead one to conclude that certain individuals are more prone to engage in insider threat behaviours. But as highlighted by Furnham and Taylor (2011), it is erroneous to think that disgruntled individuals set out to commit acts of crimes in the workplace. Instead, many contextual factors in the work environment may influence an individual such that

an interaction between these contextual factors and intrapersonal factors may better explain insider threat behaviours. For example, individuals who are motivated by personal goal to gain from IP theft may perceive workplace situations as more unfair and unequitable compared to individuals who are not motivated to gain from IP theft.

Furthermore, as the data were gathered post hoc, these studies do not enlighten on the decision-making process individuals go through when they commit acts of insider threat. The findings are therefore more susceptible to confirmation bias or fundamental attribution errors by the researchers or could be confounded by researchers extrapolating from their own personal circumstances (Pang, 2016). As advised by Pang (2016), results from these data-driven studies provide the credible foundation to build a process model of insider threat behaviour that considers contextual factors and interactions with the environment, and to validate the model with more behavioural data.

The present research aims to examine a process model of IP theft. Besides meeting the gap in research of such nature, research on the decision-making process of insiders has wider applications that is of relevance to world beyond its pedagogical or academic value. With empirical evidence of possible triggers of insider behaviours, organizations can apply the research by tailoring solutions more accurately in mitigating insider risks. For example, if certain traits are found to be associated with insider behaviour, organizations can change their recruitment policies and if disgruntlement that are perceived rather than arising from genuine unfair work practices increases the likelihood of insider outcomes, then organizations can change their grievance handling procedures and processes to more efficiently and effectively de-escalate insider threat. I will review appropriate literature from organizational psychology and personality psychology that are congruent with the data-driven studies done as well as constructs

that might inform the study of IP theft. Using theories and models from these related fields, I will discuss how this research contribute to the challenges by identifying variables and dimensions hitherto unobserved in data-driven studies that predicts insider threat.

Research on Organizational Deviance

In the domain of organizational psychology, organizational deviance is defined as the deliberate or intentional desire to cause harm to an organization or workplace (Furnham & Taylor, 2011). Malicious insider attacks such as IP theft, are therefore subsumed under this topic. The list of behaviours within the category of organizational deviance is long, ranging from minor infractions such as tardiness and lateness, to serious and illegal wrongdoings such as sabotage, fraud and theft. Diverse terms have also been used to define and describe organizational deviant behaviours and distinctions between these terms can vary significantly. For instance, unethical workplace behaviour (Jones, 1990) refers to behaviour that deliberately infringes the accepted ethical or moral code; deviant workplace behaviour (Robinson & Bennett, 1995) refers to unauthorized but intended acts that damage property, production or reputations; organizational misbehaviour (Vardi & Wiener, 1996) refers to behaviour that violates societal and organizational norms; and, counterproductive work behaviour (e.g., Fox & Spector, 1999) is behaviour that goes against the legitimate interests of an organization.

Researchers have also tended to regard each behaviour as discrete and in isolation, resulting in separate lines of literature on each of these classes of behaviours (Sackett, 2002). Sackett (2002) provided evidence from various studies that, when these counterproductive workplace behaviours are grouped together into different categories of, for example, theft represents theft of cash or property while destruction of property covers defacing, damaging, or destroying property and sabotage, self-reported correlations between these different groups of

behaviours are strong. Therefore, I will focus on the literature that spans the broad range of behaviours classified as organizational deviance, while paying closer attention to theft and fraud. I aim to identify potential variables and dimensions associated with theft and fraud that have hitherto been under-studied in data-driven studies.

Theories of Employee Theft

Greenberg and Barling (1996) suggested that theories of employee theft can be grouped into three types: person-based theories, workplace-based theories, or theories that propose an interaction model of both these factors. Each of these categories shall be discussed in detail.

Person-based theories.

Person-based theories, as described by Greenberg and Barling (1996), use intrapersonal factors to explain why employee steal. The intrapersonal factors include financial needs, deviant traits and background, greed, moral laxity, and marginality. A proponent of person-based theories, the financial need theory, asserts that stealing is a function of financial needs. This theory assumes that individuals resort to stealing when they experience the pressure to resolve their financial difficulties. An interview study conducted by Bucy et al. (2012) with forty-five nationally recognized experts on white collar crimes disclosed that money, financial gain, and greed are the prevailing motives for crime in the workplace. Other studies (example, Flannery, 2010) cited motives ranging from perceived injustice, powerlessness, frustration, and even boredom and fun to be the reasons behind more wide-ranging insidious behaviours in the workplace.

Individuals with deviant personality traits are considered by advocates of person-based theory to be more predisposed to and more vulnerable than others to engage in workplace theft. There is some weight to this theory as the dispositional traits of Machiavellianism, subclinical

narcissism and subclinical psychopathy, collectively known as the Dark Triad (Paulhus & Williams, 2002), have consistently been associated in numerous studies with unethical, counterproductive and deceptive behaviours in organizations. (for example, Babiak, Neumann, & Hare, 2010; Harrison, Summers, & Mennecke, 2016; O'Boyle, Forsyth, Banks, & McDaniel, 2012). The Dark Triad is described by Paulhus and Williams (2002) as three separate, socially aversive yet coherent traits within normal range of functioning. High scorers of Machiavellianism have three main characteristics: an unwavering belief in using manipulation to achieve goals (Jones & Paulhus, 2009), a cynical view of others, and, a strong preference for unprincipled, amoral, and deceptive methods to achieve one's goals (O'Boyle et al., 2012).

High scorers of narcissism are portrayed as having the characteristics of grandiosity, entitlement, dominance and superiority (Corry, Merritt, Mrug, & Pamp, 2008). Narcissism is manifested through having an inflated view of self, wanting others to also have this view, and having fantasies of control, success, and admiration (Kernberg, 1989; Morf & Rhodenwalt, 2001). High scorers of psychopathy are described as having high impulsivity, lacking empathy and/or conscience toward others, and, being highly skilled in manipulating others. (Smith & Hung, 2013). Their non-conforming impulsivity, immunity from stress, callousness and emotional nature enable psychopaths to appear glib and charismatic whilst engaging in antisocial behaviours without feeling guilt or remorse (Hare & Neumann, 2009).

Greed, temptation and opportunities to steal are proposed by person-based theorists to be related to workplace theft. This is based on the assumption that people are inherently greedy and would steal when they get the chance to do so (Aster, 1972; Lipman, 1973). Studies have shown that opportunities to steal have a strong correlation with theft ((Gilman, 1982; Hollinger & Clark, 1983; Miethe & McCorkle, 1998). Proponents of the moral laxity theory postulate that younger

employees demonstrate a lack of moral and ethical standards compared to employees in the past and the relaxation of standards leads to an increase in workplace theft (Merriam, 1977). Support for this theory comes from studies that revealed higher workplace theft amongst younger employees (Franklin, 1975; Hollinger & Clark, 1983) although some critics argued that other factors such as marginality may also explain this relationship.

Marginality theory proponents argue that marginal employees who hold less static jobs, earn less, and have low status and rank, may steal because they lack opportunity to development commitment on the job (Tucker, 1989). Research by Hollinger and Clark (1983) and McLean, Parks, and Kidder (1994) lend support to this theory as temporary employees consistently showed up as being more likely to be involved in workplace deviance. These researchers argue that temporary workers do not have the chance to develop a commitment with the organization and as a result are more willing to steal than more long-term employees.

In addition to the specified person-based factors highlighted by Greenberg and Barling (1996), other researchers have also identified other person-specific characteristics to explain organizational deviance. For example, threatened egotism, the state when one receives an external evaluation that disagrees with one's own favourable appraisal (Baumeister, Smart and Boden, 1996), has also been explored for its relationship with counterproductive work behaviour. Research supports the hypothesis that when individuals high in narcissism experience ego threats, they are more likely to experience negative emotions, such as anger, frustration, or hostility, that in turn leads counterproductive workplace behaviour such as workplace aggression and workplace deviance (Penny & Spector, 2002; Giacalone & Greenberg, 1997; Neuman & Baron, 1998; Robinson & Bennett, 1995).

Workplace-based theories.

According to Greenberg and Barling (1996), there are three major theories of workplace theft: Deterrence doctrine, organizational climate, and perceived organizational fairness.

Deterrence doctrine theorists suggest that the perceived threat of organization sanctions influences employee behaviour such that employee theft is more likely when anti-theft policies are unclear or not explicitly made known (Gibbs, 1975). Empirical research that has examined this deterrence paradigm supposes that, of the three variables of the deterrence doctrine, perceived certainty, severity and how quickly punishments were meted out, perceived certainty of punishment is the most effective in forming employee behaviour towards theft (e.g., see Tittle, 1977, 1980; Tittle & Logan, 1973). Another workplace-based theory postulates that an organizational climate is either honest or dishonest and a lack of moral atmosphere endorses dishonest behaviours such as theft (Kamp & Brooks, 1991). Advocates of this theory such as Bruhn and Lowrey (2012) further suggest that negative manifestations of greed such as competition, flaunting excesses, and a highly individualistic organizational culture could lead to criminal actions such as abuse of public trust, fraud and theft.

However, the direct impact of organizational culture on counterproductive workplace behaviour is unclear. For example, a meta-analysis conducted by Carr, Schmidt, Ford, and DeShon (2003) found that organizational climate affects outcomes at individual level such as work performance, psychological well-being and withdrawal but not more serious counterproductive workplace behaviour. Similarly, Sterling and Labianca (2015) pointed out that employee perceptions of what they can attain and what they deserve significantly determine whether or not employees experience malicious or benign envy.

On the other hand, the theory that perception of exploitation and unfairness result in employee theft is well-substantiated by research. Specifically, perceived injustice and interpersonal conflict are among the most frequently cited job stressors that result in psychological strain (example, job dissatisfaction) (Francis & Barling, 2005). Fox and Spector (1999) found supporting evidence for the hypothesis that counterproductive work behaviour such as aggression, sabotage, and theft is a behavioural response to the perception of workplace injustice.

Interaction of person and workplace theories.

Furnham and Taylor (2011) have argued that the interaction between person-specific factors and workplace factors would probably predict employee theft most accurately compared to only person-based or workplace-based factors. Various researchers have examined this argument. For example, Greenberg (2002) demonstrated that the moral development of an individual and the identification of an actual victim of a theft, whether it is an individual or organization, determine if people would steal money in the workplace. Other research demonstrated that people who feel undercompensated are more likely to steal and engage in other forms of deviant behaviours when authority figures appear indifferent to their underpayment (Colquitt & Greenberg, 2003; Greenberg, 1993a; Lind, Greenberg, Scott, & Welchans, 2000). Based on the findings of the data-driven research on insider threat, a model of the interaction of person and workplace factors may be more adequate in explaining insider behaviour rather than a model based only on person or workplace-specific factors. For instance, examining how Dark Triad traits may interact with exposure to deterrence doctrine in the workplace may help clarify why these individuals commit acts of IP theft.

Theories of fraud.

Another category of research on organizational deviance is classified under theories of fraud. IP theft can be considered an occupational fraud, which is defined by ACFE as “the use of one’s occupation for personal enrichment through the deliberate misuse or misapplication of the organization’s resources or assets.” (“What is fraud?”, n.d.). Therefore, theories of fraud may inform on the research on IP theft.

Fraud triangle theory.

A prominent theory of fraud, the fraud triangle theory (Cressey, 1973), is predominantly used by professionals such as auditors and investigators to assess fraud risk in organizations (PCAOB, Consideration of fraud in a financial statement audit. AU Section 316, www.pcaobus.org, 2005). This theory, developed by criminologist Donald Cressey to explain occupational fraud, asserts that three factors occurring together predict the likelihood of fraud within an organization: opportunity to commit fraud, incentive or pressure such as financial motive, and rationalization of the act (Wells, 2008) and if any one of the elements are missing, the crime does not occur. Lister (2007) determined the motivation or pressure to commit fraud, such as personal, employment stress, and external pressure, to be a significant factor of fraud. Opportunity presented by ineffective or weaknesses in the system such as lack of supervision or poor control systems that give the employee the chance to commit fraud fuel the fraud and finally, rationalization to morally justify engaging in unethical behaviour is deemed to keep the fraud going.

Other fraud theories.

Researchers have also built on the fraud triangle theory by proposing other psychological pathways to fraud. For example, Murphy and Dacin (2011) suggested that a lack of awareness

that an action is unethical may explain why some individuals commit fraud. Murphy and Dacin (2011) also incorporated ethical decision making into the fraud triangle framework and proposed pathways besides rationalization that individuals use to avoid or reduce the negative affect that accompanies performing unethical behaviour, such as moral disengagement and motivated reasoning. Notably, according to the fraud triangle theory, all three factors are pre-requisites to prove occupational fraud. Thus, incorporating these three factors in our experimental design would validate the research on IP theft.

Relevant research on the study of organizational deviance.

Apart from studies that directly investigate employee theft, other relevant concepts have also been recommended to explain the broader class of behaviours known as organizational deviance. Specifically, research in self-regulation may help inform research on organizational deviance. Self-regulation is defined by Bauer and Baumeister (2011) as the ability to persist with long term goals and to follow socially appropriate rules and norms by overcoming natural and automatic impulses, desires and behaviours, even attractive short-term temptations. Individuals, being members of a workplace, are required to meet organizational goals. They receive economic and non-economic benefits (for example a monthly salary, annual leave or medical benefits) for complying with and meeting organizational goals, and, rules and regulations for performance, achievements and membership. Achievement of organizational goals is thus the means to meeting individual goals when these organizational and individual goals are compatible, and one is instrumental for achieving the other.

However, the personal goals of individuals may sometimes not align with the organizational goals. For example, an individual who has financial goals in excess of the income he receives may find that his needs exceed what he can achieve by meeting organizational goals.

Rules of the organization may also directly conflict with personal goals, for example, forbidding the individual from seeking a second source of income. Thus, when the individual encounters an opportunity to pursue his personal goal, for example, an offer from a supplier to exchange favours of recommendation for money, this opportunity may leave the individual vulnerable to satisfying his needs at the expense of organization's anti-graft rule. Consequently, this conflict between what the organization wants versus what the individual wants result in a dilemma for the individual; whether to self-regulate and meet organizational rule, or to yield to his personal desires. Bauer and Baumeister (2011) described self-regulation as a resource that sustains interpersonal processes and behaviours, and that self-regulation could also lead to the experience of dilemma because "living in groups requires that people transform selfish impulses into behaviours that support group interests, substitute aggressive tendencies for prosocial behaviours, and adhere to rules and laws governing social life resources" (Bauer & Baumeister, 2011, p. 70).

Another group of researchers used a dual system approach to describe the process of self-regulation (Metcalf & Mischel, 1999; Epstein, 1994; Lieberman, 2003). Although these researchers used different terminologies, their descriptions of how self-regulation work are similar. Essentially, thinking about the dilemma represents a slow and reflective cognitive processing system that generates rational and strategic behaviour such as recalling and attending to the delayed reward. It is effortful and sustains control, leading one to self-regulate. On the other hand, the affective system is an automatic, simple, fast and impulsive emotional processing system, triggering the need for self-gratification. Unless interrupted, such automatic responses preclude effortful control and leads to self-regulation failure. The dual system approach does not

dispute the limited capacity model but offers a different perspective of interpreting self-regulation through the use of systems in describing human behaviour.

Self-regulation is particularly relevant in the study of organizational deviance because interpersonal processes and behaviours in organizational contexts require self-regulation. An employee's personal goals may conflict with organization goals, triggering a self-regulation dilemma. De Witt Huberts, Evers, and de Ridder (2014) have defined self-regulation dilemmas as situations involving two opposing goals that a person intends to pursue, whereby the pursuit of one goal means the inhibition or thwarting of the progress of the other goal. Self-regulation failure occurs when the individual pursues the short-term goal that meets his or her desire or impulses at the expense of the long-term goal. The workplace context potentially abounds with self-regulation dilemmas that people have to master in order to achieve organizational goals. De Witt Huberts, Evers, and de Ridder (2012) further stated that the experience of a dilemma when goals conflict is more likely to lead to self-regulation but when the individual think of reasons to make disengagement from long-term goals more acceptable, self-regulation failure results.

However, research regarding the resultant effect of self-regulation dilemma had been mixed. Whilst some studies such as de Witt Huberts, Evers, and de Ridder (2012) and Giner-Sorolla (2001) revealed that the more one experiences self-regulation dilemma, the more likely one tends to self-regulate, others have shown that when goals conflict, people tend to cheat. For example, Thomas, Johnson, and Jewell (2016), demonstrated that the experience of conflict between personal and social identities led to consumers claiming to consume brands that they do not, and hiding and falsifying the brands that they consume. Self-regulation theories have already been well-incorporated into the domain of industrial and organizational psychology. For a summary of the empirical and theoretical work done in I/O psychology on self-regulation, see

Vancouver and Day (2005) who have related self-regulation to other constructs such as self-efficacy and commitment to goals in work contexts to interventions for a range of outcomes that are relevant to organizations, such as improving performance and reducing absenteeism. In the context of the organization, self-regulation dilemma may therefore be a pertinent psychological variable in the study of why employees choose to do harmful things to their organizations and research in this area would help clarify the link between self-regulation dilemma and workplace deviance such as IP theft.

Another construct that may be relevant in the study of organizational deviance is self-deception. Von Hippel and Trivers (2011) define self-deception as the act of favouring welcome information over unwelcome information such that it reflects one's goals or motivations. Von Hippel and Trivers (2011) hypothesized that self-deception can be explained from an evolutionary perspective as a fitness enhancing strategy that enables individuals to better deceive others in order to accrue precious resources. Specifically, self-deception benefits the individual in three ways:

1. by reducing the risk that the deceiver will put out cues of deception, which means that self-deception leads the deceiver to more successfully deceive others.
2. by allowing the deceiver to avoid cognitive load when deceiving by adopting a more coherent internal narrative.
3. by allowing the deceiver to avoid or minimize retribution when they are caught, should the deceiver claim that they too, genuinely believed the falsehood.

Two research studies have been cited by von Hippel and Trivers (2011) to establish that unsuccessful deception imposes substantial cost on the deceiver. One is a study using repeated ultimatum bargaining experiments where participants who have the most opportunities to win

and who act in anonymity deceive more (Boles, Croson, & Murnighan, 2000) and the other is a study which showed that prior deception hampers the recovery of trust, even when promises, apologies, and observed trustworthy actions are given (Schweitzer, Hershey, & Bradlow, 2006). According to von Hippel and Trivers (2011), the results of these studies highlight the high social and emotional costs for the deceiver when caught, thus giving credence to the role of self-deception in these situations. When people can assure themselves that a falsehood is true or that they are blameless, then they can deceive without increasing their cognitive load, thus becoming more convincing, and lessening the chance of being caught or the retribution when they are caught.

Self-deception has been considered by other researchers to be related to incidences of organizational deviance. Lock and Wells (1996) discussed self-deception as a possible explanatory mechanism in cases of medical fraud, when fraudulent medical researchers falsified and fudged the results of their studies whilst believing themselves to be above reproach. Lock and Wells (1996) quoted Broad and Wade (1982) in asserting that the desire for credit, peer approval and recognition are the powerful incentives that led these scientists to “improve” on their results (p. 116). For these deceptive medical researchers, self-deception could be demonstrated in strategies and processes including biased information searches, biased interpretations, biased memory processes, and, the engaging of reasons to rationalize departing from ethical code to report fraudulent results.

The conscious engaging of reasons to justify disengagement from organizational goals has been described by de Witt Huberts, Evers, and de Ridder (2012) as a defence mechanism to allow the deceiver to make the disengagement more acceptable appears similar to self-deception. However, these types of explicit justifications are conscious reasons that individuals use to

disengage from opposing goals whereas self-deception may be the less conscious mechanism that support these reasons by selectively favouring information for the disengagement.

A study of the less conscious mechanism of self-deception may inform research on IP theft. To elaborate, individuals who commit workplace theft or IP theft often use justifications such as disgruntlement or revenge for their act. Based on von Hippel and Trivers' (2011) theory, especially when they are motivated by personal gain, these individuals may selectively focus on information or interpret the information in a biased way to enhance a sense of inequity so that they will feel completely justified to redress the inequity by gaining financially from the theft. Equity theory suggests that when there is a perception of inequity, people are motivated to avoid the negative emotional states resulting from such perceptions. Their response can be behavioural, that is, doing something to reduce the inequity, or psychological, that is, changing the way they think about the situation.

Thus, there are two forces at work here; the unconscious mechanism of self-deception and a conscious mechanism explained by equity theory. These individuals are likely to be unaware of these competing motivations of disgruntlement and of obtaining personal gain at work within them because such unconscious forces are likely to be socially undesirable. Self-deception enables the individual to maintain an illusion of rationality, a coherent internal narrative that deviating from opposing organizational goal is really in their best long-term interest. By doing so, they convince themselves that their actions are reasonable under those circumstances, thus avoiding negative feelings of shame, guilt, or self-reproach, as well as possible retribution for their transgressions.

My research of the less conscious mechanism of self-deception fills the gap for research to investigate how people arrive at these justifications for moral disengagement in the workplace,

especially when motivated by personal goals. Furthermore, the research on the Dark Triad in the workplace tends to focus on behavioural outcomes and researchers such as Spain, Harms and Lebreton (2013) have called for more research that look into the underpinnings of these traits that result in these outcomes. By investigating the possible mechanisms of the Dark Triad underlying IP theft, I hope to meet the gap expressed by Spain, Harms, and Lebreton (2013). Specifically, my study on the self-deceptive cognitive strategies of the Dark Triad may inform on the self-protective mechanisms that the Dark Triad use to maintain consistency with their beliefs when they commit IP theft. Such research has beneficial applications for the prevention of insider threat. Backed by empirical evidence, organizations can make more accurate and valid decisions regarding the employment of individuals high on these traits, such as screening out these individuals. Organizations can also take precautionary actions to mitigate insider risks, such as implementing courses that expose cognitive biases and motivated reasoning so that employees may be more self-aware about self-regulation failure and self-deception leading to IP theft.

Conceptual Framework

Using the results of data-driven studies on IP theft and the interaction model of person-specific and organizational-specific factors (Greenberg & Barling, 1996) as a theoretical framework, I propose two process models to explain IP theft. One model incorporates the constructs of Dark Triad traits, self-regulation dilemma and self-deception within a scenario where there is a conflict between the employee's personal goals that meet ego needs and the organization's goals. The second model incorporates Machiavellianism and psychopathy, self-regulation dilemma and self-deception within a scenario where the employee's personal goals that do not serve ego needs conflict with organizational goals.

By ego needs, I refer to Maslow's theory of hierarchy of needs (Maslow, 1943) which encompasses ego needs within esteem needs. Maslow (1943) distinguishes two kinds of esteem needs; the need for esteem from others and the need for self-esteem. Rowan (1998) in explaining Maslow needs, refers to the esteem need from others as ego needs which can result in feeling alleviated or abased by what others think of us. When individuals pursue personal goals that meet ego needs, for example wanting a car, the car represents something that brings social approval and esteem from others, as oppose to personal goals without ego needs; wanting a car for the enjoyment the car brings.

There is a plethora of research linking Machiavellianism and psychopathy to unethical and counterproductive workplace behaviour (e.g., Kessler, et al., 2010; Hare & Neumann, 2009). On the other hand, individuals high in narcissism are more likely to engage in counterproductive workplace behaviour at the workplace only when their self-esteem is threatened (Penney & Spector, 2002). All three Dark Triad traits appear to arouse striving for personally instrumental goals but there seem to be differences in the primary motives driving the goals set by persons who are dominant in each of the three traits (Trapnell & Paulhus, 2012). Narcissism is strongly driven by goals such as status, esteem and prominence that originate from ego needs (Jones & Paulhus, 2011) whereas individuals high in Machiavellianism and psychopathy tend to focus on egoistic goals; wanting and striving for goods and services for themselves and their personal enjoyment rather than because these things are symbolic of a certain identity (Jones & Paulhus, 2011). Thus, Machiavellians and psychopaths are likely to strive to attain goals such as power, sex, money, status or other economic and financial resources for the selfish reasons of wanting these things for themselves and not because they want others to admire them for having attained these goals.

The literature cited in the sections before this lend support to the inclusion of personal goals and the Dark Triad traits as intrapersonal factors in our study as these factors are highlighted in data-driven insider threat studies as well as studies exploring person-specific factors explaining employee theft. As for organization-specific characteristics, Moore et al. (2011) showed that the majority of IP thieves had signed IP agreements prior to the theft. Whilst there is literature that suggests that deterrence doctrines may not be effective in deterring employees from stealing (Hollinger & Clark, 1983), not much has been done to explain exactly why deterrence doctrine is ineffective in preventing IP theft. In particular, the study of how individuals contemplate the dilemma brought on by the conflict of personal goals with organizational goals, and how this leads to eventual self-regulation or self-regulation failure may inform on the reasons and motivations for the persistence of IP theft.

Proposed hypotheses.

As suggested by de Witt Huberts et al. (2012), the experience of self-regulation dilemma leads to self-regulation and de Witt Huberts, Evers, and de Ridder (2014) further added that when individuals engage reasons and justifications for their action, they then become more likely to experience self-regulation failure. Gorges, Esdar, and Wild (2014) reported that when individuals regard organizational goals as interfering with personal goals, they tend to experience more negative affect such as frustration and anger. Carver (2009) also suggested that the negative feelings of guilt, anxiety and fear lead the individual to resolve the feelings by moving away from perceived threat.

To elaborate, when motivated by personal goals and these goals conflict with organizational goals, individuals may experience guilt and potential remorse when they contemplate an opportunity to commit IP theft. Not acting on the temptation could resolve the

negative feelings that result from the self-regulation dilemma. On the other hand, a conflict of goals may also not necessarily trigger high levels of self-regulation dilemma in some individuals and it is possible that these individuals would not experience any guilt or potential remorse about giving in to their personal desires to commit IP theft. Being significantly more concerned for their personal goals over interest for others (for example, Linton and Power, 2013 and Tang et al., 2008) high scorers of Dark Triad traits may experience less guilt or potential remorse dilemma when goals conflict.

However, high scorers of Dark Triad traits are motivated differently in attaining personal goals. Machiavellians and psychopaths tend to strive for egoistic goals but narcissists tend to be motivated by goals that serve ego needs (Jones & Paulhus, 2011). Therefore, narcissism may not be a predictor in a model where goal conflict involves personal goals that do not serve ego needs. Machiavellianism and psychopathy are not associated with ego needs but they are highly motivated by personal goals (Jones & Paulhus, 2011).

Proposed hypotheses involving personal goals and self-regulation dilemma.

In view of the complex models for the three traits processing information differently for different conditions, I develop sub-hypotheses to test our research question. I hypothesize that when people are motivated by personal goals that do not serve ego motives, Machiavellianism and psychopathy may moderate the relationship between a conflict of goals and cognitive and affective self-regulation dilemma such that high scorers of Machiavellianism and psychopathy experience lower self-regulation dilemma ($H_{1(a-b)(i-ii)}$). The sub-hypothesis of H_{1a-i} represents the hypothesis concerning Machiavellianism and cognitive self-regulation dilemma and H_{1a-ii} represents the hypothesis concerning Machiavellianism and affective self-regulation dilemma

and the sub-hypotheses H_{1b-i} and H_{1b-ii} represent the hypotheses concerning psychopathy and, cognitive and affective self-regulation dilemma respectively.

Similarly, in the model where personal goals serve ego motives, I hypothesize the same relationships between Machiavellianism and psychopathy and cognitive and affective self-regulation dilemma (H₂ (a-b)(i-ii)). In this model, I also hypothesize that narcissism moderates the relationship between conflict of goal that meet ego needs, and, cognitive and affective self-regulation dilemma such that high scorers of narcissism experience lower cognitive and affective self-regulation dilemma (H_{3a,b}). I further hypothesize that a model with only Machiavellianism and psychopathy is a better fit when goals do not serve ego motives compared to a model including narcissism (H₄).

Proposed hypotheses involving self-deception and IP theft.

Due to their preference for and consistency in using deception and manipulation (Jones & Figueredo, 2013) high scorers of Dark Triad traits may favour information that is congruent with using deception, such as information that derogates others, and misinterpret information by attributing similar deceptive attitudes in others. Thus, this positive relationship with self-deception may enable high scorers of Dark Triad traits to develop a coherent internal narrative about others having selfish motives and being similarly deceptive. Self-deception also enables high scorers of Dark Triad traits to maintain the view that deviating from organizational goal is really something people should and would do under those circumstances to commit IP theft.

Thus, in the model where personal goal meets ego motive, I hypothesize that self-deception partially mediates the relationship between Dark Triad traits and theft of IP (H_{5(a-c)}) and they endorse IP theft opportunistically through theft of the medium containing the IP or direct theft of IP (H_{5(a-c)}(i-ii)). The sub-hypotheses of (a) to (c) refers to Machiavellianism,

narcissism and psychopathy respectively and opportunistic IP theft is denoted by the sub-hypotheses with (i) and direct IP theft of codes is denoted by the sub-hypotheses with (ii). In the model where personal goal does not meet ego motives, I hypothesize that self-deception partially mediates the relationship between Machiavellianism and theft of IP medium as well as IP theft, and psychopathy and theft of IP medium and IP theft ($H_6(a-b)(i-ii)$) where (a) and (b) refers to Machiavellianism and psychopathy respectively and (i) and (ii) refers to opportunistic and direct IP theft respectively.

H_5 and H_6 hypotheses reflect partial mediation because numerous literature have linked Dark Triad traits to counterproductive and unethical behaviour which indicate that there are possible direct paths from Dark Triad traits to IP theft. Therefore, I hypothesize that Machiavellianism, narcissism and psychopathy each has direct and positive effect on both forms of IP theft when personal goal meets ego motive ($H_7(a-c)(i-ii)$). In the model where personal goals do not meet ego motive, only Machiavellianism and psychopathy have direct and positive effects on both forms of IP theft ($H_8(a-b)(i-ii)$).

In addition to Dark Triad traits, my models also address other pathways to IP theft. When motivated by personal goals that conflict with organizational goals, individuals may unconsciously look for ways to resolve these negative feelings and cognitive awareness of self-regulation dilemmas by selectively focusing on, misinterpreting, and distorting the information of superiors and co-workers' actions as unfair treatment. Based on equity theory, an individual may resort to counterproductive behaviours as a justified behavioural response to the unfair treatment (e.g., Fox, Spector & Miles, 2001). The negative feelings brought on by high levels of self-regulation dilemma becomes feelings of disgruntlement and anger because of perceptions of unfair treatment, thus allowing the individual to commit IP theft as a seemingly justified

behavioural response to the unjust situation. This is a possible perspective hitherto unexplored by data-driven studies such as Shaw et al. (2013) and Willison and Warkentin (2009) that only assumed disgruntlement to be the reason for insider attacks. Accordingly, I hypothesize that self-deception mediates the relationship between cognitive and affective self-regulation dilemmas and IP theft for both models (H9(a-b)(i-ii), H10(a-b)(i-ii)). The hypothesized mediation between the Dark Triad traits through self-deception are reflected as indirect relationships from Dark Triad traits to IP theft. The list of hypotheses is presented in Table 1 and our proposed models are illustrated in Figures 1 and 2.

Table 1

List of Hypotheses for this Study

No Ego Model: Personal goal without ego motive

Machiavellianism moderates the relationship between conflict of goals and cognitive self-regulation dilemma such that high scorers of Machiavellianism experience lower cognitive self-regulation dilemma.	H _{1a-i}
Machiavellianism moderates the relationship between conflict of goals and affective self-regulation dilemma such that high scorers of Machiavellianism experience lower affective self-regulation dilemma	H _{1a-ii}
Psychopathy moderates the relationship between conflict of goals and cognitive self-regulation dilemma such that high scorers of psychopathy experience lower cognitive self-regulation dilemma	H _{1b-i}
Psychopathy moderates the relationship between conflict of goals and affective self-regulation dilemma such that high scorers of psychopathy experience lower affective self-regulation dilemma	H _{1b-ii}
A model with only Machiavellianism and psychopathy is a better fit when goals do not serve ego motives than a model with Machiavellianism, narcissism and psychopathy.	H ₄
Self-deception mediates the relationship between Machiavellianism and theft of IP medium	H _{6a-i}
Self-deception mediates the relationship between Machiavellianism and IP theft	H _{6a-ii}
Self-deception mediates the relationship between psychopathy and theft of IP medium	H _{6b-i}
Self-deception mediates the relationship between psychopathy and IP theft	H _{6b-ii}
Machiavellianism has a direct and positive effects on theft of IP medium	H _{8a-i}
Machiavellianism has a direct and positive effect on IP theft	H _{8a-ii}
Psychopathy have direct and positive effect on theft of IP medium	H _{8b-i}
Psychopathy has a direct and positive effect on theft on IP theft	H _{8b-ii}
Self-deception mediates the relationship between cognitive self-regulation dilemma and theft of IP medium	H _{10a-i}
Self-deception mediates the relationship between cognitive self-regulation dilemma and IP theft	H _{10a-ii}
Self-deception mediates the relationship between affective self-regulation dilemma and theft of IP medium	H _{10b-i}

Self-deception mediates the relationship between affective self-regulation dilemma and IP theft	H _{10b} -ii
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Ego Model: Personal goal with ego motive

Machiavellianism moderates the relationship between conflict of goals and cognitive self-regulation dilemma such that high scorers of Machiavellianism experience lower cognitive self-regulation dilemma	H _{2a} -i
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Machiavellianism moderates the relationship between conflict of goals and affective self-regulation dilemma such that high scorers of Machiavellianism experience lower affective self-regulation dilemma	H _{2a} -ii
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Psychopathy moderates the relationship between conflict of goals and cognitive self-regulation dilemma such that high scorers of psychopathy experience lower cognitive self-regulation dilemma	H _{2b} -i
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Psychopathy moderates the relationship between conflict of goals and affective self-regulation dilemma such that high scorers of psychopathy experience lower affective self-regulation dilemma	H _{2b} -ii
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Narcissism moderates the relationship between conflict of goals and cognitive self-regulation dilemma such that high scorers of narcissism experience lower cognitive self-regulation dilemma	H ₃ -a
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Narcissism moderates the relationship between conflict of goals and affective self-regulation dilemma such that high scorers of narcissism experience lower affective self-regulation dilemma	H ₃ -b
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Self-deception partially mediates the relationship between Machiavellianism and theft of IP medium	H _{5a} -i
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Self-deception partially mediates the relationship between Machiavellianism and IP theft	H _{5a} -ii
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Self-deception partially mediates the relationship between narcissism and theft of IP medium	H _{5b} -i
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Self-deception partially mediates the relationship between narcissism and IP theft.	H _{5b} -ii
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Self-deception partially mediates the relationship between psychopathy and theft of IP medium	H _{5c} -i
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Self-deception partially mediates the relationship between psychopathy and IP theft	H _{5c} -ii
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Self-deception mediates the relationship between Machiavellianism and theft of IP medium	H _{7a} -i
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Self-deception mediates the relationship between Machiavellianism and IP theft	H _{7a} -ii
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Self-deception mediates the relationship between narcissism and theft of IP medium	H _{7b} -i
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Self-deception mediates the relationship between narcissism and IP theft	H _{7b} -ii
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Self-deception mediates the relationship between psychopathy and theft of IP medium	H _{7c} -i
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Self-deception mediates the relationship between psychopathy and IP theft	H _{7c} -ii
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Self-deception mediates the relationship between cognitive self-regulation dilemma and theft of IP medium	H _{9a} -i
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Self-deception mediates the relationship between cognitive self-regulation dilemma and IP theft	H _{9a} -ii
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Self-deception mediates the relationship between affective self-regulation dilemma and theft of IP medium	H _{9b} -i
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Self-deception mediates the relationship between affective self-regulation dilemma and IP theft	H _{9b} -ii
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Figure 1. Proposed Conceptual Model of the Conflict of Personal Goal without Ego Motives and Organizational Goal

Figure 2. Proposed Conceptual Model of the Conflict of Personal Goals with Ego Motives and Organizational Goals

Competing hypotheses

Finally, I examine a competing hypothesis to provide an unbiased evaluation of our data. Some individuals who experience low levels of self-regulation dilemma may choose to self-regulate. These individuals are likely to be committed and loyal members of organization such that any desire that can endanger their feeling of belonging to the organization is rejected. Individuals such as these could be bound by a psychological contract (Shore & Tetrick, 1994; Herriot, Manning, & Kidd, 1999) beyond the confines of the legal contract.

A legal contract explicitly specifies the economic and social exchange expected of the employee whereas a psychological contract is unspecified, trust-based reciprocal obligations between employee and employers (Furnham & Taylor, 2004). Individuals who are highly committed to the organization may see their superiors and co-workers as honest, reliable and trustworthy members of the organization (Furnham & Taylor, 2004) and are less likely to be

enticed by opportunities to violate organizational rules even if the opportunities meet personal needs. These individuals are therefore less likely to be self-deceived or to endorse IP theft.

Another competing hypothesis is that a person's willingness to steal increases as he/she gains psychological distance from the action (Mazar, Amir & Ariely, 2008). Taking a thumb-drive containing IP codes is considerable distance from taking wads of cash from the employer's drawer. Therefore, even if individuals report experiencing guilt about satisfying their personal goals at the expense of organizational goals, they may not see themselves as stealing when they can just take the thumb-drive home and therefore reducing the need for self-deception. These competing hypotheses suggest a relationship between self-regulation dilemma and IP theft that is not mediated by self-deception. Our research design and methodology will accommodate the presence of these competing hypotheses so as to reduce the risk of error arising from making a wrong judgement.

Research design

Two studies were designed to test our proposed models. The first study examined the measurement invariance of the measurement of Dark Triad traits, the Short Dark 3 (Jones & Paulhus, 2014). Establishing the measurement equivalence of the Short Dark 3 would allow me to make defensible, accurate and verifiable inferences about Dark Triad traits measured by the Short Dark 3 in our studies. The second study was designed to test our proposed models and investigate our hypotheses by manipulating conditions pertinent to our study. These conditions are: personal goals that serve or do not serve ego needs, personal goals that conflict or do not conflict with organizational goals, and, private versus public administration to evaluate audience effect on self-deception and justifications to commit IP theft. Path analysis will be utilized to examine the hypothesized pathways and the goodness of fit of our proposed models.

General flow of the dissertation

This dissertation is divided into five chapters. Chapter Two discusses the research and literature relating to self-regulation, self-deception and Dark Triad traits. Chapter Three presents the design, methodology and results of Study 1. The research design, methodology and results of the pilot studies and Study 2 are presented in Chapter Four. A discussion, including explanations of findings, contributions to the literature, implications, limitations, future directions and conclusion follow in the Chapter Five.

CHAPTER TWO: LITERATURE REVIEW

In my proposed process model for IP theft, I hypothesize that when personal goals conflict with organizational goals, individuals who are motivated by personal goals and who experience high levels of self-regulation dilemma may self-deceive to convince themselves that IP theft is justified. These individuals may select and interpret information in a biased way to conclude that they are victims of inequity and unjust treatment to justify acts of IP theft.

I also hypothesize that individuals who are high in Machiavellian and psychopathy traits may experience lower levels of self-regulation dilemma when goals conflict and individuals high in narcissism traits may experience lower levels of self-regulation dilemma when goals conflict but only when the personal goals serve ego needs. Additionally, individuals who experience lower self-regulation dilemma, as well as individuals with Dark Triad traits are expected to endorse IP theft by self-deception through a series of biased selection and interpretation, based on the inference that workplace injustice and unfair treatment justifies acts of IP theft. In this chapter, I will discuss the research on self-regulation, self-deception and Dark Triad traits in detail to illustrate the rationale behind my hypotheses. I will also especially highlight any alternative points of view, discriminate these variables from related constructs, and discuss issues concerning the measurement of these variables.

Conflict of personal goals and organizational goals

In my proposed model, a conflict of personal goal with organizational goal is antecedent to IP theft. Thus, I examine literature that informs on the intra-psychic conditions presented by the experience of goal conflict in organizations. A theory in organizational psychology that is closely associated with conflict of personal goals and organizational goals is agency theory (Smith, 1937). The theory assumes that employees act as agents rather than as principals and

are motivated mainly by economic self-interest. Based on this theory, close supervision and external governance mechanisms, such as deterrence doctrine and corporate rules and regulations, are required to prevent employees from acting opportunistically to meet their goal of economic self-interest.

The assumptions behind this theory—that employees are self-serving and will prioritize personal goals over organizational goals—have been applied extensively to management and organization behavioural studies since the emergence of this theory in the seventies (e.g., Johns, 1999; Eisenhardt, K., 1989; Shapiro, S., 2005). However, whilst previous studies on agency theory have assumed that employees have self-serving goals, recent studies have instead focused on the paradox of this assumption. These studies showed that the assumption about self-serving goals resulted in organizations implementing workplace actions that impinged on meaningfulness and autonomy, displacing the intrinsic motivation engaged employees have for the job. (e.g., Evans & Tourish, 2017; Shi, Connelly, & Hoskisson, 2017). This shift in research interest may have contributed to the paucity of research in organizational psychology that investigate how employees think and feel about goal conflicts despite anecdotal observations and general acceptance that personal goals do conflict with organizational goals.

Even though there is a decline in research on goal conflict in organizational psychology, studies on conflict of goals have surfaced in another area of research exploring self-regulation dilemma. For example, de Witt Huberts, Evers, and de Ridder (2014) highlight that individuals experience a self-regulation dilemma when they contemplate whether to concede to the short-term goal or accede to their long-term goal. Additionally, this dilemma involves both cognitive reflections associated with the conflict as well as affective responses to the goal conflict. To elaborate on the cognitive self-regulation dilemma, I refer to Prinsen, Evers, and de Ridder

(2016) who describe the cognitive experience of self-regulation dilemma as comprising the awareness that there is a conflict in goals, and that a choice between one goal or the other has to be made. In another research, de Witt Huberts, Evers, and de Ridder (2014) report that people think about the negative consequences and possible regrets of their decision when they have conflicting goals.

Correspondingly, researchers who measured the affective experiences of self-regulation dilemma state that goal conflict brings about negative emotions such as guilt, stress, anxiety and frustration. For instance, Gorges, Esdar, and Wild (2014) inform that when individuals regard organizational goals as interfering with personal goals, they tend to experience more negative affect such as frustration and anger. Another research by Giner-Sorolla (2001) says that negative self-conscious affect experienced when individuals make choices concerning guilty pleasures tend to lead to higher self-control.

In the same way, I believe that when employees encounter a situation to profit from IP theft and this conflict with organizational goals, they will experience cognitive and affective self-regulation dilemma as they deliberate whether to take advantage of the opportunity to gain from IP theft or to self-regulate by obeying organizational rules. Thus, I assess that cognitive and affective self-regulation dilemmas are intrapersonal factors that may clarify the decision-making process leading to IP theft. To support my argument, I reviewed literature, theories and studies on self-regulation, especially providing evidence that the experience of self-regulation dilemma is part of the process beginning when goals conflict and culminating in IP theft.

Self-regulation theories

Of the different theories about self-regulation, there are two main paradigms that have emerged with the support of majority of self-regulation researchers. These theories are the

limited strength model and the dual system model. The limited strength model may not adequately explain self-regulation dilemma in the decision-making process of my models in the sense that this theory does not explain how individuals think or feel when they consider whether to self-regulate or accede to their personal goal. Nevertheless, I will give a brief account of this theory because it is well-accepted in the research on self-regulation.

Limited strength model.

Baumeister and Heatherton (1996), Baumeister, Muraven, and Tice (2000) and Baumeister, Vohs, and Tice (2007) use a limited strength model to explain self-regulation. They regard self-regulation as a limited resource, and that the strength of this resource in individuals determine if individuals are able to alter their natural responses in order to achieve a desired state or outcome. Applying the analogy of muscle strength, these researchers propose that like muscles that get tired and weak after exercise, a person's self-regulation resources also decline after attempts to self-regulate and that when resources are depleted, self-regulation failure occurs (Muraven & Baumeister, 2000). These researchers did not differentiate self-regulation from self-control or willpower and used these terms interchangeably.

Dual system models.

Another group of researchers conceptualize self-regulation as the interplay between the behaviour and action system and the affect system. I deem that the dual system theories best explain the decision-making process hypothesized in my models because these theories accommodate the cognitive and affective dimensions that have clarify how decisions lead to self-regulation or self-regulation failure. Various dual system models, each with distinctive terminologies but similar concepts, have been proposed to explain the self-regulation process and I look at how these systems explain goal conflict and self-regulation dilemma. One group of

researchers, Carver and Scheier (1990), offer a cybernetic model to demonstrate that self-regulation is a continuous purposive process of actions and feedback loops of self-corrective adjustments moving towards and away from the tasks that one's goal is represented. This model is an application of a broader viewpoint of behaviour and systems being goal-oriented and feedback-controlled (Powers, 1973; MacKay, 1966; Miller, Galanter, & Pribram, 1960).

In this model, the process of attaining one's goal leads an individual to compare the current situation to his desired goal. The negative affect such as unhappiness and discontent over the discrepancy is a feedback loop that guides behaviour towards discrepancy reduction. If the approach strategy to discrepancy-reduction lead to a reduction in the negative feelings, discrepancy-reduction is hastened, and if negative feelings are not reduced, then discrepancy-reduction behaviour is decelerated (Carver & Scheier, 1998). Affect of positive valence such as excitement and eagerness also feedback to the individual to pursue approach actions to cash in on the opportunity and once the goal is attained, the self-regulating process ends.

The negative affect described in Carver and Scheier's (1990, 1998) model is comparable to the experience of affective self-regulation dilemma in studies by Gorges, and Wild (2014) and Giner-Sorolla (2001) which were described in the earlier section of this chapter. Thus, using Carver and Scheier's (1990, 1998) model to elucidate, the feedback loops of negative feelings such as fear, guilt and anxiety arising from the goal conflict lead the individual to take avoidant actions of self-regulation that direct the individual away from perceived threat (Carver, 2009). Another group of dual system theorists (Metcalf and Mischel, 1999; Epstein, 1994; Lieberman, 2003) propose that self-regulation comprises a system of slow and contemplative cognitive processes that execute self-regulation and a system of quick, affect-based emotional processing that responds to temptations and rewards.

As the dual system approach is proposed by different researchers using different terminologies, I focus on one of them for the sake of illustration in this review, specifically, the cognitive affective processing system (CAPS) model (Mischel & Shoda, 1995; Mischel & Ayduk, 2011). Mischel and Ayduk (2011) state that the cool system within CAPS is a slow, reflective and complex cognitive processing system that generate rational and strategic behaviour such as recalling and attending to the delayed reward. It is effortful and sustains control, enabling one to focus on actions despite the absence of immediate rewards. Thus, the cool activation leads to self-regulation when the individual delays gratification.

On the other hand, the hot system is an automatic, simple, fast and impulsive emotional processing system that produces reflexive avoidant or approach responses. A stimulus is regarded as affect-arousing when it triggers the need which the individual seeks to gratify. Unless interrupted, such automatic responses preclude effortful control and leads to self-regulation failure. Like the action and affect system of self-regulation (Carver & Scheier, 1998, 2004), Mischel and Ayduk (2011) suggest that the cognition and affect systems are closely connected and continuously interact with each other in generating behavioural responses. Thus, cool activations can produce hot representations and hot activations can be cooled by cool representations.

Applying CAPS to the constructs in my theoretical model, when personal goal conflict with organizational goal, thinking of resultant consequences and regrets is akin to the activation of the cool system that is conscious and effortful but sustains control which leads to self-gratification. These conscious thoughts of how goals conflict and possible regrets and consequences of their actions produce the negative emotional responses of guilt and anxiety in this dilemma. These conscious thoughts and negative feelings are closely connected and

continuously interacted to bring about behavioural responses, such as the individual taking steps to reduce the negative affect, leading to self-regulation. Thus, I hypothesize that cognitive and affective self-regulation dilemma work in tandem to impede the desire to gratify one's personal goal at the expense of organizational goal, leading to self-regulation, represented by a negative relationship between self-regulation dilemma and IP theft.

The action and affect model does not dispute the limited strength model but offers a different perspective of interpreting self-regulation through the use of systems in describing human behaviour. These researchers differentiate self-regulation from self-control, defining self-control as the over-riding of action tendency to achieve another goal and self-regulation as the purposive process that enables one to stay on track a goal representation despite impulses or distractions from other sources and that this affect system is self-regulating (Carver & Scheier, 2004). In terms of how these models complement each other in explaining self-regulation, Bauer and Baumeister (2011) offered that when a person detects a discrepancy of goals, internal psychological resources i.e., self-regulatory strength, is required to initiate action to alter behaviour so as to bring him or her closer to desired goals.

The experience of self-regulation dilemma

In the context of organizations, successful self-regulation enables employees to subordinate short-term personal goals to long-term organizational goals and enables them to tolerate the frustration and challenges often associated with striving for organizational goals. Self-regulation failure means yielding to the pleasure of immediate gratification rather than waiting for the delayed rewards of achieving organizational goals. Therefore, when individuals encounter a goal conflict and prior to success or failure to self-regulate, they may experience this condition researchers called self-regulation dilemma.

Mead, Baumeister, Gino, Schweitzer, and Ariely (2009) describe self-regulation dilemma as a situation where participants' egotistic goals were matched against diminished restraints which leads to self-regulation failure and the beginning of dishonest behaviour that serves self-interest, whereas de Witt, Huberts, Evers, and de Ridder (2014) specify self-regulation dilemma as situations involving two contradictory goals that individuals want to go after, where pursuing one goal means hindering the progress of the other goal. De Witt Huberts et al. (2014) and Mead et al. (2009) assumed that self-regulation dilemma is invoked when participants are exposed to situations where self-interest represented by short-term goals that meet impulses are pitted against long term goals. However, this assumption may be problematic as these researchers did not make a distinction between the conflict of opposing goals and the experience of dilemma. The definition of self-regulation dilemma used by these researchers is indistinguishable from the definition of conflict of goals by Emmons et al. (1993) which is described as "a situation when a goal that a person wishes to accomplish interferes with the attainment of at least one other goal that the individual simultaneously wishes to accomplish".

As my proposed model is a process model, it is pertinent to distinguish the conflict of goals from the experience of self-regulation dilemma to elucidate each factor leading to IP theft. By separating the experience of self-regulation from the conflict of goals, I can differentiate the dilemma experienced by each individual and measure the levels of self-regulation dilemma experienced to articulate the levels at which individuals impede or accede to their desire to profit from dishonesty. In addition, by relating Dark Triad traits to self-regulation dilemma, I may also clarify if the Dark Triad's propensity to act dishonestly begins with having lower levels of self-regulation dilemma than others when their personal goals conflict with organizational goals.

This information can add to the literature on the Dark Triad, self-regulation and counter-productive work behaviour of which IP theft is a part.

Although de Witt Huberts et al. (2014) alluded to the conflict of goals as self-regulation dilemma, they are consistent in highlighting the experience of self-regulation dilemma in their studies. The experience of being fully aware of the negative consequences and having the uncomfortable and threatening feelings when giving in to short-term goals runs contrary to their long-term goals is termed as prefactual cognitive dissonance by these researchers. Thus, cognitive and affective self-regulation dilemma that are gleamed from various studies may be very similar to the prefactual cognitive dissonance described by de Witt et al. (2014).

The prefactual cognitive dissonance experienced by participants when they are making their decision in the de Witt Huberts, Evers, and de Ridder's (2014) study differs from mainstream cognitive dissonance (Festinger, 1957) in the sense that prefactual cognitive dissonance happens before self-gratification whereas cognitive dissonance describes the psychological discomfort after the act is committed. Prefactual cognitive dissonance is also advocated by Brownstein (2003) as the likelihood that one will encounter uncomfortable negative affect arising from anticipated guilt and regret when they make mental simulations of what might happen if a choice with potentially negative consequences is made.

Thus, if an individual perceives an opportunity to gain from IP theft as a threat to his long-term organizational goal, the negative feelings of fear, guilt and anxiety may result in avoidant actions to the threat of violating the organizational rule. Using Carver and Scheier (2004) as the dual system model to explain my model, these self-regulating processes tend to be continuous as individuals make evaluations throughout the experience, thus going back and forth positive and negative affects at different stages of the process, depending on actions taken.

Through a series of cognition and feedback loops, these negative feelings move towards calm and relief when one is successful in curbing their short-term personal desires to pursue organizational goal instead.

Literature from criminology on self-control.

In the domain of criminology, researchers have also utilized the theory of low self-control to explain criminal behaviour. Gottfredson and Hirschi's (1990) general theory of crime posit that individuals will rationally select the outcome which has the most pleasure and least amount of pain after weighing the consequences of their actions. Gottfredson and Hirschi (1990) regard individuals who find crime and deviance attractive as having low levels of self-control because they cannot see the consequences of their actions.

This theory of self-control has been used by Gottfredson and Hirschi (1990) to generally explain criminal and deviant behaviour and have received support from criminologists investigating antisocial behaviour, deviant behaviour and cybercrimes (e.g., Forde & Kennedy, 1997; Buzzell, Foss & Middleton, 2006; Donner & Jennings, 2014; Donner et al., 2014). Although there are considerable empirical interest and endorsement for the general theory of crime, there are differences in the concept of self-control described by Gottfredson and Hirschi (1990) and self-regulation dilemma which is my research interest. Self-control is conceptualized by Gottfredson and Hirschi (1990) as a trait whereas self-regulation dilemma in my research is a state condition which is induced when a person's motives conflicted with others in a particular situation.

Justification-based mechanisms.

Studies have also shown that the experience of self-regulation dilemma does not always lead to self-regulation. De Witt Huberts, Evers, and de Ridder (2012) demonstrated that

participants who perceived themselves as having invested greater effort feel more justified to disengage from long term goal whilst controlling for self-control capacity and impulsivity. The engaging of reasons such as those given by de Witt Hubert et al.'s (2012) participants for disengagement from long-term goals makes the disengagement more acceptable and thus leads to their self-regulation failure.

De Witt Huberts, Evers, and de Ridder (2012) use the concepts of self-licensing and moral licensing as examples of justification-based mechanism. In self-licensing literature (de Witt Huberts et al., 2011), participants use excuses such as “I worked hard this week, I deserve it” or “I feel sad, I need something to cheer me up” to license goal disengagement. Similarly, moral licensing literature show that after people have established themselves as non-sexists or non-racists, they did not hesitate to act consistently more stereotypical, thus indicating that they used their moral credentials to license their prejudicial behaviour (Monin & Miller, 2001). However, these justification-based mechanisms are conceptually not the same as the self-deception I am recommending as the mediator through which self-regulation dilemma leads to IP theft.

Self-deception

As described earlier, self-deception is a series of biased decision-making process that an individual engages in when motivated by personal goal, to selectively choose information favouring personal goal-attainment (von Hippel & Trivers, 2011). Although self-regulation dilemma may trigger self-deception as well as justification-based mechanisms such as self-licensing, there are differences between self-deception and justification-based mechanisms. Self-deception is used in aid of socially undesirable personal goals and to facilitate deceiving others.

It is also unconscious and is expressed as a series of biased decision making such as selective attention and selective memory in aid of socially undesirable goals.

On the other hand, justification-based mechanisms are the more conscious reasons that people use to disengage from opposing goal. Compared to goals such as desiring high-caloried food or a cigarette, IP theft is not only more socially undesirable but also carry heavy penalties for infringement. Therefore, individuals who are tempted to financially profit by committing IP theft may require stronger grounds than excuses to legitimize disengagement from organizational goal. IP theft being socially undesirable is likely to result in negative emotions associated with the anticipated disengagement and self-deception is necessary to placate the negative emotions in order to make IP theft acceptable. Thus, individuals who are motivated by financial gain to commit IP theft may self-deceive by unconsciously and selectively recalling, interpreting and remembering situations as particularly grievous and injurious to oneself to justify committing IP theft as an appropriate retaliatory action.

The link between self-regulation dilemma and self-deception.

To explain the link between self-regulation dilemma and self-deception, consider this: If an individual considers disengaging from organizational goal to be unacceptable and he uses these justifications without believing them to be true, then he is aware that he is deceiving others and these justifications puts a load on his working memory when he is consciously lying. As such, he might potentially be putting out more cues which might betray the deception and risks retribution if caught. But if he convinces himself that those justifications are true, he can retain his self-respect despite disengaging from the opposing goal.

Thus, by selectively attending to information that justifies disengagement such as injustice or mistreatment, self-deception enables him to deceive others persuasively by building

up a coherent internal narrative that he is a victim of unfair practices, then disengaging from organizational rule is the right thing to do to redress the injustice. For self-deception to be successful, the mental architecture must enable the same person to be both the deceiver and the deceived and these processes must be congruent with the processes used to explain self-regulation dilemma. Von Hippel and Trivers (2011) argue that the mental dualism, for example CAPS, enables self-deception because they are dissociated thus enabling one system to deceive oneself and another system to believe in the deception.

Furthermore, these systems ensue behaviour to take place automatically and seamlessly (Chartrand, Dalton, & Fitzsimons, 2007; Chartrand, Huber, Shiv, & Tanner, 2008), and these behaviours and the goal itself are often outside conscious awareness (Fitzsimmons & Anderson, 2010). These processes facilitate self-deception because people can engage in behaviour that pursues socially undesirable goals and remain unaware of the connection and unaware of the socially undesirable goals motivating them. The potentially harmful effects of the negative affect of self-regulation dilemma to one's psychic highlight the fundamental purpose of self-deception as a self-protective mechanism from feelings of anxiety due to unacceptable impulses or deviance from norms and to maintain one's self-schema. However, one might argue that self-deception resulting in feelings of injustice and disgruntlement might be just as negative if not more so than the negative affect of self-regulation dilemma but there is a difference.

Whereas the negative affect from self-regulation dilemma arises because of guilt and shame about pursuing socially unacceptable goals, the negative affect from self-deception are outrage to the injustice suffered by these self-deceived individuals. Negative affect as a reaction to injustice feels justified and triggers a need to protest and retaliate (Miller, 2001). By maintaining a consistent internal narrative, self-deception leads the deceiver to circumvent

feelings of guilt and shame about pursuing socially unacceptable goals into socially acceptable feelings of anger and outrage towards injustice. Following dual system theory, self-deceptive cognitive strategies such as selective attention and selective memory, enable the cool system to generate biased evaluations in response to the hot representations from the negative affect of self-regulation dilemma. These cool activations in turn produce hot representations of reactions which in turn effect justifications about pursuing socially unacceptable goals as retaliation. Thus, self-deception may help the individual convert feelings of guilt and vulnerability into feelings of control and power to fight against injustice committed against oneself. To further clarify what self-deception is, I review and distinguish self-deception from similar constructs, such as heuristics, moral hypocrisy, and conditional reasoning.

Self-deception and heuristics.

Self-deception by means of a variety of biased cognitive processing is distinguished from the engaging of heuristics as mental short-cuts as an efficient use of cognitive processing (Tversky & Kahneman, 1974). Both may result in biased decision making but in the case of self-deception, the presence of motivated interest to fulfil a need within the individual results in biased decision making. On the other hand, biases that result from efficient use of cognitive process is purely due to a misapplication of a mechanism that is beneficial under different circumstances. As cognitive processing is effortful, people may engage heuristics or mental shortcuts that enable the individual to avoid repetitions in cognitive processing (e.g., Kahneman & Tversky, 1973) and errors and biases can ensue especially when the individual focuses on one aspect of information and ignoring others because of these shortcuts.

Motivated concerns that result in self-deceptive strategies may induce the individual to prioritize information in a way that meets the needs of the individual and not because of the

individual's efficiency in the cognitive processing. To illustrate this point, a person having a need to enhance himself may select only information that meets this need, such as, recalling only the compliments when both compliments and criticisms were given, to come to the conclusion that he is well-liked. His need to feel good about himself has led to biases in his decision making which in this example is selecting compliments about himself and evading the criticisms. This is opposed to the engagement of availability heuristic whereby an individual recall compliments given during an opening speech to evaluate his popularity. In this example, the compliments that this individual recall is a result of relying on immediate examples that come to his mind when evaluating his popularity and this shortcut result in biases in our decision making.

Self-deception and moral hypocrisy.

A few studies have examined the link between self-deception and other-deception but the research that claimed to study self-deception and its relationship to other-deception have used problematic construct definitions of self-deception. For example, Batson, Kobryniewicz, Dinnerstein, Kampf, and Wilson (1997) and Batson, Thompson, Seufferling, Whitney, and Strongman (1999) described self-deception as a pre-requisite for moral hypocrisy, which is the state of believing one to be moral but failing to act morally. By avoiding to comparing their actions with moral standards, Batson et al. (1999) claimed that individuals become self-deceived as they can avoid acknowledging the discrepancy between their behaviour and their moral principles.

Rather than proving self-deception, Batson et al. (1997) and Batson et al. (1999) had instead made an assumption of self-deception by suggesting that self-deception is a pre-requisite of moral hypocrisy such that when moral hypocrisy is present, self-deception is also present. However, the act of avoiding comparison with moral standards could be due to awareness of

one's hypocrisy or guilt when individuals are aware of having failed to act morally rather than demonstrating self-deception. Batson et al. (1999) further suggested that proof of self-deception as the mechanism explaining moral hypocrisy was demonstrated when they used the mirror effect to increase self-awareness. In their experiment, Batson et al. (1999) surmised that self-deception was reduced when the participants became more self-aware because of the mirror, and reduction in self-deception reduced moral hypocrisy.

The mirror effect in Batson et al. (1999) was criticised by Lönnqvist, Irlenbusch, and Walkowitz (2014) as inducing a sense of being watched rather than inducing a sense of self-awareness. Lönnqvist et al. (2014) pointed out that the mirror effect has been used by other researchers (eg., Fenigstein & Venable, 1992) to demonstrate that the mirror effect resulted in a reduction in anonymity rather than self-awareness. Furthermore, studies such as Zhong, Bohns, & Gino (2010) have already proven that a reduction in anonymity increased moral behaviour. If it is not self-awareness that was manipulated in Batson et al. (1999), then Lönnqvist et al. (2014) countered that Batson et al. (1999) had not proven that the reduced moral hypocrisy was due to a reduction in self-deception. Lönnqvist et al. (2014) also added that moral hypocrisy may not be self-deceptive because the belief that one is moral is susceptible to impression management; i.e., these individuals say they are moral to influence a positive impression of themselves rather than reflecting a genuine belief that they are moral.

Self-deception and conditional reasoning.

I have used Batson et al. (1997) and Batson et al. (1999) as examples of problematic construct of self-deception. Another area of research on conditional reasoning has shown that biased decision making is linked to crimes of aggression. James (1998) proposed that aggressive people with a strong desire to harm others develop biased ways of reasoning that make their

behaviour seem rational and sensible. His hypothesis was empirically verified by James and LeBreton (2010) who presented strong evidence that invoking a false sense of rationality is highly predictive of both overt and passive aggression. Their findings support James' (1998) proposition that aggressive people use biased decision making, such as hostile attribution bias, social discounting (i.e., a tendency to frame social norms as repressive and restrictive of free will) and retribution bias (i.e., a bias towards thinking that retaliation is more rational than reconciliation), to create defences for harming others. A desire to harm others is thus made to seem rational by overestimating threat to the aggressor through this biased justification mechanism.

This self-protective thinking by aggressors seems to parallel self-deception as biased decision making in aid of other-deception but there are differences. Whilst both self-deception and conditional reasoning are unconscious defensive cognitive processes to rationalize desire-driven behaviours, James and LeBreton's (2010) concept of conditional reasoning is specifically used to measure one's implicit antisocial motives. On the other hand, self-deception is used to describe biased decision-making to justify pursuing one's socially unacceptable goals and these goals may be wide-ranging, such as self-enhancement motives to desire to gain from dishonest means. Conditional reasoning is thus a type of self-deception that James (1998) argues is a self-deceptive rational excuse for harming others.

Commonality of justification-based mechanisms, conditional reasoning and self-deception.

The individuals who engage in self-deception, conditional reasoning and engaging justifications do so because they want to pursue self-interest in the presence of conflicting motivational forces. These types of reasoning may resolve prefactual cognitive dissonance,

therefore reducing cognitive load to enable the individual to carry out acts that violate opposing goals. Thus, self-deception, conditional reasoning and justification-based mechanisms are self-protective to enable the individual to proceed with discordant behaviours and distort information such that it is consistent with their worldview and thus seem rational and sensible.

Dark Triad

In reviewing the plethora of research on the Dark Triad traits, I focus on how individuals with these traits respond to goal conflict, their experiences of self-regulation dilemma and their relationship with self-deception. There is significant empirical attention given to these three traits collectively because of overlaps in their measures and all three traits predict similar behaviours and interpersonal outcomes. These traits have a common core of callousness and manipulation (e.g., Jonason, Li, Webster, & Schmitt, 2009; Jones & Paulhus, 2011a, Jones & Figueredo, 2013) and all three traits are associated with interpersonal aggressiveness (Jones & Paulhus, 2010), lack of empathy (Jonason & Krause, 2013; Jonason, Lyons, Bethell, & Ross, 2013), preference to use dominance and hostility (Jones & Paulhus, 2011) and intimidation strategies (Zeigler-Hill, Southard, & Besser, 2014) in interpersonal relationship, and a propensity to use deception (Baughman, Jonason, Patall, & Leybman, 2010; Book, Visser, & Volk, 2015).

There is also no lack of literature on the Dark Triad in the field of criminology. By and large, criminologists acknowledged that there are higher incidences of Dark Triad traits in Wall Street, 10 to 20%, compared to two percent in the general population (Schouten & Silver, 2012; Babiak & Hare, 2006). With this level of incidences, these researchers expressed concern about Dark Triad in suites who show no compunctions about harming and hurting others in the corporate world (Babiak & Hare, 2006). Ramamoorti and Epstein (2016) further added that two of the three points of the fraud triangle theory, the rationalization and pressure of financial

incentives, may not apply to the Dark Triad. The rationalization aspect may be inapplicable because individuals with Dark Triad traits lack conscience and may not bother with rationalization. The pressure or financial incentive aspect may also not apply to people with Dark Triad traits because they thrive on the psychological thrill of getting away with crime rather than financial incentives. However, there appears to be some construct generalization in Ramamoorti and Epstein (2016) as remorselessness seemed descriptive of only psychopathy and not Machiavellianism and narcissism (see Furnham, Richards, & Paulhus, 2013).

Three separate constructs.

Because of the high degree of overlap, some researchers have viewed them as indistinguishable (e.g., McHoskey, Worzel, & Szyarto, 1998) but there are some who argued to discriminate the Dark Triad (e.g., Paulhus & Williams, 2002 and Furnham et al., 2013) because of the conceptual differences between the three traits and because each trait is uniquely associated with different constructs such as impulsivity, planning and need for enhancement. Research that investigate the unique contribution of these traits showed that the distinctiveness of Machiavellianism is in long-term goal orientation, planning and preparation, impulse control, flexibility, cautious deliberate approach and reputation maintenance whereas the other two traits are associated with short-term tactics (Jones & Paulhus, 2011). High scorers in Machiavellianism consider the short-term financial gain of risky duplicity to be not worth the long-term loss in reputation (Jones & Paulhus, 2017). This finding is consistent with evidence for the adaptive flexibility of Machiavellians (Adams, Raeside, & Khan, 2014; Jones & Paulhus, 2011b).

By contrast, psychopathy is characterized by a lack of planning, irresponsibility, impulsivity, lacking in empathy and lack of concern for their reputation (Cleckley, 1976, Jones &

Paulhus, 2011). These features distinguish psychopathy from Machiavellianism. Cleckley (1976) described psychopaths as individuals driven by impulsive gratification and recklessness. Hare (1999) describes psychopathic individuals as having a total lack of conscience. High scorers of psychopathy show indiscriminate aggression and use coercion tactics often even for very little stakes and at high risks (Jones & Paulhus, 2017).

High scorers of narcissism are also associated with impulsivity but to a lesser degree than psychopathy (Vazire and Funder, 2006). Narcissism's main characteristic is grandiosity. Interpreting exploitation through this need of grandiosity means that narcissists feel it is quite appropriate to disregard others and ignore their feelings because they think that they are truly superior to others (Kernberg, 1975). Contrary to the narcissists' all-consuming need for self-enhancement, Machiavellians and psychopaths are unconcerned about their self-concept (Jones & Paulhus, 2011).

Paulhus and Williams (2002) have provided empirical support to demonstrate the distinctiveness of the three traits in a variety of laboratory studies and self-reports. Furnham et al. (2013) also contend that even though there are strong correlations among the three traits, such correlations could also be a function of the psychometric properties of the measures, item overlap, common components, faking or some other factor. According to Furnham et al. (2013), the best way to account for the discrete contributions of each measure is to use multiple regression. The conceptual differences between Machiavellianism, narcissism and psychopathy may mean that the three traits are each distinctively related to self-regulation dilemma, self-deception and IP theft and I review literature on how each of the Dark Triad traits relate to these constructs. I begin by summarizing research on each of the Dark Triad traits in the workplace.

Machiavellianism in the workplace.

Research has linked Machiavellianism to counterproductive workplace behaviour such as bullying, exploitation, manipulation and wanting to maintain power (Kessler et al., 2010). However, research on the success of Machiavellianism in the use of such tactics are mixed. Machiavellians regard themselves as masterful manipulators even though their emotional intelligence do not match the strength their self-conception suggest (Dahling, Whitaker, & Levy, 2009) and they may think they are politically astute, but they are not exceptionally good at politicking (e.g., Ferris & King, 1996; Ferris et al., 2005). Instead, they are more likely to engage in behaviours such as cheating, lying, and betray others but stay away from extreme forms of antisocial behaviour and aggression (Jones & Paulhus, 2009, 2010).

Narcissism in the workplace.

Individuals high in narcissism are more likely to engage in counterproductive workplace behaviour at the place of work especially when their self-esteem is threatened (Penney & Spector, 2002). Narcissists have a tendency to over-rate their achievements and prefer flattery and attention from others (DuBrin, 2012). They are also highly correlated with indirect bullying tactics in the workplace, such as withholding information that affects others' performance, ignoring others and spreading gossip (Mattice & Spitzberg, 2007).

Psychopathy at the workplace.

Psychopaths tend to thrive in the workplace especially if their work requires them to focus on achievements over concern for others, a willingness to take risks, and, having social skills and charisma (Babiak & Hare, 2006; Babiak, Neumann, & Hare, 2010; De Paulo, 2010; Yang & Raine, 2008). Psychopathy is more closely associated with violent, dangerous, and

aggressive counterproductive workplace behaviour than Machiavellianism or narcissism, and are more likely than them to engage in criminal and illegal activities (Hare & Neumann, 2009).

Research on the Dark Triad in the workplace tend to focus on behavioural outcomes. Researchers such as Spain, Harms and Lebreton (2013) have called for more research that look into the underpinnings of these traits that result in these outcomes. In the light of my research interest, I review literature that investigated the Dark Triad and self-deception.

Dark Triad and self-deception.

Studies on the self-deception of the Dark Triad has related narcissism to self-deception. The narcissistic individuals' character traits of entitlement, superiority and self-admiration (Emmons, 1984) is likened to self-deception in the way that they show a bias to self-enhance. This inflated view of self and perceived superior capability is self-deceptive because the views are not shared by others but yet are genuinely believed to be true by high scorers of narcissism (Paulhus & John, 1998).

Narcissism and self-deception.

Von Hippel and Trivers (2011) conceptualized self-deception for other-deception using the self-enhancement bias of narcissism to demonstrate the advantage one can receive from bolstering his self-image and enhancing self-confidence to increase his chances of social recognition and accrual of resources. Research is replete with studies on the self-deceptive enhancement of narcissism being associated with various outcomes. These studies include ascribing successes to internal attributions and failures to external attributions (Campbell, Reeder, Sedikides, & Elliot, 2000; Kernis & Sun, 1994; Rhodewalt & Morf, 1998), maintaining their overly positive views even when they receive contradictory feedback (Robins & John,

1997) and continuing to over-claim even when they know some of the items they were asked about did not exist (Paulhus et al., 2003).

Machiavellianism and self-deception.

There are very few studies on the self-deception and Machiavellianism or psychopathy. A keyword search in PsyINFO had only 4 articles linking Machiavellianism to self-deception. In these articles, self-deception was assessed as a response style for overly positive responding called self-deceptive enhancement measured by the Balanced Inventory of Desirable Responding (BIDR, Paulhus, 1984). Machiavellianism was not found to be associated with self-deceptive enhancement in these articles. (Wright, Berry, Catmur, & Bird, 2015; Hildebrand, Wibbelink, & Verschuere, 2018; Hren et al., 2006; and Encyclopedia of Deception, 2014).

A study by Surbey (2004) measured Machiavellianism on self-deception using self-deception questionnaire (SDQ, Gur & Sackeim, 1979) and revealed that high scorers of Machiavellians scored low on the SDQ. Gur and Sackeim (1979) designed the SDQ to measure self-deception defined as a propensity to hold two opposing beliefs at the same time, one belief that is not subject to awareness; and the nonawareness of this belief is motivated. The SDQ contains positive endorsements of which were judged to be universally true but psychologically threatening. Thus, high scorers of SDQ have a tendency to defend themselves from psychologically threatening information by denying these unpleasant truths and are aversive to self-confrontation (Sackeim & Gur, 1978).

SDQ as a measure of individual difference differs from the definition of self-deception by von Hippel and Trivers (2011) as a series of biased decision making. The self-deception measured by SDQ is a generalized response set to reject threatening statements about the self (Sackeim & Gur, 1978). Although Surbey's (2004) result appears at first glance to contradict our

proposed relationship, the researchers' explanation validates our research viewpoint that Machiavellianism is positively correlated to self-deceptive cognitive strategies. Surbey (2004) attributed the association between Machiavellians and low scores in self-deception questionnaire to Machiavellians being more cognizant of selfish motives than others and projecting their selfish motivations on others. This shows that Machiavellians may employ self-deceptive cognitive strategies in a way that support a worldview of everyone having selfish motivations, thus favouring deception of others. This self-deception could result in Machiavellians being prone to recall, remember and interpret information that reinforce deception, and, disregard information that do not.

Psychopathy and self-deception.

Searching through criminological and psychological journals also did not yield any studies that relate psychopathy to the biased observational process or biased reasoning process that is the concept of self-deception by von Hippel and Trivers (2011). A meta-analysis by Ray et al. (2013) on psychopathy and distorted response styles seems to indicate that psychopathy is not associated with self-deception. Ray et al. (2013) reported that high scorers of psychopathy are positively associated with faking bad, which is admitting to psychiatric symptoms or mental illness, and negatively associated with social desirability or faking good. As these studies were carried out anonymously, Ray et al. (2013) felt that psychopaths did not respond in a biased manner by admitting good qualities and denying bad qualities. However, they did not dispute that psychopaths may respond differently when they are motivated to do so.

Research has already shown that psychopaths are not motivated to self-enhance like narcissists are (Furnham et al., 2013) and Ray et al. (2013) appeared to support this view. On the other hand, another study by Grieve and Panebianco (2013) showed that psychopathy combined

with emotional intelligence, social skills and self-serving cognitive distortions significantly predicted emotional manipulation. It can be argued that self-serving cognitive distortions were used by psychopaths to justify their manipulative strategies. Based on the research cited here, I hypothesize that individuals high in psychopathy traits may be more likely to self-deceive in order to deceive others successfully. Although there are no definitive articles on the self-deception of psychopathy, psychopaths may likewise prefer information that support their worldview consistent with their antisocial tendencies justifying deception of others and reject information that do not.

Personal goals of the Dark Triad.

In exploring the personal goals of the Dark Triad, I examined literature that discussed the commonality and differences in the type of personal goals high scorers of Dark Triad traits strive for. All three Dark Triad traits seem to be motivated by instrumental goals but there appears to be differences in the motives for these goals (Trapnell & Paulhus, 2012).

Narcissism.

Narcissism is strongly driven by goals such as status, esteem and prominence that originates from ego needs because these goals support a grandiose self-image that provide the identity that narcissists seek (Jones & Paulhus, 2011). Goals that meet ego needs are different from egoistic goals such that goals that meet ego needs are desired because attaining the goal would provide social approval that these goals are attached to whereas egoistic goals are desired to benefit oneself. Kernberg (1975) described the paradoxical nature of the insatiable ego needs of narcissistic personalities as such - because of their extreme self-centredness, narcissists have very little interest in other people, yet their ego needs fuel the craving for admiration and approval from these people. This attachment to their ego needs may mean that individuals high

in narcissism will strive for financial goals such as money, status and wealth if the satisfaction of these symbolic goals brings the admiration and approval of others, thus serving their ego-centric motives of protecting or bolstering their ego. Narcissism is also related to short-term orientation in goal achievement. Hogan, Jones, and Cheek (1985) showed that narcissists traded off maximizing short-term benefits and gains for themselves at the expense of long-term support in interpersonal relationships and Jones and Paulhus (2010b) revealed a correlation between narcissism and measures of impulsivity.

Machiavellianism.

On the other hand, individuals high in Machiavellianism tend to focus on egoistic goals; wanting and striving for goods and services for themselves and their personal enjoyment rather than because these things are symbolic of a certain identity (Jones & Paulhus, 2011). Thus, Machiavellians are likely to strive to attain goals such as power, sex, money, status or other economic and financial resources for the selfish reasons of wanting these things for themselves and not because they want others to admire them for having attained these goals.

Machiavellianism is associated with using strategic manipulation to attain their goals (Jones & Paulhus, 2014). High scorers of Machiavellianism have a propensity to maximize reward and minimize risk (Jones, 2016) and are cautious and long-term oriented (Jones & Paulhus, 2011).

The long-term view of individuals with Machiavellian traits has been well-researched and reported in several studies, for example, planned plagiarism on term papers was predicted by Machiavellianism (Nathanson, Paulhus, & Williams, 2006b) and Machiavellians adjusting mate retention strategies for long-term relationship compared to only short-term strategies for psychopathy and narcissism (Jackson & Kirkpatrick, 2007).

Psychopathy.

Similar to Machiavellianism, individuals high in psychopathy are also motivated by egoistic goals (Jones & Paulhus, 2011) and seek after goals such as power, sex and money selfishly. However, psychopathy seemed to be associated with only short-term orientation of such goals. Jones and Paulhus (2011) described psychopaths as rigidly fixed on short-term orientation. Cleckley (1976) and Hare (1985) reported psychopathy as having no ability to resist temptations and seeking immediate gratification. Thus, psychopaths may also be motivated by an opportunity to gain from IP theft and could have a stronger effect on IP theft compared to Machiavellianism and narcissism.

Dark Triad and conflict of goals.

Whilst there is overwhelming literature support for the individuals with Dark Triad traits being significantly more concern for personal goals over interest for others (for example, Jones, 2013; Linton & Power, 2013 and Tang, Chen, & Sutarso, 2008), there are no studies that directly measured how Dark Triad respond to a situation where their personal goals conflict with organizational goals. A study on romantic revenge may provide a proxy on the Dark Triad behaviour when goals conflict. Rasmussen and Boon (2014) indicated that inhibiting factors such as perceptions of how much revenge will affect the relationship and having goals related to maintaining the relationship did not substantially inhibit revenge when individuals with Dark Triad traits are exposed to conflict between personal power goals and relationship goals such as an act of infidelity. Rasmussen and Boon (2014) show that instead of reduced revenge, Dark Triad traits moderated the effect of inhibiting factors so that revenge likelihood is just as high. This study may provide some empirical support to suggest that Dark Triad traits may have a moderating effect on the relationship between conflict of goals and self-regulation dilemmas

such that Dark Triad traits reduce the experience of self-regulation dilemmas when they encounter a conflict of goals.

Dark Triad and self-regulation dilemma.

Jones and Paulhus (2017) demonstrated in a series of experiments how high scorers of Machiavellianism, narcissism and psychopathy responded when they were given opportunities to cheat for extra money in situations where the goal is to act as honestly as possible. Individuals who are high in psychopathy persist to cheat, whereas individuals high in Machiavellianism tended not to cheat when stakes are small. This may mean that high scorers of psychopathy may experience less self-regulation dilemma than high scorers of Machiavellianism. High scorers of narcissism did not show the same level of cheating for both the low and high-risk coin-flipping tasks as those who are high in Machiavellianism and psychopathy. In another experiment where the researchers asked respondents to comment about subject matters that required a high amount of perceived expertise, high scorers of narcissism claimed to be familiar with non-existent items even in private conditions. This overclaiming was concluded by Jones and Paulhus (2017) as an indication of self-deceptive self-enhancement, a bias which Paulhus (1998) had described as ego protective.

These studies may provide some support for the proposal that high scorers of narcissism may experience self-regulation dilemma when the personal goal does not involve ego motives but may be insensitive to self-regulation dilemmas when ego motives are involved. Alternatively, high scorers of Machiavellianism may experience more self-regulation dilemma than high scorers of psychopathy in view of their long-term goal orientation, planning and preparation, impulse control, flexibility, caution and reputation maintenance (Jones & Paulhus, 2011). Literature review has consistently associated psychopathy with impulsivity, a lack of

planning irresponsibility and lack of concern for their reputation (Cleckley, 1976, Jones & Paulhus, 2011). Being driven by impulsive gratification, recklessness (Cleckley, 1976) and lack of remorse (Hare, 1999; Jones & Paulhus, 2011), high scorers of psychopathy may feel less self-regulation dilemma compared to high scorers of narcissism and Machiavellianism when organizational goals conflict with their personal goals. But when personal goals serve ego needs, narcissism may moderate the relationship between conflict of goals that serve ego needs and organizational goals, and, self-regulation dilemma such that high scorers feel less self-regulation dilemma. In view of Machiavellianism and psychopathy's sensitivity to personal goals, they may also interact with the relationship between conflict of such goals and self-regulation dilemma but to a lesser extent.

Measurement of Dark Triad traits.

The individual measurements of narcissism and psychopathy have their roots in the clinical beginnings of these 2 traits. The 40-item Narcissism Personality Inventory (NPI, Raskin & Hall, 1979) and NPI-16, the shorter version (Ames, Rose, & Anderson, 2006) dominated the measurement of subclinical narcissism (Furnham, Richards, & Paulhus, 2013), maintaining the 4 components of superiority, grandiosity, dominance and entitlement (Corry, Merritt, Mrug, & Pamp, 2008). The Psychopathy Check List - Revised (Hare, 1991) is the reference point for the measurement of forensic psychopathy but according to Furnham et al. (2013), the most used measurement is the 64-item Self-Report Psychopathy Scale (SRP; Hare, 1980; SRP-II; Hare, Hemphill, & Harpur, 1989; SRP-III; Neumann, Schmitt, Carter, Embley, & Hare, 2012; SRP-IV; Paulhus, Neumann, & Hare, in press) based on a 4-factor model of Interpersonal Manipulation, Callous Affect, Erratic Lifestyle and Criminal Tendencies. The construct of Machiavellianism had a different etiology compared to narcissism and psychopathy. It is conceptualized after

Niccolo Machiavelli, a politician in the 1500s, and is named after him. The most commonly used measurement of Machiavellianism, Mach IV, is created by Christie and Geis (1970) by distilling the writings of Machiavelli (Furnham et al., 2013).

For research purposes of the Dark Triad, there are only two instruments that measure all three constructs, the Dirty Dozen (Jonason & Webster, 2010) and the Short Dark 3 (SD3; Jones & Paulhus, 2014). Even though brevity was the key for the Dirty Dozen with only four items per construct, it has been criticized for loss of essential content and repetitive wording of narrow content to beef up its reliability scores (Credé, Harms, Niehorster, & Gaye-Valentine, 2012; John & Seto, 2007). Although the Dirty Dozen did measure up when cross-correlated with the corresponding gold standard measurements (Jonason & Webster, 2010; Rauthmann, 2013) Machiavellianism measured by the Dirty Dozen is impulsive and short-term oriented, and this is not consistent with the original concept (Jones & Paulhus, 2009).

The 27-item SD3 has been successfully employed by researchers (for example, Arvan, 2012; Baughman, Dearing, Giammarco, & Vernon, 2012; Lee et al., 2014; Giammarco, Atkinson, Baughman, Veselka, & Vernon, 2013). Concurrent validity of SD3 measured against the corresponding gold standards of measurement yielded Cronbach alphas of .68 for SD3 Machiavellianism, .78 for SD3 psychopathy and .7 for SD3 narcissism. Reliability measured by Cronbach alpha for the SD3 subscales were .77, .71 and .80 for Machiavellianism, narcissism, and psychopathy respectively (Jones & Paulhus, 2014). For researchers who do not have the luxury of time, the SD3 has been a popular choice (Furnham et al., 2013) as it is brief yet captures the classic conceptions of the Dark Triad traits and thus this is the measurement of choice for our research.

Summary

In this chapter, I discussed the literature review of the major constructs of our study. Based on this review, two studies are designed to empirically investigate my proposed models. In Chapter Three, I discuss the study to establish the measurement equivalence of SD3 to ascertain the universality of the Dark Triad traits. In Chapter Four, I empirically test my proposed models using a two (personal goal with or without ego motives) by two (organizational goals that conflict or do not conflict with personal goal) by two (anonymous or public administration) experimental design. Finally, the findings and conclusion will be discussed in Chapter Five.

CHAPTER THREE: STUDY 1

In the proposed process models of self-deception leading to IP theft, Dark Triad traits are hypothesized to be moderators of self-regulation dilemma, direct indicators of IP theft, as well as through self-deception. It is evident that the measurement of Dark Triad constructs plays an important role in this study because predictions about how individuals high in those traits are made about how they would behave differently from others. As reported by Furnham et al. (2013), two brief measures now dominate research on the Dark Triad; the 12-item Dirty Dozen (Jonason & Webster, 2010) and the 27-item Short Dark 3 (SD3; Jones & Paulhus, 2014). Compared with the Dirty Dozen, SD3 has stronger predictive power and more support from researchers (Furnham, et al., 2013).

Although SD3 is the preferred measurement of researchers, it is developed in a western culture and no studies on the measurement invariance have been undertaken to find out if SD3 measures the same qualities in the multi-ethnic urban Asian population in Singapore as it does in western context. For instance, the English language may not be the first language of some Asian groups in Singapore which might result in differences in the interpretation of English words. The objective of Study 1 is therefore to investigate the measurement invariance of SD3 across different cultures using confirmatory factor analysis (CFA) and convergence – discriminant analysis on local samples of the Singapore population.

Measurement invariance (MI) is explained by van de Schoot, Lugtig, and Hox (2012) as the quality of a set of items designed to measure an underlying phenomenon follows individuals over time or groups. A good model fit, necessary for factorial validity, is an essential pre-requisite of MI and is indicated by goodness of fit indices. Convergent-discriminant validity has

also been used to demonstrate MI when the test measure correlates with constructs measuring the same thing but not with dissimilar constructs in another cultural setting (Campbell & Fiske, 1959). If MI for SD3 holds, then comparisons are valid since measuring identical constructs across different groups and differences in scores are attributable to the latent factors represented by the scores (Byrne, Shavelson, & Muthén, 1989). Evidence from the CFA and convergent-discriminant tests will establish the quality of SD3 as a measure in my behavioural models so that defensible, accurate and verifiable inferences about Dark Triad traits measured by SD3 can be made.

To investigate MI and convergent-divergent validity of SD3, I first look at studies that validated the factor structure and established the convergent and divergent validity of SD3, and aim to replicate their results. Jones and Paulhus (2014) showed that most items loaded reasonably on their corresponding factor and model fit indices supported a three-factor model of SD3 using exploratory structural equation modelling (ESEM). They cross-validated the three-factor structure onto community and student samples and demonstrated the concurrent validity of SD3 by mapping SD3 onto standard measures of Dark Triad with disattenuated correlations ranging from .82 to .92. Studies by other researchers have also confirmed the three-factor structure of SD3 across groups (Furnham et al., 2013, Pechorro, Oliveira, Nunes, Curtis and Jones, 2019; Persson, Kajonius & Garcia, 2019).

There are numerous studies that demonstrated the convergent-divergent validity of SD3. In particular, two groups of studies were frequently cited by researchers as indicating the universality of SD3- studies on the universal social values held by individuals with Dark Triad traits and studies that demonstrated the validity of HEXACO personality framework using the SD3 (Furnham et al., 2013). Universal social values (Schwartz 1992) were used by Kajonius,

Persson and Jonason (2014) to differentiate between Dark Triad traits. Achievement values are explained by Schwartz (2012) to emphasize demonstrating competence in areas for the purpose of obtaining social approval, such as being ambitious, successful and capable. Power values emphasize social status and prestige; Power-dominance for control or dominance over people and Power-resource for control and dominance of resources. Kajonius, Persson and Jonason (2014) showed that Dark Triad traits positively correlated with self-enhancing values such as achievement and power, and negatively with the self-transcending value such as universalism and benevolence, and explained that their study is congruent with other studies associating Dark Triad traits with a selfish, self-enhancing and antisocial way of life (e.g., Jonason, Li, & Teicher, 2010).

Regarding the other validity studies of SD3, the HEXACO personality framework was used to validate SD3 rather than the more popular Big Five model because the Big Five model has been found to be not as optimal in capturing individual differences in manipulation and entitlement (Lee & Ashton, 2005; Veselka et al., 2012). Numerous studies have used the HEXACO framework to describe the common feature of the Dark Triad traits as well as the distinctiveness of each trait. For example, the common tendency to defraud, manipulative and take advantage of others for selfish gains was linked to the negative pole of the Honesty–Humility factor (Ashton & Lee, 2007; Lee & Ashton, 2005).

Lee and Ashton (2005) have elucidated that the suspicious nature of Machiavellians as being affiliated with the low end of the HEXACO Agreeableness factor, and the assertiveness, leadership, exhibitionism and dominance of narcissism as being connected to the Extraversion factor. The unique characteristic of psychopathy as being insensitive and hard-hearted has been shown to be facilitated by the low end of Emotionality, and the lack of self-discipline as being

unconstrained by the low end of the Conscientiousness factor (De Vries, Lee, & Ashton, 2008). The study by Lee et al. (2013) used structural equation modelling to explicate the commonality of the three traits and the uniqueness of each trait within the HEXACO factor space. These researchers defined the commonality by the common variance represented by the higher-order factor of the 3 Dark Triad traits and found it to be very highly permeated with the Honesty–Humility factor. The uniqueness of each trait was defined by the corresponding specific variance after accounting for the common variance. Machiavellianism was also found to overlap with low Agreeableness (A) and low Extraversion (X) of the HEXACO, Narcissism with high X, and psychopathy with low Conscientiousness (C) and low Emotionality (E).

This method of defining commonality by using the composite scores for Machiavellianism, narcissism and psychopathy as indicators for a higher order factor is similar to the latent-composite approach of using composite scores to load onto latent factors described in Holbert & Stephenson (2002). Aggregating items into composites reduces errors and increases the common-to-uniqueness of each item in the composite score thus enhances the communality of the factor (Matsunaga, 2008). Thus, this method will yield better results in reflecting what's common among the items compared to loading individual SD3 items onto a general factor. This method will be further addressed in the Brief Discussion section of this chapter.

For my MI study, a basket of tests was used to test the equivalence of SD3 in the Singapore context. Specifically, I used procedures based on three studies that demonstrated the three-factor structure of SD3, what is specific about each SD3 trait and what is common about them. In Study 1, CFA was conducted to establish a three-factor structure of the 27-item SD3 on Singapore samples. Secondly, I sought to reproduce the findings of Kajonius, Persson and Jonason (2014) that differentiated the Dark Triad from others based on the universal values they

hold using correlation analysis. Finally, by linking the common characteristic of Dark Triad traits to the negative pole of the Honesty-Humility factor of the HEXACO personality model, I sought to replicate the results of Lee et al. (2013) using structural equation modelling (SEM).

Research Hypotheses

Guided by these studies, I formulated hypotheses to test the factor invariance of SD3:

- I hypothesized that a three-factor model with all items loading appropriately on their respective factor will fit the expected data (H₁) (Jones & Paulhus, 2014).
- Three hypotheses are generated to examine the convergent-discriminant validity of SD3. Firstly, I hypothesized that high Machiavellianism and high narcissism will positively correlate with the values of Achievement and Power and high psychopathy will positively correlate with the values of Hedonism and Power (H₂) (Kajonius, Persson, & Jonason, 2014) .
- I also hypothesized that the common variance represented by a higher-order factor of the three SD3 traits is negatively related to the Honesty-Humility factor of the HEXACO model (H₃) (Lee et al. (2013).
- Finally, I hypothesized that residual terms of Machiavellianism and narcissism (i.e. the specific variance of each Dark Triad variables unaccounted by the common higher-order factor) is negatively related to Agreeableness and positively related to Extraversion respectively, whilst the residual term of psychopathy is negatively related to Emotionality and Conscientiousness (H₄) (Lee et al. (2013).

Research Design

Study 1 is a single session within-subject design experiment comprising three measurements for a proposed student sample of 200. The sample size of 200 is based on the minimum recommended sample size for confirmatory factor analysis by Hair, Black, Babin, and Anderson (2010).

Participants.

The sample for this study consisted of two hundred and eight students, 64.4% women; age of participants between 19 and 36 years with a mean of 21.74 years and standard deviation of 2.32. Two hundred participants were recruited from NTU Research Participation pool who participated for course credits and eight students who were not from the pool participated voluntarily without payment. Of the students from NTU Research Participation pool, 100 students participated in 2016 and another 100 participated in 2017. Ethnicity breakdown was as follows: Indian 5.3%, Malay 2.9%, Chinese 86.4%, Eurasian 1.9% and other-ethnicity, 5.3%. Foreigners accounted for 13.5% of the sample. The small percentage of foreigners were included because foreigners do consistently form a part of the Singapore culture.

Procedure.

The measurements were administered anonymously online via the Qualtrics platform and students participated at a time and place convenient to themselves. The survey started with demographic questions such as ethnicity, age and gender, followed by the three measurements. Participants took approximately 35 to 40 minutes to complete and students participated for two credits.

Measurements.

The measurements used for this study were:

1. The 27-item SD3 for measuring Machiavellianism, subclinical narcissism and subclinical psychopathy This is a 5-point Likert scale ranging from 5 = “strongly agree” to 1= “strongly disagree”. Test-retest reliability measured by Cronbach’s alpha is .78 for Machiavellianism, .77 for narcissism, and .80 for psychopathy (Jones & Paulhus, 2014).
2. The 60-item personality inventory based on HEXACO 6-factor personality model, HEXACO-60 (Lee & Ashton, 2002). This is a 5-point Likert scale ranging from 5= “strongly agree” to 1= “strongly disagree”. Internal consistency, measured by Cronbach’s alpha, ranged between .77 and .80 and correlation between self-report and observer report ranged between .47 to .62 (Ashton & Lee, 2009).
3. The 57-item Portrait Values Questionnaire-Revised (PVQ-RR) (Cieciuch et. al., 2014) for evaluating 19 narrowly defined human values based on Schwartz’s human values theory. The respondents are asked ‘How much like you is this person?’ on a 5-point Likert scale ranging from 5= “very much like me” to 1 = “Not like me at all”. The test-retest reliabilities (Israel and Germany) reflected in Cronbach’s alphas were moderate to high: power .84 & .77, security: .88 & .70, conformity: .86 & .72, tradition: .81 & .80, benevolence: .82 & .62, universalism: .83 & .75, self-direction: .66 & .70, stimulation: .74 & .76, hedonism: .84 & .65, and achievement: .83 & .82 (Shwartz, 2006).

HEXACO-60 was used in place of HEXACO-100 due to time constraint. Although Kajonius, Persson and Jonason (2014) used the previous version of the universal values model (Schwartz, 1992) featuring 10 universal values, the updated refined theory proposed by Schwartz et al. (2012) was used for this study. The refined theory partitioned the 10 values of Schwartz

(1992) into 19 more narrowly defined values. Cieciuch et. al. (2014) tested the MI of the 19 values and satisfied statistical indicators for measurement invariance. They found that all 19 values were differentiated across 6 countries and demonstrated suitability for cross-cultural comparisons. The changes include the splitting of values into subscales, such as, “thought” and “action” for self-direction, “dominance” and “resource” for power, “societal” and “personal” for security, “interpersonal” and “rules” for conformity, “caring” and “dependability” for benevolence, and, “tolerance”, “concern” and “nature” for universalism. In addition, “face” is added as a newly discriminated value situated between power and security in the motivational continuum.

To test hypothesis H₁ of Study 1, CFA was carried out with Mplus version 8 (Muthén & Muthén, 1998 -2017) and Maximum Likelihood (ML) estimation method was employed to test and confirm the factor structure of SD3. Disattenuated correlation analysis was performed by Kajonius, Persson and Jonason (2014) where correlations are corrected for measurement error and similarly, disattenuated correlation analysis was used to test H₂ of Study 1. Considering that correlations can be weakened by measurement error (Jensen, 1998), the results of this study will be disattenuated as specified by Spearman (1904), by dividing the correlations between two variables with the square root of the product of the reliability scores represented by the Cronbach’s alpha to correct for the dilution.

Structural equation modelling with Mplus software was used to test H₃ and H₄ of Study 1. To examine the hypothesized relationships, I emulated the procedure laid out in Lee et al. (2013) as follows: As the composite scores of the subscales of SD3 and HEXACO are used as indicators, these composite scores were first corrected for measurement errors which weaken the reliability of these composite scores. The higher-order factor underlying the three SD3 subscales

were then used to examine the hypothesized relationship with the Honesty-Humility factor of HEXACO personality construct, and after accounting for this common variance, the remaining specific variances of each SD3 subscale represented by the residual variances were used to examine the hypothesized relationships with the other factors of HEXACO. All six exogenous variables of HEXACO, namely, Humility-Honesty, Emotionality, Extraversion, Agreeableness, Conscientiousness and Openness to Experience were allowed to covary.

Second sample for cross validation of SD3 scales.

CFA tests of MI commonly involve simultaneously fitting the measurement model to at least two data samples to examine the model fit (Mead & Kroustalis, 2006). A second sample was used to perform cross validation in Study 1. Data for the second sample was taken from 238 participants who took part in Study 2, out of which 51.3% were female, age of participants ranged from 20-60 years with mean of 25.95 years and standard deviation of 6.405. The participants were 2.9% Indian, 2.1% Malay, 91.2% Chinese, 0.4% Eurasian and 3.4% categorised as “other ethnicity”. Foreigners accounted for 13.9% of the sample. 33.6% of the participants were working adults.

In this sample, participants were exposed to two audience effect conditions; a private condition where participants took part anonymously online, and, a public condition where they took part anonymously in a group setting together with other participants. ANOVA performed showed nonsignificant differences between means of the SD3 subscales in the private and public conditions, allowing the two groups to be merged together.

Results of CFA

The SD3 subscale means for the first and second sample are displayed in Table 2.

Table 2

SD3 Means of Sample 1 and 2

	Mean	SD
Sample 1 (<i>N</i> = 208)		
Machiavellianism	3.181	0.627
Narcissism	2.733	0.535
Psychopathy	2.301	0.546
Sample 2 (<i>N</i> = 238)		
Machiavellianism	3.33	0.547
Narcissism	2.77	0.508
Psychopathy	2.25	0.514

Goodness of fit indices are used by researchers to examine if a CFA model is consistent with a set of data and rules of thumb are applied for these measures of fit: χ^2 test should be statistically non-significant although large sample sizes are likely to result in significant outcomes (Kenny, 2015), The Root Mean Square Error of Approximation (RMSEA) should be less than .05 to be considered a good fit (Hu & Bentler, 1999), the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) should be $> .93$ (Byrne, 1994), and the Standardized Root Mean Square Residual (SRMR) should be lower than the cut-off of .08 (Hu & Bentler, 1999).

Overall goodness of fit for the CFA of first sample was not acceptable. $\chi^2 = 765.182$ with $df = 321, p = .000$. RMSEA was .082, higher than the cut-off criteria of $< .05$ (Hu and Bentler, 1999). CFI = .692 and TLI = .664. Both CFI and TLI were affected by weaker correlation of items to factor which resulted in falling below the benchmark of .93 (Byrne, 1994). SRMR is .098, higher than the cut-off of .08 (Hu & Bentler, 1999). Factor loadings of the CFA are provided in Table 3.

Table 3

CFA Factor Loadings of 27 SD3 Items for Sample 1

Item	Factor 1	Item	Factor 2	Item	Factor 3
D1	0.328	D10	0.615	D19	0.664
D2	0.586	D11R	0.533	D20R	0.057
D3	0.495	D12	0.617	D21	0.624
D4	0.383	D13	0.510	D22	0.436
D5	0.764	D14	0.322	D23	0.533
D6	0.795	D15R	0.374	D24	0.693
D7	0.337	D16	0.475	D25R	0.073
D8	0.619	D17	0.577	D26	0.431
D9	0.470	D18	0.167	D27	0.579

Cross loadings and low loadings.

Inspection of the modification indices revealed that five items cross loaded onto factors other than the one they are postulated to load on. Cross loadings are problematic for most CFA models because they are indications that the postulated factor structure did not fit the data making comparisons of these factors across groups invalid. In the case of SD3, cross loadings of items were also reported by Jones and Paulhus (2014) and intercorrelations amongst the SD3 subscales ranging from .22 to .55 were commonly found in literature using SD3. But as Jones and Paulhus (2014) have shown, SD3 has converged with other Dark Triad measures and correlations with Big-Five (Furnham et al., 2013) are similar to other Dark Triad measures, leading these researchers to accept that despite the intercorrelations, the SD3 measures three distinct dimensions.

As advised by Matsunaga (2008), cross loadings were inspected to see if these cross loadings could be due to some item-specific uniqueness within the scale and whether there was any substantive concern for the cross loading. The item “I like to be acquainted with important people” which taps into the entitlement nature of narcissism also loaded onto the

Machiavellianism factor. This cross-loading could be explained as the benefit of having a social network of important people appealing to Machiavellians in terms of reputation maintenance (Jones & Paulhus, 2011). Similarly, a possible reason this item loaded onto the psychopathy factor could be because being socially connected reflects the social skills that psychopathy is associated with (Babiak & Hare, 2006; Babiak, Neumann, & Hare, 2010; De Paulo, 2010; Yang & Raine, 2008). The reverse-coded item, “I have never got into trouble with the law” which accesses the antisocial facet of psychopathy might have cross loaded negatively onto Machiavellianism that reflected the cautious nature of Machiavellianism (Jones & Paulhus, 2017). The item “It is true that I can be mean to others” measures the callousness of psychopathy but might have loaded onto narcissism because narcissists feel it is quite appropriate to disregard the feelings of others (Kernberg, 1975).

The cross-loadings described so far appeared to be accounted for by the intercorrelations of the subscales of SD3. Aside from these, the item “Avoid direct conflict with others because they may be useful in the future.” a Machiavellianism item which cross loaded onto the psychopathy factor, could be due to the word ‘conflict’ being of relevance to psychopathy therefore attributable to error due to wording similarity. Finally, the cross loading of the Machiavellianism item “It is not wise to tell your secrets” onto the psychopathy factor could be spurious and could have arisen from shared idiosyncratic variance with the psychopathy factor, thus not of meaningful interest.

Examination of modification indices also showed high values of correlated residuals. Correlated residuals of indicators with the indicators of another factor may result in low standardized loading on the original factor (Kline, 2004) such as in the case of correlated residuals between D3 and D25R and D18 and D14 which may account for D25R and D18

loading below .3 on their original factor. Furthermore, the correlation of residuals between D25R and D20R may be attributable to the method factor of social desirability. The reverse-coded item D20R, “I avoid dangerous situations” and D25R, “I have never got into trouble with the law” which tap into the erratic and antisocial facets of psychopathy respectively, might have influenced participants to over-report good behaviour. Finally, the correlations among error variances may be spurious as a result of sampling error (MacCallum et al., 1999) and may not necessarily mean that there are other factor models that fit the data better.

Although correlated residuals may have affected the factor loading of items on their hypothesized factors, low-loading items may also indicate that there are cultural differences in the interpretation of these items. As Marsh, Hau, and Wen (2004) emphasized, complex structures rarely fall neatly within the specifications of these methodological issues and their advice is for researchers to seek their own interpretation of the specific details of their research. Steenkamp and Baumgartner (1998) also stressed that a conclusion of lack of measurement invariance should be grounded in theory rather than diagnosed in the data. Moreover, they warned that many factors can affect results of measurement invariance, such as using different data collection or sampling method, which may systematically contribute to cross-culture differences in scores. Weighing these considerations, I take the cautious approach not to drop the low loading items and continued to look at methods to explain the data.

Item parcelling.

In dealing with issues of cross loadings and spurious correlated residuals in CFA resulting in poor model fit, some researchers suggested to aggregate items into parcels for the purpose of investigating MI (Mead & Kroustalis, 2006). Item parcelling is the method of aggregating items into groups or parcels and using these parcels instead of items as the indicators

of the postulated latent construct (Cattell & Burdsal, 1975; Kishton & Widaman, 1994). The use of parcels in CFA can significantly elevate model fit and several MI studies have used parcels as indicators (Mead & Kroustalis, 2006). Support for the parcelling strategy in CFA for Study 1 is also drawn from Rushton, Brainerd, and Pressley (1983) who maintained that single items in themselves access only a limited aspect of the construct and rarely capture the completeness of the construct even if all the items tap into only one dimension. Therefore, by aggregating items into parcels, the common elements among those items reflect more clearly the underlying latent factor. Thus, removing low loading items D18, D20R and D25R may result in an imbalance in the facet items which might affect the validity of the subscale of narcissism and psychopathy.

To explain further, according to the classical test theory (McDonald, 1999), an item consists of a true score reflecting the latent factor, the idiosyncratic score which is specific to the item itself, and random error. If all the items tap into the same construct, then the true scores of all the items measuring a certain construct stays the same while the idiosyncratic and random errors vary among the items. The true scores correlate with each other, but the idiosyncratic and random errors are uncorrelated and constitute noise which if minimise, will reflect more truly the contribution of the item to the latent factor. Thus, parcelling is beneficial because “noise”, which are the idiosyncratic and random errors that are unrelated to the latent factor, is reduced, revealing the true ratio of the items to the total score. Furthermore, parcelling may be useful for our study because it helps to mitigate the problems of non-normality (Hau & Marsh, 2004) of which SD3 suffers from. Tests of normality revealed that every item in SD3 is non-normal and the ML estimation method used for SEM in CFA is adversely affected by non-normality (Muthén & Kaplan, 1992) increasing the Type 1 error in model fit χ^2 index (Kenny, 2015).

A condition imposed by many advocates for the use of parcelling strategies is the requirement of uni-dimensionality (Hau & Marsh, 2004; Bandalos & Finney 2001; Little, Rhemtulla, Gibson, & Schoemann, 2013). This means that parcels aggregated from items should only measure a single construct. Matsunaga (2008) further recommended that if CFA has been performed satisfactorily by other researchers, uni-dimensionality has already been proven by these studies and therefore parcelling can be adopted.

To reiterate, the cross loadings listed in the modification indices did not indicate any issues with multidimensionality. Since CFA of previous studies have successfully replicated a three-factor model, I proceeded with the parcelling approach. SD3 also meets the requirements stipulated by Marsh, Hau, Balla, and Grayson (1998) and Marsh and O’Niell (1984) that there must be at least three items to each parcel and minimally 3 to 4 parcels per factor.

Results of EFA and CFA with parcelled items on Sample 1.

To parcel the items, I adopted the guidelines by Hau and Marsh (2004) and randomly aggregated three items into each parcel to form three parcels for each construct based on the hypothesized three-factor model. EFA with Maximum Likelihood estimation method was performed with these parcelled items using Mplus version 8. Model fit indices were good. $\chi^2 = 20.831$, $df = 20$, $p = .0529$, RMSEA = .059, CFI = .985, TLI = .954 and SRMR = .021. The parcelled items loaded onto their respective factors with coefficients ranging from .524 to .886. There were no cross-loadings above .3 and none of the parcelled items failed to load. CFA was then applied on sample 1 using these parcels as indicators. Goodness of fit were acceptable given the stringent requirement of parcelled items loading only onto the hypothesized factor; $\chi^2 = 51.449$, $df = 24$, $p = .0009$. RMSEA = .074, CFI = .953, TLI = .929 and SRMR = .049. The SEM of the CFA performed for sample 1 is presented in Figure 3.

Figure 3. SEM of the Three-Factor Model of SD3 derived from parcel-based CFA of Sample 1.

Results of CFA on sample 2.

CFA was performed on the second sample to cross-validate the findings derived from the first sample. Goodness of fit indices for CFA of Sample 2 was slightly improved compared to the CFA results of Sample 1; $\chi^2 = 38.383$, $df = 24$, $p = .0317$. $RMSEA = .050$, $CFI = .974$, $TLI = .960$ and $SRMR = .043$. The SEM of the three-factor model of Sample 2 is displayed in Figure 4. A comparison of the factor loadings obtained from the CFA of parcelled items for sample 1 and sample 2 is presented in Table 4.

Table 4

Factor Loadings of CFA using Parcelled Items for Sample 1 and Sample 2

Parcelled Items	Sample 1	Sample 2
RM1	0.741	0.646
RM2	0.799	0.837
RM3	0.774	0.711
RN1	0.757	0.656
RN2	0.575	0.645
RN3	0.737	0.693
RP1	0.600	0.558
RP2	0.785	0.755
RP3	0.679	0.719

Note: RM1 to RM3 are randomly parcelled items of Machiavellianism, RN1 to RN3 are randomly parcelled narcissism items and RP1 to RP3 are randomly parcelled items of psychopathy.

Figure 4. SEM of the Three-Factor Model of SD3 derived from parcel-based CFA of Sample 2.

Result of correlational analysis

The average scores of the 19 social values from Study 1 are illustrated in Figure 5 in a circular continuum with the Cronbach's alphas reflecting the reliability of the values in parentheses. These scores were centred by taking the mean of individual respondents and subtracting the mean from the raw scores of the individual, demonstrating the relative importance of each value held individually (Schwartz, 2005a, 2006).

Figure 5. Average and Dark Triad scores of centred social values (Schwartz, 2012) illustrated in a circular continuum with reliability Cronbach's alphas of each scale in parentheses.

Two of these values, hedonism and achievement, reflect self-focused self-enhancement. These values are balanced by values of social-focused self-transcendence (universalism and benevolence) and conservation (security). Subscales of SD3 for male and female were calculated to evaluate the effect of gender on the scores. Between group differences were

statistically significant for psychopathy ($t(207) = 3.92, p < .001, d = 0.55$) and narcissism ($t(207) = 2.209, p = .028, d = 0.32$) but not significant for Machiavellianism.

As the values for males and females indicated smaller effect sizes compared to the results obtained by Jones and Paulhus (2014), the results were pooled together rather than differentiated for gender. Table 5 presents the intercorrelations and reliability (Cronbach's alphas) of the SD3 subscales for Study 1. Correcting for measurement errors, the disattenuated correlations between the subscales of SD3 and Schwartz's (2012) social values are displayed in Table 6.

Table 5

Intercorrelations and Reliability (Cronbach's alpha) of the SD3 Subscales in Study 1

	Machiavellianism	Narcissism	Psychopathy
Machiavellianism	($\alpha = .793$)		
Narcissism	0.186	($\alpha = .708$)	
Psychopathy	0.508	0.261	($\alpha = .715$)

Note. All intercorrelations were significant at $p < .01$, two-tailed.

Table 6

Disattenuated Correlations between Universal Social Values and SD3 Subscales

PVQ-RR values	Disattenuated Correlation With		
	Machiavellianism	Narcissism	Psychopathy
Self-directed thought (.68)	-.144	.091	.009
Self-directed action (.668)	.234**	.022	.192**
Stimulation (.726)	.089	.499**	.377**
Hedonism (.666)	.112	.320**	.268**
Achievement (.646)	.424**	.415**	.181*
Power dominance (.771)	.600**	.548**	.682**

Power resource (.802)	.589**	.184*	.575**
Face (.784)	.347**	.089	.139
Security-personal (.578)	.031	-.323**	-.366**
Security-societal (.823)	-.185*	-.164*	-.362**
Tradition (.798)	-.21**	.124	.000
Conformity-rules (.858)	-.140*	-.307**	-.339**
Conformity-interpersonal (.821)	-.203**	-.504**	-.426**
Humility (.606)	-.413**	.611**	-.320**
Universal-nature (.872)	-.053	.118	.175*
Universal-concern (.752)	-.493**	-.233**	-.360**
Universal-tolerance (.747)	-.456**	-.27**	-.377**
Benevolence-care (.821)	-.368**	-.065	-.385**
Benevolence -dependability (.701)	-.127	.065	-.162*

Number in parentheses are the Cronbach alphas for the PVQ subscales. * $p < .05$ ** $p < .01$

Similar to the results from Kajonius, Persson, and Jonason (2014), the results of this study revealed that Machiavellianism ($r = .425, p < .001$) and narcissism ($r = .415, p < .001$) were correlated with the value Achievement. Disattenuated correlation between psychopathy and Achievement was also significant ($r = .18, p < .05$). All three subscales were correlated with the value Power Dominance (Machiavellianism, $r = .6, p < .01$; narcissism, $r = .548, p < .01$; and psychopathy, $r = .682, p < .01$) and Machiavellianism ($r = .589, p < .01$) and psychopathy ($r = .575, p < .01$) were correlated with the value Power-Resource, but narcissism was less so ($r = .18, p < .05$). Narcissism ($r = .32, p < .01$) and psychopathy ($r = .268, p < .01$) were correlated with Hedonism.

The three subscales were negatively correlated with Conformity-Interpersonal; Machiavellianism, $r = -.203, p < .01$, narcissism, $r = -.504, p < .01$, and psychopathy, $r = -.426, p < .01$. Machiavellianism ($r = -.413, p < .01$), narcissism ($r = -.611, p < .01$) and psychopathy ($r =$

-.32, $p < .01$) also negatively correlated with Humility. Similarly, Machiavellianism ($r = -.493$, $p < .01$), narcissism ($r = -.233$, $p < .01$) and psychopathy ($r = -.36$, $p < .01$) were negatively associated with the value Universal-Concern and Universal-Tolerance: Machiavellianism, $r = -.456$, $p < .01$, narcissism, $r = -.27$, $p < .01$ and psychopathy, $r = -.377$, $p < .01$. Machiavellianism ($r = -.368$, $p < .01$) and psychopathy ($r = -.385$, $p < .01$) were negatively correlated with Benevolence-Care. The results of this correlation analysis supported the hypotheses that Machiavellianism and narcissism correlate positively with the values of Achievement and Power and psychopathy with the values of Hedonism and Power.

Results of SEM

Figure 6 conceptually illustrates the hypothesized relationships from Lee et al. (2013) that I sought to replicate.

Figure 6. Conceptual diagram of the hypothesized relationship between the higher factor of SD3 subscales and residuals of SD3 subscales with the HEXACO personality dimensions. H is Humility-honesty factor, E is Emotionality, X is Extraversion, A is Agreeableness, C is Conscientiousness, O is Openness to Experience, P is Psychopathy, N is Narcissism and M is Machiavellianism.

Table 7 displays the standardized coefficients estimated from the structural equation modelling. The shared variance of the Dark Triad traits measured by SD3 was significantly saturated with the Honesty-Humility factor of the HEXACO model. The individual path between the common factor of SD3 traits and the Honesty-Humility factor, as well as each path between the common residual variance of the SD3 traits and the HEXACO factors represent the correlation between the independent and dependent variables (Grace-Martin, n.d.). The correlations affirmed the hypothesized relationships for the common factor of SD3 traits with the Honesty-Humility factor of HEXACO (H₃), and for Machiavellianism and agreeableness, narcissism and extraversion, and, psychopathy and conscientiousness and emotionality (H₄).

Table 7.

Standardized coefficients estimated from structural equation modelling.

HEXACO Factors	Dark Triad common factor	Residual variance after controlling for the common factor		
		Machiavellianism	Narcissism	Psychopathy
Honesty-Humility	-0.729**			
Emotionality				-0.122*
Extraversion			0.509**	
Agreeableness		-0.148**		
Conscientiousness				-0.162**
Openness to Experience				

Note: * $p < .05$, ** $p < .001$

Brief Discussion

Parcelling is described by researchers such as Matsunaga (2008) and Meade, A. W., and Kroustalis, C. M. (2006) as a kind of two-edged sword. On one hand, parcelling stabilises the

estimation of parameters and improves model fit but on the other hand, the stabilising effect may actually mask underlying misspecification which could be the reason why item-based approach fail to produce good model fit. In considering the parcel approach for this MI study, I have taken into consideration the well-documented intercorrelations amongst the three subscales as an inherent condition of the scale yet at the same time, SD3 is established as a three-factor model measuring three distinct traits (Jones & Paulhus, 2014; Paulhus & Jones, 2011; Furnham et al., 2013; Pechorro et al., 2019; Persson, Kajonius & Garcia, 2019). Cross loadings and low loadings of the CFA in the Singapore sample were also examined, and misspecification was not suspected. The improved model fit indices and factor loadings of the CFA for both sample 1 and sample 2 provided evidence that SD3 measures identical constructs consistently across different groups.

This result suggested that individuals from ethnic groups in the Singapore compared to individuals from other groups, have the same probability of obtaining a particular score on the SD3 as long as they are matched on the respective latent variable of Machiavellianism, narcissism and psychopathy. Specifically, measurement invariance of SD3 does not mean that there are no group differences but that any systematic differences that exist between the groups stem from the latent variables. Convergent-divergent validity of SD3 was also verified for the Singapore sample in a manner that Dark Triad traits measured by the SD3 subscales are similarly distinguished by the self-enhancing values that they hold and the self-transcendent values they disvalued.

In the SEM study, the common characteristic of SD3 which was measured by the common variance of the 3 subscale was found to be permeated with the negative pole of the Honesty-Humility factor of the HEXACO personality model whilst the unique characteristic of

each SD3 subscale was related to the HEXACO factors as hypothesized. A limitation of this study is the use of composite scores in deriving the common variance because this method is likened to parcelling all items of each subscale and arguments against the use of parcelling that by virtue of the aggregation, errors are reduced similarly applies here. However, using item-based approach to model the hypothesized relationships would be a complicated endeavour and may result in non-convergence issue. Moreover, CFA has confirmed and produced adequate model fit indices in support of the three-factor structure of SD3 using three-item parcels which is more stringent than the nine-item composite parcel for this SEM. The results of the convergent-divergent validity show that the composite scores of SD3 are good estimates of the latent variable of Machiavellianism, narcissism and psychopathy and support the use of composite scores in the SEM for Study 2.

Based on the model fit and factor loadings results of parcelled items in the CFA of sample 1 and 2, as well as the results of the convergent-divergent study, SD3 is concluded to be culturally equivalent and that the relationships between items and number of latent factors is consistent for samples obtained in Singapore. By aggregating items into parcels, ‘noise’ that are not connected to the construct is diminished, improving the proportion of the ‘true’ score to the total score (Matsunaga 2008). Average factor loadings obtained in the CFA using the item-based approach is .716 for sample 1 and .691 for sample 2 compared to .484 from item-based CFA.

CHAPTER FOUR: PILOT 1 AND 2, AND STUDY 2

Study 2 was designed to empirically test the proposed models by experimentally manipulating factors important to the validity of the models- the conflict of organizational goals with personal goals that serve and do not serve ego motives. Equally important is the measurement of self-regulation dilemma in differentiating experiences in these conditions between conditions. Thus, before committing to the full length of the study, I ran two pilot studies. The first pilot study was carried out to test that the items designed to measure self-regulation dilemma can differentiate between conditions where goals conflict and conditions where goals do not conflict, and the second pilot was conducted to test that the experimental manipulation of conflict and ego will produce the results required for Study 2. Regarding the sample size of pilots, Hill (1998) recommended a sample size of 10 to 30 participants for pilots in survey research and a size of 10 to 30 is also the view of Isaac and Michael (1995). I decided on a sample size of 30 each for the two pilot studies so that I can be reasonably certain that the analysis based on normal distribution will be valid.

Pilot Study 1

Studies on self-regulation dilemma manipulated the condition whereby one goal conflicted with another and participants had to choose one goal or the other (for example, see Prinsen, Evers, & de Ridder, 2016). In these studies, the authors assumed that the conflict of goals produced a self-regulation dilemma. However, separating the experience of self-regulation dilemma from goal conflict is necessary because whilst participants may be aware that there is a conflict of goals, the experience of a dilemma may differ from individual to individual. As I would be using a series of items to measure self-regulation dilemma, a pilot study is necessary to first test that these items differentiate between conditions where goals conflict and do not

conflict. The results of this pilot study will also allow me to rectify the items before running Study 2.

Proposed cognitive and affective SRD items

Based on studies such as Prinsen, Evers, and de Ridder (2016), I speculated that the cognitive experience of self-regulation dilemma would include the awareness that there is a conflict in goals, and that a choice between one goal or the other has to be made. I also supposed that people may think about the negative consequences and possible regrets of their decision when they have conflicting goals (de Witt Huberts, Evers, & de Ridder, 2014). As for affective self-regulation dilemma, research that measured the affective experiences of self-regulation dilemma reported that goal conflict brought on negative emotions such as guilt, stress, anxiety and frustration (Gorges, J., Esdar, W., & Wild, E. 2014, Giner-Sorolla, 2001). Therefore, items measuring the affective experience of self-regulation dilemma were designed to include these feelings and emotions.

Study design

One-way MANOVA was used to examine that both cognitive and affective components of self-regulation dilemma together are affected by the conflict conditions and correlational analysis was used to examine the relationship between cognitive and affective self-regulation dilemma and justifications to pursue personal goal.

Manipulation.

In this pilot study, participants were asked to imagine that their employer has organised a compulsory talk about changes in the company that will impact how they do their work and that there is a penalty for no-show. In the conflict condition, participants were told that the talk would be held during lunch time and they cannot go for their lunch break but are given basic

takeaway food. In the no-conflict condition, participants were told that they can go for lunch before or after attending the talk. Following these instructions, participants were asked to rate items measuring self-regulation dilemma.

Hypotheses.

The first hypothesis to be tested in this pilot study was that cognitive and affective self-regulation dilemma are higher when organizational goal conflict with personal goal than when goals do not conflict. I also hypothesized that participants who experience higher levels of cognitive and affective self-regulation dilemma will think of reasons to justify pursuing their personal goal.

Operationalisation.

Using a 6-point Likert scale ranging from “strongly agree” to “strongly disagree”, motivation for personal goal was operationalised as the rating to the statement “Having my lunch break is important to me” and motivation for organisational goal as the rating to the statement “Attending the talk is important to me.” The cognitive component of self-regulation dilemma was operationalised as the average rating of these 4 statements using the 6-point Likert scale:

- There is a conflict between having my lunch break and attending the compulsory talk.
- I think about choosing either the talk or my lunch break.
- I think about what I might regret when I think about the talk and my lunch break.
- I think about the negative consequences when I think about the talk and my lunch break.

For affective self-regulation dilemma, participants were asked to rate each of the emotions of being calm (reverse of anxious), stressed, positive (negative), frustrated, upset and guilty when they think about attending the talk and having their lunch using a 6-point Likert

scale. Affective self-regulation dilemma was operationalised as the average rating of these 6 emotions. Justification to pursue personal goal was operationalized as the average score of three statements “I think of reasons to go for my lunch break.”, “Thinking about my lunch break and having to attend the talk makes me want to find a way out of the situation.”, and, “I think of a way to beat the system when I think about the talk and my lunch break.” using a 6-point Likert scale.

Procedure.

Thirty participants were recruited from the researcher’s personal network. They took part in this pilot study anonymously via the online Qualtrics platform and were randomly assigned to one of the two conditions.

Results

For the test procedures of MANOVA to be valid, three assumptions must be met: observations must be independent, variance-covariance matrices must be equal for the treatment groups, and, the dependent variables must follow a multivariate normal distribution (Hair et al., 2010). As participants were randomly assigned to one of two groups, the first assumption is satisfied. Next, I assessed that the dependent variables collectively vary homogeneously across the two groups. A non-significant Box’s M test ($p = .157$) indicated that there were no significant differences between the two groups on the 2 dependent variables. Levene’s test for equality of variance indicated that variance is equal between the two groups for cognitive self-regulation dilemma ($F = 2.069, p = .161$) but not for affective self-regulation dilemma ($F = 5.265, p = .029$).

The heteroscedasticity of affective self-regulation dilemma cannot be overlooked, especially since I do not have a large enough sample size to compensate for the lack of

homoscedasticity (Hair et al, 2010, pg. 485). Where sample size is small, the unequal variance between groups may inflate type 1 error in F test, causing results to reflect differences in means between groups where there is actually no difference. In this case, where the sample size is 30, Welch t-test is recommended to test that two populations have equal means when two groups have dissimilar variance (Ruxton, 2006). Welch t-test was conducted for affective self-regulation dilemma and results showed statistically significant differences in the conflict group compared to the no-conflict group, $t(23.737) = 4.558, p = .043$.

Finally, a multivariate normal distribution means that the joint effect of the two variables is normally distributed (Hair et al., 2010). Before examining multivariate normal distribution, univariate normal distribution was investigated first because if the distributions of cognitive and affective SRD are univariate normal, then they might also be bivariate normal. Shapiro-Wilk test for univariate normality returned a statistically significant result ($p = .024$) for cognitive self-regulation dilemma and a non-significant result ($p = .056$) for affective self-regulation dilemma. This means that cognitive self-regulation dilemma did not follow a normal distribution but affective self-regulation dilemma did.

Cain, Zhang, and Yuan (2017) recommended examining the skewness and kurtosis of non-normal distribution to inform on the severity of non-normality. The skewness of cognitive SRD distribution is .728 which showed skewness to the right but was still within the +1.96 or below -1.96 and therefore not considered to be deviated from a normal curve (Munro & Page, 1993). The kurtosis value for cognitive SRD was -1.54 which indicated a flatter than normal curve. Again, the Kurtosis value was within the + or – 1.96 range used to determine normality (Munro & Page, 1993). The kurtosis and skewness results of the distribution of cognitive self-regulation dilemma appeared to be within acceptable ranges for normal distribution although the

Sharpiro-Wilk test was statistically significant. This could be due to the sensitivity of the Sharpiro-Wilk test to a wide variety of alternatives to the normal distribution (Ashcraft, 1998). A relatively larger frequency for the rating value of two and relatively smaller frequencies for the rating values of 2.25 and 3.5 may have contributed to the significant results of Sharpiro-Wilk test.

As advised by Ashcraft (1998), multivariate normality can be checked by evaluating the Mahalanobis distance (MD) of each set of responses (Thompson, 1990). MD provides the distance of each case from the centre of a set of combinations of variables (Tatsuoka, 1971b). Thus, MD indicates how far a case is, and therefore how much of an outlier the case is from the centroid of all cases for the two variables. A maximum MD that is larger than the critical chi-square value of 13.82 for two degrees of freedom at a critical alpha value of .001 indicates that there are multivariate outliers for the set of responses (Tabachnick & Fidell, 2013). Computing the MD for the sets of data comprising cognitive and affective self-regulation dilemma produced the largest value of 5.49 which is well below the critical value of 13.82. Therefore, I concluded that the assumption for multivariate normality is not violated.

Proceeding with the multivariate test, I found that there was a significant multivariate effect between the conflict and no-conflict condition, $F(2, 27) = 3.899, p = .033$; Wilk's $\Lambda = 0.776$, partial $\eta^2 = .224$. The significant F value indicated that there was a significant difference between the conflict and no-conflict groups on a linear combination of the cognitive and affective self-regulation dilemma measurements. In addition, two other conditions, linearity and multicollinearity of the variate of dependent variables might influence possible effects in the MANOVA test procedure. I examined that cognitive and affective self-regulation dilemma are linearly related and the multicollinearity issue as recommended by Hair et al. (2010).

Figure 7. Plot of linear relationship between cognitive and affective self-regulation dilemma.

Although the dependent variables should be moderately correlated, a high level of multicollinearity indicates that there are redundant dependent measurements. To assess the linear relationship, I plotted these variables and established a linear regression between these two variables. Result of the linear regression of affective SRD and cognitive SRD is displayed in figure 7, showing that the linear relationship predicts 81% of the variance in cognitive SRD. Multicollinearity checks using variance inflation factor (VIF) produced the highest computed VIF of 5.28 and showed that although there were some issues of collinearity between cognitive and affective SRD, the value was below the limit of 10 set by Hair et al. (1995). Furthermore, collinearity between cognitive and affective self-regulation dilemma was expected for the relationship hypothesized in our model.

Following the statistically significant multivariate effect of cognitive and affective SRD between conflict and no-conflict conditions, univariate tests was conducted. Statistically significant results from Welch test conducted to test for group differences for affective self-regulation dilemma has been reported in the earlier part of this section. Results of F test for cognitive self-regulation dilemma also showed that there was significant group difference between conflict and no conflict group in cognitive self-regulation dilemma, $F(1,28) = 7.585, p < .05$, partial $\eta^2 = .213$. Participants scored higher cognitive self-regulation dilemma in the conflict condition, ($M = 3.42, SD = 1.32$) than in the no-conflict condition ($M = 2.2, SD = 1.09$). They also scored higher affective self-regulation dilemma in the conflict condition ($M = 3.21, SD = 1.33$) compared to the no-conflict condition ($M = 2.34, SD = .84$). Cognitive self-regulation dilemma was strongly correlated with justification to pursue personal goal, $r = .886, p < .001$. Similarly, affective self-regulation dilemma was strongly correlated with justification to pursue personal goal, $r = .732, p < .001$.

The results of this pilot study confirmed that the items measuring self-regulation dilemma is associated with the outcomes as hypothesized and these items differentiated between conditions of goal conflict and non-goal conflict. Even though items measuring affective self-regulation dilemma did not meet the homoscedasticity requirement across the conflict and no-conflict groups, Welch test result proved that there are mean differences for the aggregated mean of affective self-regulation dilemma items. This means that the unequal variances across group is not likely to have inflated type 1 error which would cause results to reflect differences when in actuality there were no differences. Both cognitive and affective self-regulation dilemma were also found to be related to thinking reasons to justify pursuing personal goals as hypothesized.

Although the conflict of goals, represented by a conflict between the organizational goal of attending a lunch-time talk and the personal goal of going for lunch appears to be trivial compared to the goal conflict that is my research interest, the results of the pilot study nevertheless showed that responses of the cognitive and affective SRD items were differentiated between the conditions when personal goal conflicted with organizational goal and when personal goal did not conflict with organizational goal. Thus, if the items can differentiate between conditions where goals conflict and do not conflict for relatively unimportant goals, then the items are likely to be able to differentiate conflict or no-conflict of goals that are consequential and thus can be used for Study 2.

Pilot Study 2

The purpose of this pilot study was two-prong: To test that the manipulation of conflict of organizational goal and personal goal, and that the priming of personal goal that serve and do not serve ego needs would activate the responses as desired. Priming is necessary to increase the sensitivity to the conditions presented later in the experiment. The desired effect of the conflict priming would be participants reporting a significantly higher level of agreement that organizational goals are likely to conflict with personal goals in the conflict condition compared to the no-conflict condition. Similarly, the desired effect of the ego priming would be a higher level of agreement that their personal goal reflects how special they are in the ego condition compared to those in the no-ego condition.

Study Design

A two (conflict vs no-conflict) by two (personal goals that meet ego needs and personal goals that do not meet ego needs) experiment was designed for this pilot test. In view of the target population of our study being working adults, I expected that working adults would have

financial goals and therefore, a control group of ‘no financial goal’ would not be a realistic baseline for our study. To prime participants in the no-ego condition, participants were exposed to an article that appeared to be printed off a website on financial planning. The article is about financial goals recommended by financial planning specialists for 2018, such as creating multiple streams of income, saving money to make big purchases and paying off debts. The priming was to prompt the reader to think about their own personal financial goals. After reading the article, participants were asked to recall 5 points from the article.

In the ego condition, the article contained the same financial goals, but were written to indicate that achieving these goals showed that they are more successful than others and will earn more social approval, thus appealing to their ego needs. An example of statements in the ego condition would be “saving up to buy a luxury car can give you the edge to make an impression” verses a statement in the no-ego condition “saving up to try and get as small a loan as you can”. Similarly, they were asked to recall 5 points about the article.

Priming of conflict and ego conditions.

To manipulate the conflict and no conflict conditions, participants were given three scenarios, each representing a situation where an organizational conflict or do not conflict with their personal goal, and they were asked to provide their opinions about the scenarios. Giving their opinions on how they felt about these scenarios was to prime participants to think that organizational goals will conflict with personal goals. In the condition where organizational goals conflict with personal goal that do not serve ego needs, the three scenarios were:

1. Your employment contract states that employees are not allowed to get a second job (i.e., no moonlighting is allowed).

2. The employment term in your contract states that there are no over-time claims at your pay grade.
3. The employment term in your contract states that there is no bonus on top of your total annual wage.

In the no conflict condition, the employment terms allowed employees to get a second job, there were over-time claims and there was a bonus on top of annual wage. These terms were to prime participants to think that organizational goals will not conflict with personal goals that do not serve ego needs. Personal goal that serve ego needs is operationalised as desiring financial rewards based on one's competency, performance or capability. In the condition where organizational goals did not conflict with personal goal that serve ego needs, the organization rewards the individual based on competency, performance or capability, thus meeting the employee's personal goal that serve ego needs. Participants were asked for their opinions on the three scenarios:

1. The employment term in your contract states that bonus is based on individual performance.
2. The employment term in your contract states that salary increment is based on individual capability or performance.
3. The company considers the employee's individual capabilities or performance when assigning lucrative jobs.

In the condition where organizational goals conflicted with personal goal that served ego needs, the conflict is operationalised as organization not meeting the employee's financial goal that will demonstrate competency, performance or capability. Thus, the employment term stated

in the 3 scenarios specified that bonus, salary increment, and the assignment of lucrative jobs were not based on individual performance or capabilities.

Operationalization.

Personal goal was operationalized as ratings to the statement, “I have a financial goal” using a 6-point Likert scale with a minimum of 1 for “strongly disagree” to a maximum of 6 for “strongly agree”. Personal goal that meets ego needs was operationalized as ratings to the statement, “My financial goal reflects how special I am.” Organizational goal that conflict with personal goal was operationalised as ratings to the statement “My organizational goal will conflict with my personal goal.” using the same 6-point Likert scale.

Hypotheses.

Assuming that the ratings of a population of individuals who have financial goals would be at least 4, representing answers ranging from “slightly agree” to “strongly agree”, I aimed to show that the mean of rating of the statement “I have a financial goal.” after exposure to the article on personal goal is more than a rating of 4. (H₁). For the ego condition, I hypothesized that the mean rating of the statement “My financial goal reflect how special I am.” will be higher in the ego condition than the mean rating in the no-ego condition (H₂). For the conflict condition, I hypothesized that the average rating to the statement “My organizational goal will conflict with my personal goal” will be higher in the conflict condition compared to the mean rating in the no-conflict condition (H₃).

Procedure.

Thirty participants comprising 12 males and 18 females with a mean age of 24.56 years and standard deviation of 3.39 from the researcher’s personal network and NTU students participated in this pilot study administered online via Qualtrics. Participants in this pilot study

were different from those who participated in Pilot Study 1. They were randomly assigned to the two (ego verses no-ego) by two (conflict vs no conflict) conditions. Participants were exposed to the articles corresponding to the ego or no ego conditions first followed by the conflict conditions. Exposure to the article was timed such that the forward button appeared only after 2 minutes to increase the probability of participants reading the article. After 2 minutes, participants were able to proceed to rate a series of statements and answer the questions on the organizational goals. To check that the priming of personal goal is successful, participants are asked to rate the statement “I have a financial goal.” To check that the priming of ego condition is successful, participants are asked to rate the statement “My financial goal reflects how special I am.”

However, disagreement with the contents of the article may influence results of the prime. To control for this confounding influence, participants were also asked to rate the statement “I agree with the contents of the article” and the rating added as covariate in the ANOVA. The priming of ego or no-ego conditions was followed by the priming of conflict or no-conflict condition. After exposure to the conflict conditions, participants were asked to rate the statement “My organizational goal will conflict with my financial goal.”, the manipulation check for the conflict condition.

Methodology.

A one tail t-test was used to test that sample mean for the statement “I have a financial goal” is significantly more than a population mean of 4 (H_1) and ANOVA was used to test for the effect of ego manipulation (H_2) and conflict manipulation (H_3).

Results

Participants reported significantly higher agreement of having financial goals ($M=4.67$, $SD=.547$) than the population who have personal goals, $t(29) = 8.948$, $p = .000$. The covariate, rating of the statement “I agree with article” was significant, affecting participants’ rating of the statement “My financial goal reflects how special I am”, $F(1,27)=14.92$, $p = .000$. When I controlled for their agreement, there was also a significant effect of ego priming on participants’ perception that financial goal meets ego needs, $F(2, 27)=8.71$, $p = .006$. Adjusted effect size of $r^2 = .387$ indicated a large effect size greater than .25 (Cohen, 1988). Finally, the comparison between conflict and no-conflict condition showed that there was a significant main effect of conflict on the perception that organizational goals conflict with personal goals, $F(1, 26)=4.526$, $p = .043$. This result indicates that the perception of conflict was significant in conditions when organizational goals conflict with personal goals and when organizational goals conflict with personal goals that have ego needs.

Study 2

For Study 2, I operationalised personal goal as financial goal. Several dependence relationships were proposed to be contained within our models. Firstly, I believed that there is a three-way interaction between motivation for the personal goal, Machiavellianism and conflict of goals on self-regulation dilemma such that the effect of Machiavellianism on self-regulation dilemma is dependent on motivation of personal goal. If motivation for personal goal with or without ego motives is high, high scorers of Machiavellianism will experience lower self-regulation dilemma when goals conflict. Similarly, I believed that this three-way interaction effect exists between psychopathy when personal goals serve or do not serve ego needs. However, I believed that high scorers of narcissism will experience lower self-regulation

dilemma only when personal goals serve ego needs. I also held that self-deception explains how self-regulation dilemma and Dark Triad traits are related to IP theft.

Study Design

This is a two (personal goal with or without ego motives) by two (organizational goals that conflict or do not conflict with personal goal) by two (anonymous or public administration) experimental design. The anonymous or public administration condition is similar to the experimental condition that Paulhus and Reid (1991) used to demonstrate that if biases which are socially undesirable do not change in either conditions, then the views expressed are unconscious and honestly held in a manner that reflect their motives. To ascertain that self-deception was unconscious, i.e., reflecting attitudes that are defended both privately and publicly, scores obtained from the measurements of self-deception should be replicated under conditions of anonymity and disclosure as in public administration. Results of IP theft, however, was expected to be higher in anonymity compared to public condition. Other-deception scores are susceptible to impression management and in public conditions, participants are less likely to admit that wrong doings are justified.

Sample size.

Hair et al. (2010) recommend a minimum of 30 respondents each cell for MANCOVA and although a sample size of 200 is ideal for SEM, Hair et al. (2010) suggest that maximum likelihood estimation without missing data produce stable and valid results for samples as small as 50.

Cover Story.

Participants who are undergraduates and postgraduates were informed that this study is to gather information from them about their needs, emotions and perceptions of workplace culture

before they enter the workforce. The information from this survey would go towards the design on an online game to help employers develop workplace practices and programmes to improve employee wellness. Participants who are working professionals were informed that this study is to gather information about employee needs, emotions and perception of workplace culture. Similarly, they were informed that the information from this survey would go towards the design on an online game to help employers develop workplace practices and programmes to improve employee wellness.

The Vignette Method.

This experiment used the vignette method to elicit responses from the participants. The vignette method is most used in business ethics studies (Hyman & Steiner, 1996) and vignette-based questions are preferred over direct questions regarding a particular behaviour because vignettes approximate real-life decision making over generalized behavioural statements (Barnett, Bass, and Brown 1994, p.473), giving researchers a way to measure ethical behaviour rather than ethical principles. The vignettes were designed based on information gathered from real world insider cases of IP theft. According to Moore et al. (2011), 65% of insiders who stole intellectual property were serving their notice after having accepted positions with a competing company or starting their own when they commit such theft and 75% of them stole information they are authorised to access. The majority of IP thieves were also found to have signed IP agreements.

The common events which Moore et al. (2011) uncovered from 48 cases of IP theft were that preceding to insider attacks, there were disagreements over IP ownership, fighting over compensation issues, relocation conflicts, disagreements over the subject's job role after a merger or acquisition, being passed over for promotion, and general disputes with superiors.

Further to that, research by Shaw et al. (2013) identified disgruntlement as playing a major role in actual malicious insider communications. The subjects of their study felt significantly angrier and felt more victimized compared to non-IP thieves. They tend to blame their peers and showed a higher usage of victimization vocabulary such as “hurt”, “wounded” and “taken advantage of”. These IP thieves also used the word “me” more often and the number of negatives (no, not, never, etc.) as well as negative judgments. In addition, research on insider disgruntlement suggested that disgruntlement built up over time (Willison & Warkentin, 2009) and incidences of perceived injustice and such feelings of disgruntlement are also often ego related (Charney & Irvin, 2014). Egoism, defined as the excessive concern with the self at the cost of others (Weigel et al., 1999) has been demonstrated to be two-faceted; in the form of other-derogatory (Barelds and Luteijn, 2002) and self-enhancing (Paunonen, 2003).

Building on these real-world cases and empirically supported data, I presented a series of scenarios to participants to investigate if individuals who encounter a self-regulation dilemma when their desire to pursue IP theft conflict with organisational rules would resort to self-deception in order to justify IP theft. The scenarios were also designed based on the three requirements of the fraud triangle theory; opportunity in the form of having possession of the IP, motive in the form of finding the financial gain from IP theft attractive and justifications for committing IP theft. The main character in the vignette is described as a software developer who has tendered his resignation and who would soon be joining another start-up company. An opportunity is presented for the software developer to gain financially from IP theft. The bonus that he received was not what he expected. Hours were long and re-work was inevitable because codes did not meet specification or specifications change in the course of work. The manager checked their work frequently and gave thorough feedback. The developer made a few claims

for expenses and one of the claims was rejected because it did not meet company policy. One of the co-workers was promoted to become Team Lead. The Team Lead and the actor have had some disagreements on how work should be done.

Text vignettes tend to be wordy and may reduce respondent engagement, thus the vignette was presented in pictorial form. Researchers have used a variety of techniques to disattenuate social desirability bias for sensitive subjects such as IP theft ((Barton, 1958; Mutz, 2011: chapter. 2). These techniques include writing in the third-person, using casual and reassuring language (Näher and Krumpal, 2012), referencing to groups rather than the individuals belong to rather than asking the individual about himself (Brusco, Nazareno, and Stokes, 2004), assurance of anonymity, and, providing a psychological cover for socially undesirable answers (Winters & Weitz-Shapiro, 2013).

However, disgruntlement is dis-similar to social desirability issues because individuals may be more willing to express being aggrieved or unfairly treated as these treatment regard social injustice or responses to injurious situations, rather than wanting to appear good or favourable. Thus, writing the vignette in the first person enables me to measure the extent of disgruntlement being personalised and this is an accurate approximation of self-deception. Furthermore, the design of the study is such that the pictorial vignettes are presented first followed by self-deception statements. This prevents the respondent from referring to the vignette to confirm their answers and the respondent has to rely on their recall of the contents. If this recall is biased in such a way that result in the respondent shows perceived injustice rationalising IP theft, then the empirically derived data corresponds to real world, increasing the validity of our study. The gender of the person in the vignette was designed to match the respondent's stated gender to increase the similarity between the respondent as the first person in

the vignette as Lawson, Hellenthal, Myers, and Falush (2012) had done when they used third party vignettes to measure clientelism and voting patterns.

Participants.

IRB approval was obtained for this study. The NTU undergraduate population is relevant for this study because undergraduates are individuals who will be joining the workforce in two to three years' time. To increase the likelihood of a representative sample so that the results can be generalised to the working population, data from working adults were also collected. A total of 246 participants with mean age of 25.86 years and standard deviation of 6.33 years. Altogether 48.4% males took part in this study. Working adults accounted for 37.4% of the sample. Of the 62.6% of students in the sample, 37% reported that they have one to three years working experience.

These 246 participants comprised of:

1. 72 undergraduates from the RP pool who received 2 RP credits for the completion of this survey online or in the lab.
2. 26 undergraduate participants and one working adult participant were recruited from a sample who had already taken the Short Dark 3 in another Moscato study on IP theft. These participants were paid \$8¹ for their participation² in the lab.

¹ Funding for the payment to participants was provided by Project Moscato, a grant provided by the Ministry of Defence to Nanyang Technology University for the study of insider threat. Principal investigator is Prof Tan Yap Peng and Co-PI is Prof Joyce Pang.

² In addition to the Mann-Whitney U test for differences in the distribution of responses between the student participants and participants who had been debriefed about another Moscato study on IP theft, I also examined if these participants confounded our results by comparing model fit with and without these participants. Goodness of fit indices for both models were poorer when these participants were not included in the sample showing that their participation in the previous study on IP theft did not affect the results of this study. Results of this comparison are tabled in the Appendix.

3. 55 undergraduate participants were recruited from the School of Social Sciences, NTU through word of mouth. They were paid \$10 for their participation either online or in the lab.
4. 58 working adults were recruited through word-of-mouth advertising. They took part in the survey anonymously online and was paid \$20 by way of NTUC shopping vouchers sent to the address provided by them in the survey.
5. 34 working adults in NTU and Defence Science Organization were recruited through pamphlet advertising. They were assigned to the public administration condition and were paid \$20 cash for their participation.

The 26 student participants and one working adult participant who took part in another Project Moscato study had been debriefed about the Moscato study on IP theft. Therefore, a preliminary analysis was made to investigate if the responses of these 26 undergraduates differed from the other undergraduate participants. Mann-Whitney U test (Mann & Whitney, 1947) was used to examine if there were differences in the distributions of the answers of the 26 ex-Moscato undergraduate participants compared to the other undergraduates. Of the 10 variables measured for Study 2, only justification for theft of thumb-drive was statistically significant (Mann-Whitney $U = 1259.0$, $n_1 = 129$, $n_2 = 26$, $p < .05$ two-tailed). Since the responses of the two student groups were not different except for the response on justification for theft of thumb-drive, the 26 ex-Moscato student participants were assimilated into the student group.

Another Mann-Whitney U test was then performed to examine differences in the distribution of the answers between the student group which incorporated the ex-Moscato student participants, and the working adult group. Three out of the ten variables had statistically different results; cognitive self-regulation dilemma (Mann-Whitney $U = 5500.5$, $n_1 = 154$, $n_2 =$

92, $p < .01$ two-tailed), affective self-regulation dilemma (Mann–Whitney $U = 5395.5$, $n_1 = 154$, $n_2 = 92$, $p < .01$ two-tailed) and justifications for theft of thumb-drive (Mann–Whitney $U = 5698.5$, $n_1 = 154$, $n_2 = 92$, $p < .01$ two-tailed). The mean and standard deviation of the three scores are presented in Table 8.

Table 8

Group differences between Student and Working Adults

	n	Cognitive Self-regulation Dilemma		Affective Self-regulation Dilemma		Justification of Theft of Thumb-drive	
		M	SD	M	SD	M	SD
Student Group	154	4.69	0.81	3.74	1.01	2.63	1.35
Working Adult Group	92	4.40	0.80	3.34	1.00	3.03	1.28

M = mean, SD = standard deviation

The results of this preliminary analysis indicated that students were more likely to report higher levels of cognitive and affective self-regulation dilemma compared to the working adults in the sample. They were also more likely to report higher levels of justifications for theft of thumb-drive. However, responses of seven out of the ten variables were not statistically different between the two groups. Based on the higher proportion of non-significant responses, the two groups were assimilated. Nevertheless, this student effect is discussed in the Brief Discussion section and also in Chapter Five of the thesis. Table 9 depicts the assignment of the 246 participants in the conditions of the experiments.

Table 9

Assignment of participants in the experimental conditions

		Anonymous	Public
Personal goal that does not serve ego motives	Organizational goal does not conflict	30	28
	Organizational goal conflicts	31	29
Personal goal that serves ego motives	Organizational goal does not conflict	31	32
	Organizational goal conflicts	31	34

Procedure.

Participants in the anonymous condition completed the survey online via Qualtrics. In the public condition, participants signed an attendance sheet and a written consent form before being assigned to a seat to complete the online survey in a lab or at the workplace meeting room where at least two participants would be taking part together. In the anonymous condition, participants completed the online survey at the location and time according to their convenience. Respondents were also told that their participation is anonymous and without identifiers, and that they have been randomly assigned to one of many different scenarios in the study. They were asked to imagine themselves in the scenario and think about how they would feel as the events unfold. Respondents were assured that there are no right or wrong answers because this study is about how they feel, and they were asked to answer the questions as spontaneously as possible.

Assurance of confidentiality in data collection and storage was given to participants because views on a socially sensitive topic are being collected, and this was clearly stated in the consent form. Completion of the survey took about 40 minutes. After participants finished reading the cover story and gave their permission to take part, they completed the biodata collecting information such as age, gender, marital status, course of study, occupation, length of experience, followed by the Short Dark 3 questionnaire (SD3; Paulhus & Jones, 2011).

Instructions to respondents.

Respondents were asked to imagine that they are employed as software developers in a start-up company and told that there are no right or wrong answers and that the best answer is the most spontaneous answer. In addition, respondents were reminded to read the instructions and the information presented at each stage. The survey was designed such that all the pictorial

vignettes in each stage were presented first, followed by the questions one at a time subsequently without the vignette to minimise participants' reliance on conscious contemplation and over-analysing their responses which may result in more socially acceptable answers. This way of asking the questions is also consistent with our measurement of self-deception which involves misremembering and misinterpreting of information that favours deception during recall.

Manipulation.

The procedure of priming financial goals that serve or do not serve ego needs, conflict or no conflict with organizational goals tested in Pilot Study 2 was carried out in this study. Apart from the priming, the vignettes also contained conflict and ego elements built into them to activate conflict of financial goals or financial goals with ego needs. In the financial goal that serve ego needs, the offer was made to the actor because the buyer is impressed with the competence of the actor whereas in the financial goal that do not serve ego needs, the offer was made without additional information about the buyer being impressed with the competence of the actor.

The organizational rule that conflict or do not conflict according to the four different conditions was carried out in part 1 of the vignettes. In the conflict condition, a picture of IP agreement was presented and in the no-conflict condition, a picture of employment rules on working hours, medical leave and annual leave was presented. At the end of this stage, they were presented with a temptation for IP theft. Statements on personal goal, organisational goal and self-regulation dilemma were rated after part 1. At part 2, vignettes continued with typical workplace situations and statements on self-deception were rated after part 2. The experiment continued with part 3 and statements measuring the dependent variables on IP theft were rated after part 3. Figure 8 illustrates the flow of the study from priming to the measurement of the

dependent variables. Information on the priming materials, vignettes and self-deception questions are provided in the Appendix.

Figure 8. Flow of the procedure for Study 2

Operationalisation.

Machiavellianism, narcissism and psychopathy were operationalised as composite scores from the SD3 measurement for each of the traits. A 6-point Likert scale where 1 was for “Strongly disagree” and 6 for “Strongly agree” was used to rate statements following exposure to the vignettes. Motivation for personal goal was operationalised as the rating score to the statement “This offer is attractive to me.” after Part 1 of the vignette when the temptation is presented. Motivation for organisational goal was operationalised as the rating score to the statement “The organisational rule is important me”. This question was added so that I can examine the competing that motivation for organizational rule reduces cognitive and affective SRD.

Cognitive and affective self-regulation dilemma items, pre-tested in Pilot Study 1, were presented after statements on the goals. Cognitive SRD was operationalised as the average rating of 4 items measuring thoughts and discernments that a person encounters when personal goal conflict with organizational goal. Affective SRD was operationalised as the average rating of 6 items measuring feelings and emotions a person experiences when personal goal conflict with organizational goal.

Self-deception was operationalised as the average ratings of 20 attitudinal statements presented to the participants after part 2 vignettes. The statements reflected self-deception because agreeing or disagreeing with the statements reflect distortions, misremembering and misinterpreting neutral or ambiguous information. The statements measured other-derogatory attitudes, attribution errors and prejudging others, self-entitlement and self-enhancing attitudes. Six of the 20 statements were reverse-coded to minimise acquiescence.

IP theft was operationalised as two dependent variables, theft of thumb-drive and theft of codes. It is of interest to differentiate IP theft into these two variables because IP theft relates to the information as well as the medium that contains the information. Furthermore, Mazar, Amir, and Ariely (2008) surmised that increasing the psychological distance between a dishonest act and its consequences increased cheating. Thus, agreeing to take a thumb-drive that the organization negligently left in one's possession may be a convenient act of lesser consequences than agreeing to taking the codes.

Opportunistic IP theft which is theft of thumb-drive was operationalised as the mean ratings of these two statements:

1. I am justified not to inform the company that I have the thumb-drive.
2. I am justified to keep the thumb-drive.

IP theft of codes was operationalised as the mean ratings of these four statements:

1. I am justified to keep the codes in the thumb-drive.
2. I am justified to use the codes in the thumb-drive.
3. I am justified to share the codes with other people.
4. I am justified to sell the codes.

Methodology.

As the models proposed are complex, involving 3-way interaction terms and mediation in a multifactorial design, analysis was divided into two portions. MANCOVA was used to evaluate the main effects and interaction effects of all possible interactions between the covariates and the factors terms, failing which will invalidate the test (Hayes, 2013). Thus, all interaction terms were modelled for each of the Dark Triad traits individually to incorporate the significant main and interaction terms into the models before conducting path analysis to test the hypotheses and model fit.

Software programs such as Mplus now allow for the use of non-metric data, making path analysis suitable to analyse data from the between-group design used in this study. Mplus programme version 8 was used to perform the path analysis and estimation using maximum likelihood was chosen as this estimation provides stable results, particularly for sample size between 100 to 400 (Hair et al, 2010). Bootstrapping (Bollen & Stine, 1990; Shrout & Bolger, 2002) was applied to correct for any bias due to non-normality when indirect effects for mediation are tested.

Results and findings.

There were no missing data in this sample because our surveys were designed with forced choice questions. I began by examining if priming conditions were successful in

Study 2. Priming of financial goal was successful. Participants reported significantly higher agreement of having financial goals. Using a one sample t-test, this sample-estimated population mean ($M=4.59$, $SD=1.033$) is significantly higher compared to a normal distribution with mean of 4 for a population who rated that they have financial goals, $t(245) = 16.538$ ($p = .000$). Priming of conflict condition was also successful. An analysis of variance showed that the ratings on “My organizational goals will conflict with my financial goals” was significantly different in conflict and no-conflict conditions, $F(1,245) = 14.263$, $p = .000$.

However, priming of ego condition was not successful. The covariate, rating of the statement “I agree with article” was significantly related to the participant’s rating of the statement “My financial goal reflects how special I am”, $F(1,243)=25.13$, $p=.000$. But controlling for this agreement, effect of ego priming was not statistically significant $F(1,243)=.31$, $p=.578$. To doublecheck that the statement “My financial goal reflects how special I am” indicated that financial goal serves ego needs, I correlated the rating with narcissism and confirmed that it was positively correlated with narcissism ($r = .421$, $p = .000$).

Despite the unsuccessful ego prime, participants were also exposed to ego elements in the vignettes assigned to the ego condition to activate ego motives. In the ego condition, participants were informed that the offer to buy computer codes was because the buyer is impressed with their competency of the actor in the vignettes whereas in the no-ego condition, the offer was made to purchase the computer codes without this additional information. Thus, ego hypotheses could be tested even though the prime did not additionally induce ego motives in their personal goal.

Prior to MANCOVA to examine the interaction effects hypothesized in my study, I ran a series of diagnostic tests to determine if assumptions of MANCOVA were met. Independence of

observations was met by random assignment to of individuals to experimental conditions. Results of homoscedasticity tests are reported in Table 10. A non-significant Levene's test for equality of variance indicated that the univariate variance for cognitive SRD and affective SRD was homogeneous across the sample and a non-significant Box's M test showed that there was no difference between the groups on cognitive and affective self-regulation dilemma collectively, thus meeting the assumption of homoscedasticity for MANCOVA. Another test for the homogeneity of the covariance matrices within groups is the Bartlett's test of sphericity which returned a significant p-value and this means that group variances were the same.

Table 10

Multivariate and univariate measures for testing homoscedasticity of cognitive and affective self-regulation dilemma

Box's Test of Equality of Variance Matrices				
Box's M	<i>F</i>	df1	df2	<i>p</i>
30.26	1.4	21	196913.319	.104
Levene's Test of Equality of Error Variances				
Dependent variable	<i>F</i>	df1	df2	<i>p</i>
Cognitive SRD	.637	7	238	.355
Affective SRD	1.279	7	238	.111
Bartlett's Test of Sphericity		Approx χ^2	df	<i>p</i>
		94.135	1	.000

Outliers.

Finally, I examine cases with unusual combinations of scores amongst the independent variables that are deemed as outliers. MANCOVA is sensitive to the effect of outliers on the Type I error rate and outliers may amplify outcomes that support hypotheses (Hunter & Schmidt, 2004; Cohen et al., 2003; Kutner, Nachtsheim, Neter, & Li, 2004) but could result in findings that cannot be replicated. Outliers tend to be defined through methodology and for multivariate

analysis of covariance and correlational multivariate methods such as path analysis, outliers are typically assessed by using the Mahalanobis Distances (MD) which is the distance from the central point of the multivariate data (Aguinis, Gottfredson, & Joo, 2013). MD was calculated for the sample and MD larger than the critical chi-square value of 24.32 for seven degrees of freedom at a critical alpha value of .001 indicated outliers (Tabachnick & Fidell, 2013). Three outliers were identified in the sample; cases ID SA02, SP26 and 2BSP20 and these cases were excluded from our analysis.

Examining gender differences of Dark Triad traits .

Independent t-test was conducted to assess gender differences of the Dark Triad traits in our sample to assess the need to control for gender in our model and results are presented in Table 11. Gender difference was not statistically significant. The correlation table for the Dark Triad traits are also included in Table 12.

Table 11

Dark Triad Subscale Means by Gender (N=243)

	Men <i>M (SD)</i>	Women <i>M (SD)</i>	<i>t</i>	<i>p</i>
Sample, N=243				
Machiavellianism	3.3 (.6)	3.33 (.48)	-0.525	.597
Narcissism	2.76 (.52)	2.79 (.47)	-0.519	.604
Psychopathy	2.31 (.54)	2.19 (.48)	1.88	.061

Table 12

Mean, SD and correlation of Dark Triad traits (N=243)

Variable	Mean	SD	Correlation	
			1	2
1. Machiavellianism	3.32	.54		

2. Narcissism	2.78	.50	.299**	
3. Psychopathy	2.25	.51	.389**	.331**

Note: ** $p < .01$

Effects of public condition on self-deception and IP theft.

A total of 80.2% of participants reported being motivated by the offer made in the vignette ($M = 4.34$, $SD = 1.32$). About 94% of participants felt that the organizational rule was important to them rating 4 and above ($M = 4.97$, $SD = .818$). The sample on a whole reported lesser self-deception ($M = 3.39$, $SD = .66$) than would be expected of a normal distribution with a minimum value of 1 and a maximum value of 6 and mean of 3.5, $t(242) = -2.53$, $p = .012$. In general, participants did not consider theft of thumb-drive ($M = 2.87$, $SD = 1.3$) or theft of codes ($M = 2.29$, $SD = .93$) justified.

The ANOVA showed that the effect of anonymity or public administration was not significant for self-deception $F(1, 235) = .468$, $p = .498$. Similarly, the main effect of anonymity or public administration was also not significant for IP theft Wilk's $\Lambda = .999$, $F(2, 234) = .123$ $p = .884$. These results indicate that the scores of self-deception and IP theft were not susceptible to social desirability responding as there is no difference in the scores whether participants answered the questions anonymously or publicly in the presence of other participants.

Within-cell correlations.

I investigated the relationship between Dark Triad Traits and the types of personal goal they endorse by examining the within-cell correlation between Dark Triad traits and motivation for personal goal presented in Table 13.

Table 13

Correlation of Dark Triad Traits with Motivation for Personal Goal within Each Cell (N=243)

Variables	Correlation of Dark Triad traits with Motivation for Personal Goal			
	No Conflict, No Ego (N= 57)	No Conflict, Ego (N = 61)	Conflict, Ego (N = 65)	Conflict, No Ego (N = 60)
Machiavellianism	.275*	.269*	.084	.217
Narcissism	.233	.282*	.004	-.008
Psychopathy	-.188	.170	.248*	-.045

Note: * $p < .05$

The results present evidence that Machiavellians tended to be motivated by personal goal that both serve or do not serve ego needs but only when their goals do not conflict with organizational goal. Narcissists were inclined to be motivated only by goals that serve ego needs and only when those goals do not conflict with organizational goal. However, psychopaths found personal goals that do not serve ego motives more attractive when they conflicted with organizational goals. Thus, it appears that, albeit differences in the type of personal goals, Machiavellianism and narcissism are correlated with motivation for personal goal only when the personal goal did not conflict with organizational goal, but the opposite was true for psychopathy.

When I investigated the within-cell correlation between Dark Triad traits and cognitive and affective SRD, only Machiavellianism was associated with affective SRD ($r = .327, p = .013$) in the no-conflict and no ego cell, and Machiavellianism correlated with cognitive SRD ($r = .29, p = .023$) in the no-conflict and ego cell. Interestingly, Machiavellianism is associated with affective SRD ($r = .305, p = .014$) in the conflict and ego cell despite not being related to motivation by personal goal in that cell. Finally, I examined the within-cell correlation between motivation for personal goal and, cognitive and affective SRD and presented the information in Table 14. Cognitive and affective SRD were related to motivation for personal goal in each cell

except the non-significant relationship between affective SRD and motivation for personal goal in the no-conflict and ego cell.

Table 14

Correlation between Motivation for Personal Goal and, Cognitive and Affective SRD within Each Cell (N=243)

Variables	Correlation of Self-regulation dilemma with Motivation for Personal Goal			
	No Conflict, No Ego (N= 57)	No Conflict, Ego (N = 61)	Conflict, Ego (N = 65)	Conflict, No Ego (N = 60)
Cognitive SRD	.419**	.351**	.482**	.486**
Affective SRD	.391**	.171	.373**	.533**

Note: ** p<.01

Testing H₁ to H₃.

An initial MANCOVA examined individual Dark Triad traits and motivation for personal goal as covariates, cognitive and affective SRD as dependent variables, and ego, conflict and public conditions as independent variables. To confirm that there are two different models as hypothesized, one for personal goal that serve ego needs and another for personal goal that do not serve ego needs, results must show significant differences in the means of cognitive and affective SRD between ego and no-ego condition, and, significant differences in the means of cognitive and affective SRD between conflict and no-conflict conditions within ego as well as no-ego conditions. In addition, there should be significant interaction of motivation for personal goal and each of the Dark Triad traits as hypothesized. In short, there should be significant results of four-way interaction effects between conflict, ego, motivation for personal goal and each of the Dark Triad traits.

Multivariate effect was observed only in the MANCOVA involving Machiavellianism and reported in Table 15, but univariate tests indicated that significant effects were confined to only affective SRD. No multivariate effect was noted in the MANCOVA involving narcissism or psychopathy. Univariate effects were observed in the ANCOVA results with the covariate narcissism on affective SRD, but no univariate effect was observed for psychopathy. This information is presented in Table 16. Thus, the interpretation of these results is that there are differences in affective SRD between ego and no-ego conditions only when Machiavellianism or narcissism was examined individually with motivation for personal goal. The complete lists of significant and non-significant Multivariate and univariate effects are appended in the Appendix.

Table 15

Significant Multivariate Effects on Cognitive and Affective SRD (N=243)

Variables	Wilk's Λ	F	df	p
Ego	.969	3.30	2, 210	.039
Ego*Machiavellianism	.97	3.21	2, 210	.042
Ego*Motivation for personal goal	.966	3.74	2, 210	.025
Ego*Machiavellianism* Motivation for personal goal	.967	3.57	2, 210	.030

Table 16

Significant Univariate Effects on Affective SRD (N=243)

Variables	F	df	p
<u>Covariate = Machiavellianism</u>			
Ego	6.51	1	.011
Ego*Machiavellianism	6.25	1	.013
Ego*Motivation for personal goal	7.45	1	.007
Ego*Motivation for personal goal*Machiavellianism	7.14	1	.008
<u>Covariate = Narcissism</u>			
Ego	3.94	1	.048
Ego*Narcissism	4.09	1	.044
Ego*Motivation for personal goal	4.79	1	.030
Ego*Motivation for personal goal*narcissism	4.89	1	.028

These results also showed that the effect of conflict is not significant in these initial MANCOVA tests which means that there were no differences in the means of cognitive and affective SRD in conditions where goals conflict or do not conflict. The four-way interaction effects between conflict, ego, motivation for personal goal and each of the Dark Triad traits were also not significant. Thus, the hypotheses that when motivated by personal goals, Machiavellianism and psychopathy moderate the relationship between a conflict of goals and cognitive and affective self-regulation dilemma were not supported for personal goals that serve or do not serve ego motive (H_1 and H_2).

Similarly, the hypothesis that when motivated by personal goal that serve ego motive, narcissism moderates the relationship between conflict of goals, and, cognitive and affective self-regulation dilemma is also not supported (H_3). Figure 9 presents the mean scores of affective SRD of high and low scorers of Machiavellianism and motivation for personal goal when personal goal served (ego condition) or did not serve ego motive (no-ego condition) and Figure 10 presents the information for narcissism.

Figure 9. Mean Scores of Affective SRD for High and Low Scorers of Machiavellianism with High and Low Motivation for Personal Goal when Personal Goal Serves or Does Not Serve Ego Motive.

When personal goal did not serve ego motive, low scorers of Machiavellianism who were motivated experienced significantly higher affective SRD than low scorers of Machiavellianism with low motivation, $t(49) = 2.625, p = .012$. This effect was not significant for the similar category in the ego group. At low levels of motivation, Machiavellianism did not make any difference in the experience of affective SRD for both groups. However, at high levels of motivation, higher scorers of Machiavellianism experience more affective SRD compared to low scorers of Machiavellianism for both groups and also higher affective SRD compared to the average person in both groups.

Figure 10. Mean Scores of Affective SRD for High and Low Scorers of Narcissism with High and Low Motivation for Personal Goal when Personal Goal Serves or Does Not Serve Ego Motive.

On the other hand, narcissism did not significantly increase the experience of affective SRD when participants were motivated by personal goal, regardless whether personal goal served and did not serve ego motive. Similarly, when participants were not motivated by both types of goals, the interaction of narcissism did not have an impact on the level of affective SRD experienced. However, when personal goal did not serve ego motive, low scorers of narcissism who were not motivated had significantly lower affective SRD compared to low scorers of narcissism who were motivated, $t(58) = 3.241, p = .002$. These results demonstrated that narcissism is indifferent to experiences of affective SRD except for low scorers of narcissism reporting higher level of affective SRD when motivated compared to low scorers who were not motivated but these level of affective SRD was not significantly different from the mean score of affective SRD in the no-ego group.

Testing H_4 to H_{10} .

The results from MANCOVA indicated that there were main effects and interaction effects involving ego condition and I proceeded to distinguish the models based on personal goals that serve and do not serve ego motive according to my hypotheses. Accordingly, the paths for analysis were re-specified to test H_4 to H_{10} . In both models, the variable, conflict condition, was removed. MANCOVA indicated that there the independent variables specified for cognitive SRD were not significant and thus, cognitive SRD was re-specified as an exogenous variable.

Exogenous variables leading to affective SRD were amended to be Machiavellianism, narcissism, motivation for personal goal, motivation for personal goal*narcissism and motivation for personal goal*Machiavellianism. Figure 11 and 12 shows the revised models of personal goal that serve ego motives and personal goal that do not serve ego motive respectively. For

simplicity, I refer to the model where personal goal serve ego needs as the “ego model”, the model where personal goal does not serve ego needs as the “no-ego model” and motivation for personal goal as “motivation”.

Figure 11. Revised Model of Personal Goal that Serves Ego Motive

Figure 12. Revised Model of Personal Goal that Does Not Serve Ego Motive.

To test H₄, I set the null model by constraining paths from narcissism and interaction between narcissism and personal goal to affective SRD, self-deception and IP theft to be zero in the no-ego model and free all estimates in the alternative model such that the null model is nested within the alternative model. Using the maximum likelihood robust estimation, I obtained the Satorra-Bentler scaled chi-square statistic with Mplus (Muthén & Muthén, 1998-2017). Essentially, a non-significant p-value in the chi square difference test indicates that the addition of narcissism as a variable does not improve model fit and the alternative model is rejected in favour of the null model. The test produced a Sattora-Bentler Scaled Chi-Square Difference of 18.8529 and difference test scaling correction of 1.0206 with 6 degrees of freedom. This yielded a p-value of 0.0044 which is significant at $p < 0.05$. Thus, I rejected the null model and H₄ that the no-ego model without narcissism is a better fit.

To test H₅ to H₁₀, the alternative model from the chi square difference test is applied to both ego and no-ego models to examine the direct and indirect effects using path analysis with maximum likelihood estimation and bootstrapping to 5,000. Goodness of fit indices obtained for these models were very poor. For the no-ego model, ($\chi^2=789.8$; $p=.000$, CFI=0.00; TLI=-5.44; RMSEA=.57; SRMR=.42) and the ego model, ($\chi^2= 837.0$; $p=.000$, CFI=0.00; TLI= -5.366; RMSEA=.57; SRMR=.43). It is likely that these models were over-specified, with too many exogeneous variables determining affective SRD.

Model Re-specification.

Although the path analysis produced some significant paths, the poor fit suggested that the models did not explain the data well and that re-specification is required before interpreting the causal paths (Kenny, 2015). None of the exogenous variables in the no-ego model were significantly related to affective SRD and only motivation was significant in the ego model.

Reviewing the correlations of the exogeneous variables to cognitive and affective SRD presented in Table 17, the models were revised so that motivation and Machiavellianism lead to cognitive and affective SRD respectively and ran the analysis again.

Table 17

Correlations of the IVs with Cognitive and Affective SRD (N=243)

		Correlations				
		1	2	3	4	5
1	Motivation					
2	Machiavellianism	.212**				
3	Narcissism	.126*	.299**			
4	Psychopathy	.075	.389**	.331**		
5	Cognitive SRD	.442**	.138*	-.015	.015	
6	Affective SRD	.331**	.172*	.024	.081	.628**

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

Goodness of fit indices again showed that model fitted poorly for the no-ego model ($\chi^2 = 935.690$; $p = .000$, CFI = 0.207; TLI = -0.494; RMSEA = 0.207; SRMR = .238) but the model fit indices for ego model were good ($\chi^2 = 8.937$; $p = .02572$, CFI = 0.992; TLI = 0.966; RMSEA = 0.047; SRMR = .031). The path analysis for the revised ego model is presented in Figure 13.

Note: * $p < .05$ ** $P < .01$

Figure 13. Path Diagram of the Re-specified Ego Model with Standardized Coefficients.

For the no-ego model, I deleted the non-significant Machiavellianism paths to cognitive and affective SRD in the no-ego model and ran the analysis one more time. This time I achieved good fit indices ($\chi^2 = 8.958$; $p = 0.4411$, CFI = 1; TLI = 1.001; RMSEA = 0.000; SRMR = .034). Figure 14 presents the path analysis of the re-specified no-ego model.

Figure 14. Path Diagram of Re-specified No-ego Model with Standardized Coefficients

I was able to evaluate H₅ to H₁₀ based on the results of the path analysis. Tables 18 and 19 provide the list of indirect and direct effects hypothesized for both models. Standardized coefficients which refer to how many standard deviations a dependent variable will change when the predictor variable increase per standard deviation are reported.

Table 18

Path Coefficients of Hypothesized Indirect Effects for Ego Model and No-ego Model

Indirect effect	Hypotheses	B	β	SE B
<u>Ego Model: Personal goal with ego motives (n=126)</u>				
Machiavellianism to IP theft (thumb-drive)	H5a-i	0.326	.140**	0.054
Machiavellianism to IP theft (codes)	H5a-ii	0.213	.132*	0.048
Narcissism to IP theft (thumb-drive)	H5b-i	0.007	.002	0.033
Narcissism to IP theft (codes)	H5b-ii	0.004	.002	0.031
Psychopathy to IP theft (thumb-drive)	H5c-i	0.028	.012	0.040
Psychopathy to IP theft (codes)	H5c-ii	0.018	.011	0.039
Cognitive SRD to IP theft (thumb-drive)	H9a-i	-0.049	-.033	0.051
Cognitive SRD to IP theft (codes)	H9a-ii	-0.032	-.031	0.048

Affective SRD to IP theft (thumb-drive)	H9b-i	0.186	.156**	0.059
Affective SRD to IP theft (codes)	H9b-ii	0.121	.148**	0.057

No-ego Model: Personal goal without ego motive (n=117)

Machiavellianism to IP theft (thumb-drive)	H6a-i	0.046	.018	0.029
Machiavellianism to IP theft (codes)	H6a-ii	0.039	.021	0.032
Psychopathy to IP theft (thumb-drive)	H6b-i	0.038	.014	0.02
Psychopathy to IP theft (codes)	H6b-ii	0.032	.016	0.028
Cognitive SRD to IP theft (thumb-drive)	H10a-i	-0.025	-.014	0.028
Cognitive SRD to IP theft (codes)	H10a-ii	-0.021	-.016	0.031
Affective SRD to IP theft (thumb-drive)	H10b-i	0.073	.052	0.045
Affective SRD to IP theft (codes)	H10b-ii	0.062	.060	0.050

Note: * p<.05 ** p<.01

Table 19

Path Coefficients of Hypothesized Direct Effects

Source	Dependent Variable	Hypothesis	B	β	SE B
<u>Ego Model: Personal goal with ego motive (N=126)</u>					
Machiavellianism	IP theft (thumb-drive)	H7a-i	0.183	.078	.218
Machiavellianism	IP theft (codes)	H7a-ii	-0.159	-.099	.148
Narcissism	IP theft (thumb-drive)	H7b-i	-0.082	-.029	.276
Narcissism	IP theft (codes)	H7b-ii	0.041	.021	.165
Psychopathy	IP theft (thumb-drive)	H7c-i	0.088	.037	.213
Psychopathy	IP theft (codes)	H7c-ii	0.339	.206*	.156

No-ego Model: Personal goal without ego motive (N=117)

Machiavellianism	IP theft (thumb-drive)	H8a-i	0.116	.047	.107
Machiavellianism	IP theft (codes)	H8a-ii	-0.056	-.031	.108
Psychopathy	IP theft (thumb-drive)	H8b-i	-0.174	-.063	.111
Psychopathy	IP theft (codes)	H8b-ii	0.109	.054	.093

Note: * p<.05 ** p<.01

Only the relationship between Machiavellianism to IP theft, and the relationship between affective SRD and IP theft, were significantly mediated by self-deception in the ego model.

Since the direct paths from Machiavellianism to IP theft, and from affective SRD to IP theft were not significant, I concluded that these relationships were fully mediated by self-deception. In the no-ego model, all the direct and indirect effects hypothesized were not significant. Not only did including narcissism in the no-ego model improve model fit, it turned out that narcissism was the only significant direct effect to IP theft (thumb-drive) and IP theft (codes) at $\beta=.301, p=.001$ and $\beta=.273, p=.004$ respectively. Despite narcissism being significantly related to self-deception ($\beta=0.246, p=.004$), the indirect effects of narcissism on IP theft through self-deception were not significant for both forms of IP theft. The direct effect of narcissism on both forms of IP theft were found to be significant for the no-ego model. For every unit increase in narcissism, IP theft of thumb-drive increase .743 times and IP theft of codes increase by .495 times, controlling for all other variables. Furthermore, instead of the hypothesized indirect effect linking cognitive SRD to IP theft through self-deception, cognitive SRD directly led to IP theft (thumb-drive) ($\beta=0.217, p=.04$). However, the direct effect from affective SRD to IP theft of thumb-drive was not significant. In the ego model, cognitive and affective SRD did not directly lead to IP theft of thumb-drive.

Competing Hypotheses.

I examined the competing hypotheses that the motivation for organizational goal is inversely correlated with cognitive and affective self-regulation dilemma, self-deception and IP theft. Motivation for organizational goal was uncorrelated with cognitive SRD ($r=-.085, p=.189$) but was negatively correlated with affective SRD ($r=-.193, p=.002$). Motivation for organizational goal was also negatively correlated with self-deception ($r=-.29, p=.000$) and is negatively correlated with IP theft (thumb-drive) ($r=-.42, p=.000$) and IP theft (codes) ($r=-.507, p=.000$).

Another competing hypothesis that was examined is the hypothesis that self-regulation dilemma is directly related to IP theft of thumb-drive and that is not mediated by self-deception. Results from the path analysis revealed that cognitive SRD is directly related to IP theft of thumb-drive only for the no-ego model and the indirect effect of cognitive SRD to IP theft of thumb-drive is not significant ($\beta = -0.025, p = .624$). However, affective SRD did not lead to IP theft of thumb-drive in both models and the indirect effect from affective SRD to IP theft of thumb-drive through self-deception was also not significant. This result partially supported the competing hypothesis for only cognitive SRD and the no-ego model.

Brief discussion

Although the priming of the conflict vs no conflict conditions were successful, I found that cognitive and affective SRD were not differentiated between those conditions. Even when participants were successfully prepared to perceive a conflict or no-conflict of personal goal with organizational goal, participants may have considered the offer for IP theft a conflict that invoked cognitive or affective SRD no different from those in the conflict condition. The reason for this could be that individuals with prior experience and knowledge relevant to the themes of the story in the vignette, responded according to their experience and knowledge rather than according to the psychological state of organizational goal not conflicting with their personal goal. In addition, IP agreement may be an accepted feature of employment contracts and the use of employment terms in the no-conflict condition may not be sufficient to evoke feelings of no-conflict as the use of these terms did not specifically mean that there is no IP agreement.

Conversely, even though the priming for ego motives in financial goals was not successful, the main effect and interaction effects involving ego and the covariates were significant when Machiavellianism and narcissism were individually included in the MANCOVA

of cognitive and affective SRD. A possible explanation could be that in general, people disagreed with the article on the accumulation of wealth and status-symbols showing how successful one is, thus rendering these individuals resistant to the priming. However, the ego elements in the conflict condition (where organizations did not reward employees for their competencies) and in the no-conflict conditions (where organizations reward employees for their competencies) may have successfully activated ego needs in participants.

Additionally, MANCOVA results showed that the interaction of Machiavellianism with motivation, as well as the interaction of narcissism with motivation had an impact on affective SRD but these terms were not statistically significant in the path analysis. The collinearity of the Dark Triad traits, and the correlation of the Dark Triad traits with motivation for personal goal might have contributed to a higher chance of Type II errors such that significant predictors failed to be detected. The variance inflation factor (VIF) of 1.167 to 1.253 for the three traits showed how much variance is increased because of collinearity although the collinearity is below the cut-off of 10. In the presence of collinearity, the difficulty to apportion shared variances may have led to unreliable coefficient estimates. The hypothesized models also could be over-specified. These results will be discussed in detail in Chapter Five.

In addition, the sampling method of combining groups of student and working adults into the sample may have contributed to sampling error such that generalisation to the population or replicability of the study may be affected. As students reported significantly higher cognitive and affective SRD, age or working experience may be a moderator of the experience of SRD such that with age or increased working experience, the experience of SRD is reduced. Similarly, paying participants with different amount of cash and others with course credits may also have contributed to unexplained errors in the study.

The better model fit by including narcissism in the no-ego model was also not anticipated and something even more unexpected is Machiavellianism and psychopathy failing as significant indicators in the no-ego model. In the ego model, the relationship between Machiavellianism and the two forms of IP theft were found to be fully mediated by self-deception but narcissism was not significantly associated with IP theft and psychopathy was not related to self-deception but had a moderate direct effect of .32 on IP theft of codes.

These results appeared to be counter-intuitive and begged clarification. One possible explanation is that because Machiavellianism and narcissism correlated positively with motivation when personal goal served ego motive, the effect of these two traits were also expressed through motivation on affective SRD. Similarly, Machiavellianism and psychopathy were correlated with motivation in the no-ego model and some of their share variance could have been expressed through affective SRD. A thorough analysis and detailed discussion is presented in Chapter Five and in that chapter, I also include contributions to literature, implications, limitations and future directions.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

The purpose of this chapter is to discuss in depth, the findings from the two studies conducted for this dissertation. To reiterate, the aim of this research is to develop models to explain how a conflict of personal goal with organizational goal produce self-regulation dilemma which trigger self-deception resulting in IP theft. I hypothesized that when motivated by personal goals that serve ego needs, Dark Triad traits moderate the relationship between conflict of goals and self-regulation dilemma such that when the conflict of goals involve ego needs, the three Dark Triad traits will reduce self-regulation dilemma. In the case that personal goal does not serve ego motive, I hypothesized that only Machiavellianism and psychopathy will interact with motivation for personal goal, resulting in reduced self-regulation dilemma. I believed that reduced self-regulation dilemma will lead to IP theft through self-deception. I also expected that Dark Triad traits will lead to IP theft through self-deception.

To empirically test my models, I conducted Study 1 to first ascertain the measurement invariance of the measurement of Dark Triad traits, Short Dark 3 (Jones & Paulhus, 2014). Conclusions from Study 1 confirmed that SD3 measures identical constructs consistently across different groups and individuals with Dark Triad traits in Singapore are more egoistic and hold the same self-enhancing values as shown in the studies referred to in the literature review. Study 2 was conducted to test that the models I prescribed, fit the observed data. Drawing on the results and findings of both studies, I attempt to explain the complex decision-making process that lead individuals to commit IP theft.

Personal goals that serve and do not serve ego needs

Study 1 reported positively disattenuated correlation of Machiavellianism and psychopathy with the value Power-Resource whereas narcissism was less so. Individuals with Power-Resource values desire control or dominance over resources (Schwartz et al., 2012) and it is reasonable to surmise that these individuals would be motivated by personal goals, particularly financial goals. These results lent weight to our hypothesis that Machiavellianism and psychopathy, more so than narcissism, are motivated to pursue financial goals.

Disattenuated correlation of Machiavellianism and narcissism, and to a lesser degree psychopathy, were also found for the value Achievement (Schwartz et al., 2012). According to the definition of Schwartz et al. (2012), individuals with Achievement values, such as being ambitious, successful or capable, see their competence as areas for them to obtain social approval. This finding also strengthened our assumption that Machiavellianism, narcissism and psychopathy are related to personal goals that serve ego needs. Thus, personal goals that are associated with demonstrating how competent they are, are especially appealing individuals with Dark Triad traits. Results of within-cell correlations conducted in Study 2 and displayed in Table 13 affirmed that individuals with Machiavellian traits are associated with being motivated by personal goal and motivated by personal goal that served ego needs. Narcissists correlated with motivated by personal goal that served ego needs and psychopathy correlated with personal goal.

Unexpectedly however, the correlations of Machiavellianism and narcissism with personal goals were for conditions where these goals did not conflict with organizational goals. These findings appear to contradict the well-documented callousness, dominance and hostility of the Dark Triad (e.g., Jonason, et al., 2009, Jones & Paulhus, 2011). Based on these studies, the

pre-occupation with personal goals should prevail even when organizational goals conflicted with personal goals.

Furthermore, since the Dark Triad traits were uncorrelated with motivation for personal goals, individuals with Dark Triad traits would be expected to pursue personal goals even when goals conflict. In addition, the negative correlation of Machiavellianism with motivation for organizational goal in the conflict and no-ego condition should also have increased the likelihood of Machiavellians pursuing personal goals even when organizational goals conflict. Therefore, the information that Machiavellians and narcissists were less motivated to pursue personal goals when these goals conflict with organizational goals is unusual based on our literature review so far.

Psychopathy was found to be positively correlated with personal goal only when it conflicted with organizational goal. This result is congruent with the risk-taking characteristic of psychopathy (e.g., Babiak & Hare, 2006; Babiak, Neumann, & Hare, 2010) and psychopaths find personal goal especially appealing when organizational rules conflict with it. I also considered that it a possibility that these correlations, with p-values significant at the .05 alpha level but not the .01 level, were spurious or resulting from experimental error.

Dark Triad and the experience of cognitive and affective SRD

Although I had initially expected psychopaths to experience the lowest level of SRD amongst the Dark Triad, MANCOVA results disclosed that individuals with psychopathy traits did not experienced self-regulation dilemma. Their lack of conscience toward others, immunity from stress and emotional inadequacy (Smith & Hung, 2013; Hare & Neumann, 2009) may explain the lack of cognitive and affective SRD experiences. MANCOVA results showed that motivation for both types of goals interacted with Machiavellianism and influenced affective

SRD but not cognitive SRD. Further to that, instead of decreased affective self-regulation dilemma as hypothesized, high scorers of Machiavellianism and narcissism who were motivated to pursue personal goal experienced increased affective SRD (see Figure 5 and 6) compared to low scorers of these traits and low motivation. These results were more apparent for Machiavellianism than narcissism, and individuals with Machiavellian traits but not narcissism experienced higher levels than the average affective SRD experienced in the ego or no-ego group. Machiavellianism appeared to be more sensitive to affective SRD than narcissism.

For both ego and no-ego conditions, high and low scorers of Machiavellianism experience significantly different levels of affective SRD when interacted with motivation for personal goal as seen in Figure 5. Narcissism on the other hand, is less sensitive to affective SRD and exhibited fewer significantly different levels of affective SRD in the ego condition compared to the no-ego condition. The affective SRD results of Machiavellianism appear to contradict literature that advocate an emotionally detached and self-focused agentic approach of Machiavellianism (Murphy, 2012; Griffiths, 2002). The heightened levels of affective SRD suggest that Machiavellians experience guilt, anxiety and frustration when they contemplate an opportunity to exploit the organization by stealing IP, even when they were primed to perceive that taking IP does not conflict with organizational goal.

The relative insensitivity of narcissists to experiences of affective SRD, particularly when personal goals meet ego needs, support literature that shows narcissism as the tendency to use affect self-regulation only to maintain an inflated self-image (Dowgwillo, Dawood & Pincus, 2016). Thus, when narcissists evaluate an opportunity to benefit financially from IP theft and that opportunity comes with a chance for self-enhancement, they may be unable to experience any guilt, anxiety or frustration of these potential actions when considering if the actions would

conflict with organizational goals. But when the opportunity does not have any potential for self-enhancement, high scorers of narcissism who are motivated by personal goal experienced significantly higher affective SRD compared to low scorers of narcissism who are not motivated by personal goal although no higher than the average participant.

In analysing these results against literature on the Dark Triad, there appears to be some construct confusion on what Machiavellianism is and is not. High scorers of Machiavellianism are perceived to be cold and calculating with a self-serving attitude in gaining resources for themselves (Christie & Geis, 1970) but these qualities may be more descriptive of psychopathy. As pointed out by McHoskey, Worzel, and Szyarto (1998), there is substantial overlap between Machiavellianism and psychopathy. This point is shared by Hawley, Little, and Card (2007) who showed that Machiavellians are also concerned for the interests of others and despite a desire to control resources, they may prefer to do what is mutually beneficial rather than acting in self-serving ways all the time. Our result reveals that Machiavellians are more likely than narcissism and psychopathy to experience psychological distress at the thought of stealing IP even if they are not particularly attached to the organization.

When the interaction effects of Machiavellianism with motivation and narcissism with motivation were tested in path analysis, these terms turned out to be very small and non-significant. This likely implies that the interaction terms represent the unique reaction of Machiavellianism and narcissism individually, but these interaction terms did not cause affective SRD. To further explain this phenomenon, the interactions may be merely associated with affective SRD, but I cannot be certain if pre-existing elements in Machiavellianism and narcissism co-occurred to influence affective SRD. For example, the quality of being politically manipulative (Jones & Paulhus, 2011) may have caused affective SRD to increase in the case of

Machiavellians considering the cost of IP theft, and the interaction with motivation for personal goal did not cause but explained some of the variance of affective SRD. Further to that, in the path analysis, Machiavellianism has a small and significant direct effect on cognitive SRD but not affective SRD in the ego model. This effect could be due to the apportioning of the shared variance in the path analysis because of the correlation between cognitive and affective SRD.

The experience of self-regulation dilemma leading to IP theft

The role of self-regulation dilemma in our hypothesized models was not substantiated by our empirical data. After model re-specification following the non-significant results in both models, motivation for personal goal was found to significantly result in cognitive and affective SRD and motivation for personal goal that serves ego needs has a bigger effect size in the ego model for both components of SRD. The participants thought more about consequences and repercussions of their actions and felt more guilt, frustration and anxiety when personal goal comes with an opportunity to self-enhance than when it is purely about gaining from IP theft.

Affective SRD led to self-deception in both models, but self-deception was found to explain the relationship between affective SRD and IP theft only in the ego model. Using the dual system to explain these findings, affective SRD may constitute avoidant feelings that participants experienced when they evaluate the temptation to gratify personal goal and how it conflicts with the organizational goal they have to abide by. These feelings and emotions are similar to the affect of negative valence described by Carver and Scheier (2004) as resulting from discrepancy in goals, leading the individual to actions and thoughts to reduce these negative feelings. Our findings also concur with Wagner and Heatherton (2014) who posit that negative affect could lead to self-regulation failure because negative affect increase reward sensitivity during distressing situations, weakening the individual's resistance to short-term gratification .

For example, negative affect has been shown to increase the intensity of smoking in smokers (McKee et al., 2011).

Accordingly, participants who experienced affective SRD felt the psychological pressure to reduce these feelings. The distressing situation of the unacceptability of IP theft conflicting with their desire to gain from it led them to a state of weakened resistance. Self-deception offered these individuals a release from this psychological tension yet achieving what they really want, by converting feelings of guilt, frustration and anxiety into feelings of anger and disgruntlement by selectively misconstruing events and situations as unfair and unjust, thus concluding that IP theft is justified to redress the inequity.

This conversion of feelings and emotions of self-regulation dilemma to feelings and emotions resulting from self-deception appears to be obscure. But as Wagner and Heatherton (2014) expressed, feelings in distressing situations are difficult to regulate, suppress or inhibit yet probable because affect is typically more diffuse, with no clear target or action to regulate. In the same way as elucidated by Spielberger (1988) on the enabling effect of anger, angry people almost always feel that their anger is justified. Self-deception achieves the dual purpose of re-directing guilt and anxiety over their impending self-regulation failure into feelings of anger that justifies IP theft, thus achieving their personal goal.

Whilst affective SRD led to self-deception in both models, self-deception fully mediated the relationship between affective SRD and IP theft only when personal goal served ego motives. When motivated to pursue personal goal but they felt guilty, anxious or frustrated about it, individuals may also feel that typical workplace situations are more unfair and unjust than the average participant. But self-deception in this model does not lead to IP theft.

However, when motivated by personal goal and these goals makes one feel good about themselves in a way that these goals achieve ego needs, then the self-enhancement aspect of the personal goal become an impetus for these persons to genuinely view situations as more unfair such that their perceptions of being victims of injustice spur them to carry out IP theft. When ego motives are involved, an individual may experience more psychological pressure compared to one who is motivated by only personal goal, therefore self-deception has increased significance to resolve the pressure and is relied on more heavily to justify IP theft.

On the contrary, cognitive SRD did not lead to self-deception but led to only IP theft of thumb-drive when personal goals do not serve ego motives. In both models, cognitive SRD did not lead to self-deception. Initially, I anticipated that self-deception would result from cognitive SRD like cognitive activations (Metcalf and Mischel, 1999; Epstein, 1994; Lieberman, 2003) which in turn would produce hot representations of emotional reactions to self-deception, thus heightening the person's propensity to retaliate. I thought that the cool activations from thoughts of unfair treatment could help the individual convert feelings of guilt and vulnerability into feelings of control and power to fight against injustice committed against oneself.

Instead, my study reveals that cognitive SRD does not lead to self-deception and is directly related to opportunistic IP theft of thumb-drive when personal goal does not serve ego motives. This positive relationship was explored with the competing hypothesis that our willingness to steal increases as we gain psychological distance from the action (Mazar, Amir & Ariely, 2008). From the path analysis, I see that cognitive SRD led to taking a thumb-drive containing IP codes because there was a legitimate excuse keep the thumb-drive.

An explanation for why cognitive SRD does not lead to self-deception or IP theft when personal goal reflect ego-enhancement opportunities is the complex decision-making in the

evaluation of regrets and consequences when the personal goal involves ego needs. For example, an individual would have to contemplate how much the affirmation meant to him and whether the offer is just compensation for his competency. Much of the evaluation could be unconscious and continuous, especially with regard to the self-enhancing portion. This complex decision making may have many components which is difficult to break down and thus the composite score of cognitive SRD may not capture the dilemma when ego needs are involved.

Dark Triad associated with IP theft

There were a few surprise elements in the two models. Firstly, when personal goal met ego needs, narcissism was not directly or indirectly involved in IP theft and when personal goal did not contain ego elements, narcissism led to self-deception and has direct effects on both outcomes of IP theft. On the other hand, Machiavellianism and psychopathy were indicators in the ego model but they were not associated with self-deception or IP theft in the no-ego model.

Whilst these results appear to be counter-intuitive to our proposed hypotheses, I look at more literature to elucidate these results. Morf, Weir and Davidov's (2000) study on narcissism and motivation for activities that differed in the degree ego concerns were met may help explain the differences observed. Their study shows that narcissists are more invested when their competence are assessed relative to others but not when their performance are benchmarked by themselves. In our ego scenarios, the organization rewarded, and withheld rewards based on individual competencies and the offer was made for based on one's capability. This is similar to the reward for mastery of competencies in Morf, Weir and Davidov (2000) and is not an opportunity for narcissists to gain attention and admiration from others because they are better than others.

For narcissists, imposing a mastery goal interferes with their primary goal of demonstrating superiority (Higgins and Trope, 1990) due to their chronic concern with grandiosity. This account is also consistent with Kohut (1971) and Kernberg (1975). Thus, in the ego model, the grandiosity that narcissistic people possess was not triggered, resulting in the unpredictable results of narcissism on self-deception or IP theft. To explain the result for the no-ego model, I also refer to Morf, Weir and Davidov (2000) who cited studies confirming that narcissists' goals are always ego-related, no matter what they are. Even though I took care not to associate the financial goals with ego elements in the no-ego scenarios, narcissists still reported that the financial goal reflected how special they are. Thus, in the no-ego model, the offer is likely to be perceived by narcissists as their fundamental right for recognition (Dowgwillo, E. A., Dawood, S., & Pincus, A. L., 2016), triggering their self-entitlement and causing them to interpret typical work scenarios as unfair justifying IP theft. This explanation is supported by Liu, Chiang, Fehr, Xu, and Wang (2017) who report that perceived unfair treatment increased self-interest behaviour of individuals high in narcissism.

I also reviewed literature to explain the non-predictive outcomes of Machiavellianism and psychopathy in the no-ego model. Psychopathy was expected to demonstrate the least level of SRD and self-deception compared to Machiavellianism and narcissism. Psychopathy is described as being motivated by egoistic goals (Jones & Paulhus, 2011) and unable to resist temptations and seeking immediate gratification (Cleckley, 1976; Hare, 1985). Results from Study 1 also confirmed that Machiavellianism and psychopathy are strongly correlated with Power resource value (Schwartz, 2012) and would auger for significant effects in the no-ego model. But when the personal goal was just to gain financially without ego needs, Machiavellianism may approach with caution and self-interested prudence (Jones, 2016),

weighing the situation for potential to gain to long-term interest (Jones & Paulhus, 2011).

Without the additional benefit reflecting capability, high scorers of psychopathy may be uninterested in the IP theft for lack of thrill-seeking and risk-taking opportunity (Cleckley, 1976; Hare, 1985). In this case, the theft of IP from the thumb-drive is too convenient and therefore unappealing to the impulsive nature of psychopathy. Thus, psychopathy is positively related to striving for goods and services for enjoyment (Jones & Paulhus, 2011), IP theft does not ensue when personal goal does not make them feel successful or capable.

Psychopathy's response in the ego model is supported DePaulo (2010) and Yang and Raine (2008) who emphasized the achievement focus of corporate psychopaths as their natural orientation and are particularly good at demonstrating a rational and emotionless behavioural style, especially if achievement is valued above empathy for others. In the ego model, participants were primed to spotlight on themselves by focusing on being compensated or not, based on their competencies. This focus on competency-based reward may heighten psychopaths' natural inclination to put self above others and provided the impetus for them to commit IP theft. According with their risk-taking and callous behaviour, psychopaths do not require the psychological distance provided by opportunistically taking the thumb-drive, and more readily than others to steal IP codes. Furthermore, psychopathy's predisposition to act in a socially undesirable manner (for example, Hare & Neumann, 2009) coupled with their immunity against feelings of guilt or remorse when their actions harm others (O'Boyle et al., 2012) means that they do not require self-deception to facilitate deceiving others or legitimize committing IP theft.

Machiavellians were more inclined to commit IP theft when their personal goals meet ego needs in our study. However, unlike psychopathy's lack of impulse control and thus

irrelevance to cognitive SRD, Machiavellianism had direct effects on cognitive SRD.

Machiavellians think about the possibilities of regrets and consequences but thinking about regrets and consequences is unrelated to IP theft. The suspicious nature and cynical worldview of Machiavellianism (Christie and Geis, 1970), and a propensity to endorse a negative view of people (Kish-Gephart, Harrison, & Treviño, 2010) may account for the relationship between Machiavellianism and self-deception. By recalling, remembering and misinterpreting information that superiors and co-workers are distrustful and unfair, Machiavellians thus became predisposed to commit IP theft. The indirect effects of Machiavellianism to both outcomes of IP theft through self-deception were significant when personal goal serves the added advantage of meeting their ego needs.

Implications of study

The inclusion of ego motive in one's personal goal is a crucial distinguishing factor in IP theft. When motivated by personal goal serves ego motive, individuals who experience affective self-regulation dilemma are more likely to be self-deceived such that they perceive more unfair treatment than individuals whose personal goal does not serve ego motive. Their disgruntlement is likely to be an exaggeration of perceived injustice rather than bona fide and their self-deception leads to IP theft. Individuals high in Machiavellianism also tend to be self-deceived when their personal goals serve ego motive compared to when their personal goals do not serve ego motive, and similarly, their self-deception explains IP theft. Individuals high in psychopathy are more inclined to commit IP theft when their personal goal serves ego motive.

The significance of ego needs in our study has confirmed what data-driven studies uncovered about insider threat being ego-related (Charney, 2004). In addition, our study brought to light another risk that may have inadvertently contributed to the increase in insider threat. To

explain what I mean, I refer to the priming method used in Study 2. I achieved the objective of activating personal goals that serve ego needs by exposing participants to organizational rules that reward or did not reward their competencies. This focus on one's capabilities have inadvertently increased the participant's ego needs, resulting in higher insider risks.

In the same way, organizations who compensate employees based on their competency may have the unintended consequences of enhancing ego needs which increases the risk of IP theft. When motivated to meet their ego needs, individuals are likely to feel aggrieved by workplace events, even though some of these issues may be unfounded. It is clear from our research that individuals who are motivated to meet their personal goals with ego needs may genuinely feel that their disgruntlement is grounded. This finding augur well for the implementation of clear, authentic policies, practices and procedures on workplace grievance management to be in place as a preventive measure for IP theft.

Our study also highlighted that using deterrence doctrine such as IP agreement and non-disclosure contracts, has a paradoxical effect of increasing opportunistic IP theft whereas motivation to meet organizational goals decrease IP theft significantly. By investing in building the employee-employer relationship through mutual respect, fairness, compassion, objectivity and trust, the organization ensues that the psychological contract the employee is bound by (Argyris, 1960) goes above and beyond the contractual agreements of their employment and is effective in preventing IP theft. There is also evidence from our study that individuals with Dark Triad traits are more likely to commit IP theft and the implication of this finding is in determining if individuals with Dark Triad traits should be screened out in the recruitment process. For this purpose, pre-employment screening using gold standards of measurement with

robust psychometric properties are recommended to differentiate individuals who are high or low scorers of these traits.

Although organizations can screen out these individuals, it may not always be in the best interest to do so because of the many different objectives hirers have to meet. In a tight labour market, hirers may not have the luxury to decline a candidate who possesses higher risks in committing IP theft because that individual may possess the competencies much needed by the hirer. Thus, a monitoring programme such as anonymous whistle-blowers programme or digital monitoring of insidious work activities are intervention programmes that may reduce risk of IP theft by surfacing these cases before they carry out IP theft.

Finally, I discuss the application of our study on managing insider risks. Most publications of what companies do to mitigate insider risks have thus far reported on the IT-based controls such as encryption of data and identity and access controls to minimize risks of and exposure to insiders or using predictive analytics and log management to detect and analyse insider activities (“Insider Threat 2018 report”, 2018). Our study has given credence to more holistic psychological solutions to the problem of insider threat, for instance, applying self-regulation techniques to prevent insider threat can be considered since the link between self-regulation dilemma and IP theft has been established.

In the domain of industrial and organizational psychology, self-regulation processes have already been applied extensively to different aspects of organizational behaviour such as the study of goal setting, self-efficacy and task performance as well as unethical or counterproductive work behaviour (for example, Bassett-Gunter & Chang, 2016, Zimmerman, Schunk, & DiBenedetto, 2017 and Iliescu, Ispas, Sulea, & Ilie, 2015). Using self-regulation techniques as an insider threat deterrence measure may help elevate the heavy financial burden

of IT-based solutions that have prevented some companies from managing insider risks. In addition, having ascertained the mediating factor of self-deception in our study also paved the way to spearhead novel ways to address the problem of insider threat. One area could be implementing training programmes to promote self-awareness and expose self-promoting illusions, biased thinking and motivated reasoning in employees.

Limitations of study

Vignettes as a research tool presents some limitations when used to examine judgments and decision-making processes that otherwise would be difficult or impossible to study through observation or classical experiments. However, some participants have not worked before or have not experienced the issues highlighted in the vignettes, so their responses are hypothetical. Thus, the vignette-based study has external validity issue because responses to vignette-base questions may not be generalizable to real situations. Additionally, vignette-based methodology faces reliability issues such as higher measurement error and experimental error (Hinkelmann & Kempthorne, 1994).

The collinearity of the Dark Triad traits is a true reflection of population relationships as individuals who possess one Dark Triad trait tend also to exhibit dimensions of the other two traits. But when modelled together, the collinearity could have affected the accuracy of estimated regression coefficients and their standard errors, increasing the chance of a Type II error such that a significant predictor failed to be detected. (Manson & Perreault, 1991). In other words, I cannot distinguish if an effect is truly and uniquely attributed to a specific Dark Triad trait.

The collinearity of Dark Triad traits with each other and with motivation for personal goal also made it more difficult to specify the correct model because of the difficulty to partition

an effect when the variables are related. These correlated causes are non-causal influences in path analysis, affecting the interpretation of path coefficients because I often cannot be certain how much of indirect and total effects are due to these influences (Williams, 2015). Thus, the correlation amongst the three Dark Triad traits may have made it difficult to distinguish the unique contribute of each trait. Thus, some variance due to Dark Triad traits might have be expressed by the motivation for personal goal on cognitive and affective SRD.

Another limitation of the models is the measurement of affective SRD. The composite scores used produced a non-significant R^2 value in the ego model. Motivation for personal goal that served ego motive and Machiavellianism (which was not significant) only contributed 9.5% of the variance of affective SRD. Although the no-ego model exhibited a slight improvement of 13.8%, this is an indication that the measurement of affective SRD has a large unexplained variance and therefore different composite scores may be required for these 2 models. For example, affective SRD included emotions of guilt and anxiety, and, upset and frustration which energize actions differently. Although these emotions were reported in literature on SRD, guilt is typically associated with feeling bad about acting contrary to what we ought to but frustration and upset is associated with not getting our way.

The composite score for self-deception also appeared to be less adequately explained in the no-ego model. In the ego model, self-deception is significantly associated with affective SRD and Machiavellianism, and self-deception also significantly mediate the relationship between these variables and IP theft. however, unlike affective SRD, self-deception is context-specific and is designed based on the vignettes to tease out misinterpretation, self-serving biases, self-enhancing biases and attribution errors. The low R^2 and non-significant results may be due to the low predictive validity of these subjective experiences.

The non-significant conflict condition may have resulted from the insufficient priming effects of Study 2. Displaying terms and conditions of employment may not trigger the response that there is no-conflict in taking IP from the company. As most companies have IP agreements, participants who see the terms and conditions of employment may also assume that non-disclosure terms are part of the terms and conditions. Similarly, the ego component of personal goals may be inadequate in distinguishing ego and no-ego motives based on only the offer for IP theft being made as an indication of competency in the ego condition. If more elements of ego were introduced, the ego effect may be better distinguished between the two models.

Finally, issues with sampling method of Study 2 may have confounded the experiment. Participants were compensated differently, some with cash and others with course credits, which could affect the motivation of these participants to participate in the experiment because of different reward memory (Bowen & Kesinger, 2017). Participants who were rewarded with \$20 may be more engaged than those who were rewarded with ten or eight dollars and those who were rewarded with course credits may be not have the same level of motivation as those who were rewarded in cash.

Additionally, students as well as working adults participated in the study. Students reported higher levels of cognitive and affective SRD as well as justifications to commit IP theft of thumb-drive compared to working adults. This implies that some hidden effect unaccounted for in the experimental design, such as working experience or age, may have biased the reporting of cognitive and affective SRD and opportunistic IP theft, and increased unexplained variance in MANOVA and the path analysis.

Contributions to literature

My study contributed to the call by researchers to investigate the unique contributions of the individual Dark Triad traits (Furnham et al., 2013, Paulhus & Williams, 2002). Using path analysis allowed me to examine the individual contribution of the three traits in the decision-making models and investigate the combined effects as the model fit hypothesized. Specifically, by studying how Dark Triad are related to motivation, self-regulation dilemma and self-deception, I was also able to advance literature and respond to the appeal by researchers such as Spain, Harms and Lebreton (2013) to elucidate the underpinnings of the Dark Triad.

I also made contributions to organizational psychology. By investigating how Dark Triad respond to temptations to steal IP theft in the workplace, I responded to Furnham and Taylor's (2011) call for more research in counterproductive work behaviour. This study furthered research on insider threat, which hitherto is mainly data-driven (Nurse et al., 2014), by empirically providing evidence of the psychological influences in the decision-making process that might lead an employee to commit acts of IP theft. Finally, this study contributes to literature on self-regulation dilemma by directly measuring self-regulation dilemma, thus adding to the research on the components of cognitive and affective self-regulation dilemma result in self-regulation or self-regulation failure.

Future directions

The measurement of self-regulation dilemma is guided by Prinsen, Evers, and de Ridder (2016), de Witt Huberts, Evers and de Ridder (2014), Gorges, Esdar and Wild (2014) and Giner-Sorolla (2001) in their research on the experiences of self-regulation dilemma when goals conflict. The components of affective SRD can be further distinguished into sub-components of fear, guilt and anxiety verses anger and frustration to inform on the research on insider threat.

Other researchers such as Carver and Scheier (1990), Powers (1973), MacKay (1966) and Miller, Galanter and Pribram (1960) have offered a dual system approach to self-regulation dilemma. Therefore, future research can examine the interplay of cognitive SRD and affective SRD to elucidate the impact on insider threat. In addition, research on the differences in SRD where personal goals meet or do not meet ego needs may help articulate discriminating factors in SRD when ego is involved.

In highlighting the relationship of self-deceptive cognitive strategies in aid of ego motives, future attention on self-deception may help articulate the intrapsychic workings of individuals. Such research will benefit domains with interest in implicit motives and behaviours. Furthermore, as the relationship between egotism and sabotage has been found in data-driven studies on sabotage (Nurse et al., 2014), further research can be extended to investigate how ego motive is related to sabotage.

Conclusion

Overall, my study has provided an account of the decision-making process individuals go through when they contemplate IP theft. I have established that self-deception is a salient variable that mediates the relationship between the experience of self-regulation dilemma and IP theft. I also found that cognitive self-regulation dilemma lead to opportunistic theft of IP medium. My study also showed that individuals with Dark Triad traits vary in their decision-making process such that Machiavellians and narcissists are more likely to engage in self-deception to commit IP theft compared to psychopaths. I have also added to the existing research on insider threat by providing empirical evidence that disgruntlement may be a result of self-deception rather than a genuine condition that triggers an individual to commit IP theft.

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APPENDIX

A. PRIMING OF FINANCIAL GOALS THAT DO NOT MEET EGO NEEDS

Let's establish up front that goals are something more substantial than dreams or wishes. You can start with dreams or wishes, but you have to have an action plan behind them – something that spells out how you convert a desire into something real.

Start by setting some financial goals. If you've never thought much about this, here are some suggestions you might want to consider that might work for you. You are welcome to help yourself to our advice!

Create multiple income streams. Even if you love your job, creating multiple income streams is a form of income insurance. For that reason alone, it needs to be on your list of good financial goals.

Making major purchases. Owning a car or buying a house is often a necessity. Good financial sense is not just making sure you have enough for the down-payment, but to try and get as small a loan as you can. Better yet, buy your big-ticket item with cold hard cash!

It takes money to have fun. So, many of these goals are big, long-term things that responsible adults should save toward. But it's also good to save toward things you enjoy. Vacations, a big-screen TV, or any other purely fun thing are worthy financial goals. Examples like these might not seem like something we would advise, but the truth is, even a purely recreational financial goal is great as long as one isn't using credit card debt to pay for it. You should reward yourself with fun!

Pay off debt. It's easy for people to chalk up debts just from bad spending habits. No matter how dire things may seem, anyone can work toward financial freedom. But if you keep adding to your debt, paying it off becomes that much harder. So it makes sense to start by setting aside money to pay off your debts.

Keep liquid cash. Not having cash at hand can really limit your choices of what you want to do, for instance, taking a plunge to go freelance or embarking on a start-up dream. These major decisions can be stressful if you do not have sufficient funds to tie over the periods when income might be limited. Having liquid cash means that you can have peace of mind as you transit through these periods of

change without having to suffer any loss in your standard of living.

Earn as much as you can now. It all boils down to this powerful maxim “make hay while the sun shines”. Whilst there are always opportunities to make money in the future, one should maximize earnings when you can so that you can afford to do what you want, when you want, even if it is financially less rewarding.

Ultimately, the purpose of improving your finances should be to provide you with independence in your life. If that isn't one of the good financial goals, then I don't know what is.

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B. PRIMING OF FINANCIAL GOALS THAT MEET EGO NEEDS

Let's establish up front that goals are something more substantial than dreams or wishes. You can start with dreams or wishes, but you have to have an action plan behind them – something that spells out how you convert a desire into something real.

Financial goals reflect how successful you are. If you want to be successful, you have to start setting your financial goals to be successful and you have to start today. If you've never thought much about this, here are some suggestions you might want to consider that might work for you. You are welcome to help yourself to our advice!

Create multiple income streams. Creating multiple income streams is more than a form of income insurance. Wealth inspires people. People are naturally drawn to you if you show financial acumen. Research has shown that people who are more successful than their peers also have multiple sources of income. It needs to be on your list of good financial goals.

Making major purchases. Owning a car or buying a house is often a necessity. Putting aside money to invest in luxury cars and condominiums can really give you the edge that you need to make an impression. Nothing says you are more successful than buying these big-ticket items with cold hard cash!

It takes money to have fun. So, many of these goals are big, long-term things that responsible adults should save toward. But it's also good to |

save toward things you enjoy. Vacations, a big-screen TV, or any other purely fun thing are worthy financial goals because you're worth it and deserve to have the best things in life!

Keep liquid cash. Not having cash at hand can really limit your choices of what you want to do, for instance, taking a plunge to go freelance or embarking on a start-up dream. The amount of cash you need to set aside must match your aspirations and dreams; the bigger the dream, the more money you need to set aside. Research has shown that people who set aside more money to achieve their goals are more

likely to more respected by their peers, and their achievements also exceed that of others.

Earn as much as you can now. It all boils down to this powerful maxim “make hay while the sun shines”. Being able to attain your income potential now is psychologically rewarding because it demonstrates to yourself and to others that you can attain the highest value you place on your own capability.

Ultimately, the purpose of improving your finances should be to provide you with independence to do what you want, when you want. People respect you when you set the kind of financial goals that allow you to achieve this. You would already be better off than most people. If that isn't a good financial goal, then I don't know what is.

ABOUT THE AUTHOR

JEFFERY ROSE is an assistant editor for Good Financial Cents. His writing has previously been featured in Gizmodo and Fast Company Digital magazine. [More](#)

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C. VIGNETTES FOR EGO AND CONFLICT CONDITION (MALE PARTICIPANT) – PART 1

You are employed as a software developer at a start-up company for the last few years. Your salary is the equivalent of what an average software developer earns, which is S\$49,873 per year.

When you joined the company, you signed an employment contract which stated that the software codes developed during the course of your employment is solely owned by the company and cannot be removed from the premises or reused in any way by the employee.

You and the software team developed an online commodities trading system. This system is unique because it uses artificial intelligence to predict trading pattern.

The system made millions of dollars for the company.

You have resigned from the company and are serving notice for the resignation.

You will be joining another start-up company.

There is an offer to buy the software codes of such a system in an online forum.

The buyer is very impressed with what you have done.

The offer is for a lot of money.

Instructions

The online offer is referred to as “the offer” in the following questions.

The IP agreement that you signed is referred to as the “organisational rule”.

Think about how you feel in the scenario. Please rate the following statements from “strongly disagree” to “strongly agree” according to how you feel if you are in the scenario.

D. VIGNETTES FOR EGO AND CONFLICT CONDITION (MALE PARTICIPANT) – PART 2

You are part of a small group of software developers.

After working in the company for some time, the developers received different amounts of cash bonuses and increments for the work done.

The amount that you received was not what you had expected.

The developers work long hours in this company.

The department manager, John checks the developers' work frequently and gives feedback.

He asks you to redo some of the codes because your design did not meet specifications.

He tells developers about specification changes.

You spent extra hours changing the codes.

Recently you visited a client and submitted claims for transportation, meals and gifts that you bought for the client.

John tells you that the gifts you bought did not meet company's policy.

He asks you to resubmit the claim form for transportation and meals only.

One of the developers, Adam is promoted to be team lead.

Adam and you had worked together before and had different opinions on some projects.

John asks you to get a cake to celebrate the promotion.

John tells you that he found some security issues with the commodities trading system. He asks you to check the software codes carefully and patch the codes.

You download the
codes from the server
onto a thumb-drive.

**E. VIGNETTES FOR EGO AND CONFLICT CONDITION (MALE
PARTICIPANT) – PART 3**

On your last day of
service, the company
did not ask you for
the thumb-drive.

F. VIGNETTE FOR NO EGO CONDITION (MALE PARTICIPANT)

There is an offer to buy the software codes of such a system in an online forum.

The offer is for a lot of money.

G. VIGNETTES FOR EGO AND CONFLICT CONDITION (FEMALE PARTICIPANT) – PART 1

You are employed as a software developer at a start-up company for the last few years. Your salary is the equivalent of what an average software developer earns, which is S\$49,873 per year.

When you joined the company, you signed an employment contract which stated that the software codes developed during the course of your employment is solely owned by the company and cannot be removed from the premises or reused in any way by the employee.

You and the software team developed an online commodities trading system. This system is unique because it uses artificial intelligence to predict trading pattern.

The system made millions of dollars for the company.

You have resigned from the company and are serving notice for the resignation.

You will be joining another start-up company.

There is an offer to buy the software codes of such a system in an online forum.

The buyer is very impressed with what you have done.

The offer is for a lot of money.

Instructions

The online offer is referred to as “the offer” in the following questions.

The IP agreement that you signed is referred to as the “organisational rule”.

Think about how you feel in the scenario. Please rate the following statements from “strongly disagree” to “strongly agree” according to how you feel if you are in the scenario.

H. VIGNETTES FOR EGO AND CONFLICT CONDITION (FEMALE PARTICIPANT) – PART 2

You are part of a small group of software developers.

After working in the company for some time, the developers received different amounts of cash bonuses and increments for the work done.

The amount that you received was not what you had expected.

The developers work long hours in this company.

The department manager, John checks the developers' work frequently and gives feedback.

He asks you to redo some of the codes because your design did not meet specifications.

He tells developers about specification changes.

You spent extra hours changing the codes.

Recently you visited a client and submitted claims for transportation, meals and gifts that you bought for the client.

John tells you that the gifts you bought did not meet company's policy.

He asks you to resubmit the claim form for transportation and meals only.

One of the developers, Adam is promoted to be team lead.

Adam and you had worked together before and had different opinions on some projects.

John asks you to get a cake to celebrate the promotion.

I. VIGNETTES FOR EGO AND CONFLICT CONDITION (FEMALE PARTICIPANT) – PART 3

On your last day of service, the company did not ask you for the thumb-drive.

J. VIGNETTE FOR NO EGO CONDITION (FEMALE PARTICIPANT)

There is an offer to buy the software codes of such a system in an online forum.

The offer is for a lot of money.

A black silhouette of a person with short hair, wearing a shirt and pants, sitting on a chair at a desk. They are facing a laptop. Above the laptop screen, several dollar bills are floating in the air, suggesting a transaction or a large sum of money.

K. VIGNETTE FOR NO CONFLICT CONDITION

When you joined the company, you signed an employment contract with the terms and conditions on:

1. Job scope
2. Working hours
3. Medical leave entitlement
4. Annual leave entitlement

A black and white illustration of a document titled 'Employment'. The document has several horizontal lines representing text. A pen is shown lying diagonally across the bottom right corner of the document.

L. STATEMENTS MEASURING SELF-DECEPTION

Please rate the following statement based on how you feel after reading the preceding scenarios. Please answer as spontaneously as possible.

- 1 Strongly disagree
- 2 Disagree
- 3 Slightly disagree
- 4 Slightly agree

5 Agree

6 Strongly agree

Adam is John's favourite.

I should get more recognition for my work.

John promoted Adam because it is beneficial to John.

I was given equal opportunity to be promoted (reverse).

Adam and John cannot be trusted.

John is a good boss (reverse).

I didn't get promoted because I didn't tell John what he wants to hear.

John and Adam treated me badly.

John and Adam are in cahoots together.

John says one thing and does another.

Everything that I did wrong was because John told me to do.

I never got the reward that I deserve.

The codes belong to me.

John got ahead by manipulating people.

John is fair (reverse).

John keeps things from me.

I need the organisational rules to guide me (reverse).

I have made mistakes in my job (reverse).

I don't need to be told what I should do.

Adam is more competent than me (reverse).

M. SHORT DARK 3 MEASUREMENT

Please rate your agreement or disagreement with each item using the following guidelines.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Machiavellianism subscale

1. It's not wise to tell your secrets. (reputation)
2. I like to use clever manipulation to get my way. (manipulation)
3. Whatever it takes, you must get the important people on your side. (coalition building)
4. Avoid direct conflict with others because they may be useful in the future. (coalition)
5. It's wise to keep track of information that you can use against people later. (planning)
6. You should wait for the right time to get back at people. (planning)
7. There are things you should hide from other people because they don't need to know.(reputation)
8. Make sure your plans benefit you, not others. (planning)
9. Most people can be manipulated. (manipulation)

Narcissism subscale

1. People see me as a natural leader. (leadership) 10
2. I hate being the center of attention. (R) (exhibitionism) 11
3. Many group activities tend to be dull without me. (grandiose) 12
4. I know that I am special because everyone keeps telling me so. (grandiose)13
5. I like to get acquainted with important people. (entitlement)14
6. I feel embarrassed if someone compliments me. (R) (exhibitionism) 15

7. I have been compared to famous people. (grandiose) 16
8. I am an average person. (R) (grandiose) 17
9. I insist on getting the respect I deserve. (entitlement) 18

Psychopathy

1. I like to get revenge on authorities. (antisocial behaviour) 19
2. I avoid dangerous situations. (R) (erratic lifestyle) 20
3. Payback needs to be quick and nasty. (callous affect)21
4. People often say I'm out of control. (erratic lifestyle)22
5. It's true that I can be mean to others. (callous affect)23
6. People who mess with me always regret it. (antisocial)24
7. I have never gotten into trouble with the law. (R) (antisocial) 25
8. I enjoy having sex with people I hardly know (erratic lifestyle) 26
9. I'll say anything to get what I want. (short term manipulation) 27

N. COMPARISON OF GOODNESS OF FIT INDICES BETWEEN SAMPLE (N=243) AND SAMPLE WITHOUT PARTICIPANTS FROM MOSCATO IP THEFT STUDY (N=217) FOR RE-SPECIFIED EGO AND NO-EGO MODELS.

	χ^2	df	p	CFI	TLI	RMSEA	SRMR
N=217 †							
No-ego Model	52.028	9	0.000	0.652	-0.160	0.211	0.133
Ego Model	18.071	7	0.012	0.941	0.746	0.120	0.058
N=243 ∞							
No-ego Model	8.958	9	0.4411	1.000	1.001	0.000	0.034
Ego Model	8.937	7	0.2572	0.992	0.966	0.047	0.031

Note: † Sample excluded participants who took part in another IP theft study and 2 outliers.

∞ Sample excluded 3 outliers only.

**O. MULTIVARIATE EFFECTS ON COGNITIVE AND AFFECTIVE SRD (N=243)
WITH MACHIAVELLIANISM AND MOTIVATION FOR PERSONAL GOAL
AS COVARIATES**

Effect	Wilks' Lambda			
	Value	F	df	p
Intercept	0.959	4.535b	210	0.012
Public	0.995	.565b	210	0.569
Ego	0.969	3.306b	210	0.039
Conflict	0.998	.158b	210	0.854
PGoal	0.99	1.050b	210	0.352
Mach	0.996	.412b	210	0.663
PGoal * Mach	0.99	1.085b	210	0.34
Conflict * PGoal	0.999	.086b	210	0.918
Ego * Conflict	0.999	.137b	210	0.872
Public * Ego	0.994	.682b	210	0.507
Public * Mach	0.996	.462b	210	0.631
Ego * Mach	0.97	3.210b	210	0.042
Conflict * Mach	0.999	.126b	210	0.882
Ego * PGoal	0.966	3.739b	210	0.025
Public * PGoal	0.998	.159b	210	0.853
Public * Conflict	0.995	.506b	210	0.603
Public * Conflict * PGoal	0.996	.373b	210	0.689
Conflict * PGoal * Mach	0.999	.066b	210	0.936
Ego * PGoal * Mach	0.967	3.572b	210	0.03
Public * Ego * Conflict	0.993	.730b	210	0.483
Ego * Conflict * PGoal	0.997	.362b	210	0.697
Public * PGoal * Mach	0.999	.139b	210	0.87
Ego * Conflict * Mach	0.999	.092b	210	0.912
Public * Ego * Mach	0.993	.780b	210	0.46
Public * Ego * PGoal	0.991	.941b	210	0.392
Public * Conflict * Mach	0.997	.275b	210	0.76
Public * Ego * Conflict * PGoal	0.987	1.387b	210	0.252
Public * Conflict * PGoal * Mach	0.998	.172b	210	0.842
Public * Ego * PGoal * Mach	0.99	1.019b	210	0.363
Ego * Conflict * PGoal * Mach	0.997	.296b	210	0.744
Public * Ego * Conflict * Mach	0.991	.985b	210	0.375
Public * Ego * Conflict * PGoal * Mach	0.985	1.621b	210	0.2

Note: PGoal = motivation for personal goal, Mach = Machiavellianism

**P. MULTIVARIATE EFFECTS ON COGNITIVE AND AFFECTIVE SRD (N=243)
WITH NARCISSISM AND MOTIVATION FOR PERSONAL GOAL AS
COVARIATES**

Effect	Wilks' Lambda			
	Value	F	df	p
Intercept	0.921	8.981b	210	0
Public	0.995	.572b	210	0.565
Ego	0.979	2.217b	210	0.111
Conflict	0.99	1.082b	210	0.341
PGoal	0.996	.461b	210	0.631
Nar	0.996	.384b	210	0.682
Conflict * PGoal	0.998	.230b	210	0.794
Ego * Conflict	0.998	.226b	210	0.798
Public * Ego	0.998	.206b	210	0.814
Ego * PGoal	0.977	2.464b	210	0.088
Public * PGoal	0.992	.794b	210	0.453
PGoal * Nar	0.999	.108b	210	0.898
Conflict * Nar	0.99	1.104b	210	0.333
Ego * Nar	0.979	2.258b	210	0.107
Public * Nar	0.992	.878b	210	0.417
Public * Conflict	0.998	.263b	210	0.769
Public * Conflict * PGoal	0.999	.112b	210	0.894
Public * Ego * Conflict	0.988	1.279b	210	0.281
Ego * Conflict * PGoal	0.999	.069b	210	0.933
Public * Ego * PGoal	0.997	.273b	210	0.761
Public * Ego * Nar	0.998	.231b	210	0.794
Ego * Conflict * Nar	0.998	.186b	210	0.83
Conflict * PGoal * Nar	0.997	.300b	210	0.741
Public * PGoal * Nar	0.99	1.042b	210	0.355
Ego * PGoal * Nar	0.977	2.492b	210	0.085
Public * Conflict * Nar	0.996	.434b	210	0.649
Public * Ego * Conflict * PGoal	0.985	1.648b	210	0.195
Ego*Conflict*Pgoal*Nar	0.997	.367b	210	0.694
Public * Ego * Conflict * Nar	0.984	1.736b	210	0.179
Public * Conflict * PGoal * Nar	0.999	.058b	210	0.943
Public * Ego * PGoal * Nar	0.997	.367b	210	0.694
Public * Ego * Conflict * PGoal *				
Nar	0.979	1.135b	420	0.34

Note: PGoal = motivation for personal goal, Nar = narcissism

Q. MULTIVARIATE EFFECTS ON COGNITIVE AND AFFECTIVE SRD (N=243) WITH PSYCHOPATHY AND MOTIVATION FOR PERSONAL GOAL AS COVARIATES

Effect	Wilks' Lambda			
	Value	F	df	p

Intercept	0.945	6.116b	210	0.003
Public	0.995	.539b	210	0.584
Ego	0.986	1.477b	210	0.231
Conflict	0.987	1.433b	210	0.241
PGoal	0.987	1.339b	210	0.264
Psy	0.997	.307b	210	0.736
Conflict * PGoal	0.988	1.253b	210	0.288
Ego * Conflict	0.985	1.635b	210	0.197
Public * Ego	0.996	.389b	210	0.678
Ego * PGoal	0.986	1.529b	210	0.219
Public * PGoal	0.992	.829b	210	0.438
Public * Conflict	0.999	.077b	210	0.926
PGoal * Psy	0.999	.104b	210	0.901
Conflict * Psy	0.989	1.134b	210	0.324
Ego * Psy	0.988	1.327b	210	0.267
Public * Psy	0.994	.616b	210	0.541
Public * Conflict * PGoal	0.999	.118b	210	0.889
Public * Ego * Conflict	0.999	.090b	210	0.914
Ego * Conflict * PGoal	0.986	1.533b	210	0.218
Public * Ego * PGoal	0.997	.360b	210	0.698
Public * Ego * Psy	0.995	.512b	210	0.6
Ego * Conflict * Psy	0.986	1.474b	210	0.231
Conflict * PGoal * Psy	0.991	.989b	210	0.374
Public * Conflict * Psy	0.999	.067b	210	0.935
Public * PGoal * Psy	0.99	1.008b	210	0.367
Ego * PGoal * Psy	0.988	1.285b	210	0.279
Public * Ego * Conflict * PGoal	0.999	.107b	210	0.899
Ego * Conflict * PGoal * Psy	0.987	1.339b	210	0.264
Public * Ego * PGoal * Psy	0.995	.500b	210	0.607
Public * Conflict * PGoal * Psy	0.998	.201b	210	0.818
Public * Ego * Conflict * Psy	0.998	.246b	210	0.782
Public * Ego * Conflict * PGoal * Psy	0.998	.259b	210	0.772

Note: PGoal = motivation for personal goal, Psy = psychopathy

R. UNIVARIATE EFFECTS ON COGNITIVE AND AFFECTIVE SRD (N=243) WITH MACHIAVELLIANISM AND MOTIVATION FOR PERSONAL GOAL AS COVARIATES

Source	Dependent Variable	df	F	p
Public	SRDC	1	0.488	0.486
	SRDA	1	1.12	0.291
Ego	SRDC	1	1.301	0.255
	SRDA	1	6.511	0.011
Conflict	SRDC	1	0.202	0.653

	SRDA	1	0.285	0.594
PGoal	SRDC	1	0.348	0.556
	SRDA	1	0.583	0.446
Mach	SRDC	1	0.003	0.953
	SRDA	1	0.613	0.435
PGoal * Mach	SRDC	1	0.111	0.739
	SRDA	1	1.892	0.17
Conflict * PGoal	SRDC	1	0.083	0.774
	SRDA	1	0.168	0.682
Ego * Conflict	SRDC	1	0.222	0.638
	SRDA	1	0.208	0.649
Public * Ego	SRDC	1	0.181	0.671
	SRDA	1	1.3	0.255
Public * Mach	SRDC	1	0.333	0.565
	SRDA	1	0.926	0.337
Ego * Mach	SRDC	1	1.094	0.297
	SRDA	1	6.254	0.013
Conflict * Mach	SRDC	1	0.129	0.72
	SRDA	1	0.243	0.623
Ego * PGoal	SRDC	1	3.067	0.081
	SRDA	1	7.447	0.007
Public * PGoal	SRDC	1	0	0.991
	SRDA	1	0.224	0.636
Public * Conflict	SRDC	1	0.702	0.403
	SRDA	1	0.878	0.35
Public * Conflict * PGoal	SRDC	1	0.742	0.39
	SRDA	1	0.314	0.576
Conflict * PGoal * Mach	SRDC	1	0.042	0.838
	SRDA	1	0.132	0.717
Ego * PGoal * Mach	SRDC	1	2.775	0.097
	SRDA	1	7.142	0.008
Public * Ego * Conflict	SRDC	1	1.466	0.227
	SRDA	1	0.485	0.487
Ego * Conflict * PGoal	SRDC	1	0.573	0.45
	SRDA	1	0.011	0.918
Public * PGoal * Mach	SRDC	1	0.005	0.943
	SRDA	1	0.154	0.695
Ego * Conflict * Mach	SRDC	1	0.119	0.73
	SRDA	1	0.165	0.685
Public * Ego * Mach	SRDC	1	0.327	0.568
	SRDA	1	1.542	0.216
Public * Ego * PGoal	SRDC	1	0.03	0.862
	SRDA	1	1.5	0.222
Public * Conflict * Mach	SRDC	1	0.28	0.597
	SRDA	1	0.533	0.466

Public * Ego * Conflict * PGoal	SRDC	1	2.782	0.097
	SRDA	1	0.793	0.374
Public * Conflict * PGoal * Mach	SRDC	1	0.347	0.557
	SRDA	1	0.107	0.744
Public * Ego * PGoal * Mach	SRDC	1	0.103	0.749
	SRDA	1	1.775	0.184
Ego * Conflict * PGoal * Mach	SRDC	1	0.444	0.506
	SRDA	1	0.003	0.957
Public * Ego * Conflict * Mach	SRDC	1	1.936	0.166
	SRDA	1	0.377	0.54
Public * Ego * Conflict * PGoal * Mach	SRDC	1	3.178	0.076
	SRDA	1	0.6	0.439

Note: PGoal = motivation for personal goal, Mach = Machiavellianism

S. UNIVARIATE EFFECTS ON COGNITIVE AND AFFECTIVE SRD (N=243) WITH NARCISSISM AND MOTIVATION FOR PERSONAL GOAL AS COVARIATES

Source	Dependent Variable	df	F	p
Public	SRDC	1	1.136	0.288
	SRDA	1	0.272	0.602
Ego	SRDC	1	0.318	0.573
	SRDA	1	3.941	0.048
Conflict	SRDC	1	0.026	0.871
	SRDA	1	1.212	0.272
PGoal	SRDC	1	0.806	0.37
	SRDA	1	0.645	0.423
Nar	SRDC	1	0.384	0.536
	SRDA	1	0.022	0.882
Conflict * PGoal	SRDC	1	0.076	0.783
	SRDA	1	0.121	0.728
Ego * Conflict	SRDC	1	0.012	0.911
	SRDA	1	0.228	0.633
Public * Ego	SRDC	1	0.224	0.636
	SRDA	1	0.007	0.935
Ego * PGoal	SRDC	1	0.871	0.352
	SRDA	1	4.785	0.03
Public * PGoal	SRDC	1	1.292	0.257
	SRDA	1	0.044	0.835
PGoal * Nar	SRDC	1	0.188	0.665
	SRDA	1	0.013	0.911
Conflict * Nar	SRDC	1	0.167	0.683
	SRDA	1	0.867	0.353

Ego * Nar	SRDC	1	0.388	0.534
	SRDA	1	4.087	0.044
Public * Nar	SRDC	1	1.742	0.188
	SRDA	1	0.413	0.521
Public * Conflict	SRDC	1	0.049	0.826
	SRDA	1	0.191	0.662
Public * Conflict * PGoal	SRDC	1	0.056	0.814
	SRDA	1	0.222	0.638
Public * Ego * Conflict	SRDC	1	0.118	0.732
	SRDA	1	2.177	0.142
Ego * Conflict * PGoal	SRDC	1	0.105	0.746
	SRDA	1	0.001	0.97
Public * Ego * PGoal	SRDC	1	0.547	0.46
	SRDA	1	0.216	0.642
Public * Ego * Nar	SRDC	1	0.343	0.558
	SRDA	1	0.003	0.956
Ego * Conflict * Nar	SRDC	1	0.08	0.778
	SRDA	1	0.078	0.781
Conflict * PGoal * Nar	SRDC	1	0.248	0.619
	SRDA	1	0.039	0.843
Public * PGoal * Nar	SRDC	1	1.793	0.182
	SRDA	1	0.108	0.743
Ego * PGoal * Nar	SRDC	1	1	0.318
	SRDA	1	4.889	0.028
Public * Conflict * Nar	SRDC	1	0.418	0.518
	SRDA	1	0.031	0.861
Public * Ego * Conflict * PGoal	SRDC	1	0.001	0.969
	SRDA	1	2.268	0.134
Public * Ego * Conflict * Nar	SRDC	1	0.005	0.941
	SRDA	1	2.449	0.119
Public * Conflict * PGoal * Nar	SRDC	1	0.017	0.896
	SRDA	1	0.033	0.856
Public * Ego * PGoal * Nar	SRDC	1	0.727	0.395
	SRDA	1	0.33	0.566
Ego * Conflict * Nar * PGoal	SRDC	1	.199	0.656
	SRDA	1	.057	0.812
Public * Ego * Conflict * PGoal * Nar	SRDC	1	0.015	0.902
	SRDA	1	2.626	0.107

Note: PGoal = motivation for personal goal, Nar = narcissism

T. UNIVARIATE EFFECTS ON COGNITIVE AND AFFECTIVE SRD (N=243) WITH PSYCHOPATHY AND MOTIVATION FOR PERSONAL GOALS AS COVARIATES

Source	Dependent Variable	df	F	p
Public	SRDC	1	0.059	0.808
	SRDA	1	0.477	0.491
Ego	SRDC	1	0.006	0.936
	SRDA	1	2.123	0.147
Conflict	SRDC	1	2.752	0.099
	SRDA	1	0.43	0.513
PGoal	SRDC	1	2.37	0.125
	SRDA	1	1.812	0.18
Psy	SRDC	1	0.013	0.91
	SRDA	1	0.493	0.483
Conflict * PGoal	SRDC	1	2.387	0.124
	SRDA	1	0.345	0.558
Ego * Conflict	SRDC	1	0.029	0.866
	SRDA	1	1.913	0.168
Public * Ego	SRDC	1	0.775	0.38
	SRDA	1	0.331	0.566
Ego * PGoal	SRDC	1	0.026	0.873
	SRDA	1	2.319	0.129
Public * PGoal	SRDC	1	0.003	0.957
	SRDA	1	1.183	0.278
Public * Conflict	SRDC	1	0.03	0.862
	SRDA	1	0.037	0.849
PGoal * Psy	SRDC	1	0.064	0.801
	SRDA	1	0.209	0.648
Conflict * Psy	SRDC	1	2.097	0.149
	SRDA	1	0.23	0.632
Ego * Psy	SRDC	1	0.007	0.933
	SRDA	1	1.92	0.167
Public * Psy	SRDC	1	0.011	0.915
	SRDA	1	0.717	0.398
Public * Conflict * PGoal	SRDC	1	0	0.989
	SRDA	1	0.165	0.685
Public * Ego * Conflict	SRDC	1	0.044	0.834
	SRDA	1	0.179	0.673
Ego * Conflict * PGoal	SRDC	1	0.01	0.92
	SRDA	1	1.901	0.169
Public * Ego * PGoal	SRDC	1	0.705	0.402
	SRDA	1	0.347	0.557
Public * Ego * Psy	SRDC	1	0.983	0.322
	SRDA	1	0.552	0.458
Ego * Conflict * Psy	SRDC	1	0.048	0.827
	SRDA	1	1.624	0.204
Conflict * PGoal * Psy	SRDC	1	1.791	0.182

	SRDA	1	0.162	0.688
Public * Conflict * Psy	SRDC	1	0.014	0.905
	SRDA	1	0.125	0.725
Public * PGoal * Psy	SRDC	1	0.031	0.86
	SRDA	1	1.585	0.209
Ego * PGoal * Psy	SRDC	1	0.03	0.862
	SRDA	1	1.987	0.16
Public * Ego * Conflict * PGoal	SRDC	1	0.042	0.838
	SRDA	1	0.21	0.648
Ego * Conflict * PGoal * Psy	SRDC	1	0.011	0.918
	SRDA	1	1.647	0.201
Public * Ego * PGoal * Psy	SRDC	1	0.93	0.336
	SRDA	1	0.602	0.439
Public * Conflict * PGoal * Psy	SRDC	1	0.074	0.785
	SRDA	1	0.392	0.532
Public * Ego * Conflict * Psy	SRDC	1	0.011	0.917
	SRDA	1	0.26	0.611
Public * Ego * Conflict * PGoal * Psy	SRDC	1	0	0.988
	SRDA	1	0.34	0.56

Note: PGoal = motivation for personal goal, Psy = psychopathy