HETEROGENEITY AND CENTRALITY OF "DARK PERSONALITY" WITHIN TEAMS, EMERGENCE OF SHARED LEADERSHIP, AND TEAM PERFORMANCE: TEST OF A MODERATED-MEDIATION MODEL

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ABSTRACT

This dissertation aims to advance understanding of team composition, processes, and performance by shifting from the much-studied five-factor model of personality and focusing on "dark personality" (i.e. the "Dark Triad": *Machiavellianism, Psychopathy, and Narcissism*) and adopting a social network analysis approach. The research responds to a call to explore dark personality's manifestation within -- and impact on -- teams. Specifically, in this study I examine within-team heterogeneity in dark personality and its impact on team performance, with the emergence of shared leadership as mediator of this relationship. Additionally, I examine two proposed moderators of the relationship between within-team dark triad heterogeneity and shared leadership emergence -- team network centrality of the team member scoring highest on the Dark Triad, and team mean Dark Triad score. The results suggest Dark Triad heterogeneity did not impact team performance and the hypothesized mediating role of shared leadership was not supported. Moreover, moderated-mediation by the aforementioned moderators also did not receive support. Nonetheless, this research makes a uniquely valuable contribution to scholarship on leadership within teams by offering a framework that bridges literatures on social network analysis, teams, leadership, and the dark triad and should have implications for team selection and performance.

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LIST OF ABBREVIATIONS

Big Five Inventory (BFI)

Business SCAN 360 scale (B-SCAN)

Counterproductive Work Behaviours (CWB)

Dark Triad (DT)

Grandiose Narcissism Scale (GNS)

Hogan Development Survey (HDS)

Input-Process-Output (IPO)

Latent Profile Analysis (LPA)

Levenson Self-Report Psychopathy scale (LSRP)

Machiavellian Personality Scale (MPS)

Narcissistic Personality Inventory (NPI)

Pathological Narcissism Inventory (PNI)

Psychopathic Personality Index (PPI)

Return on Assets (ROA)

Return on Equity (ROE)

Return on Sales (ROS)

Self-Report Psychopathy scale (SRP)

Short Dark Triad (SD3)

Social Network Analysis (SNA)

CHAPTER 1: INTRODUCTION

1.1 Background

Evolution favours those who adaptively mobilize self-serving strategies to draw on resources from their environment. The influence of personality in dictating behavioural responses to situational stimuli renders it of interest in understanding how social beings position themselves to maneuver social systems and contexts. In particular, the constraints and ambiguity of social systems underscore the need to maneuver and capitalize on opportunities to draw on resources of adaptive value for survival. Operating and competing within such contexts and situational boundaries may at times call for and reward behaviours that may not necessarily be deemed socially desirable. Specifically, acts or tactics of influence, manipulation, and force may prove valuable and hold major potential to influence behaviours, attitudes, opinions, needs, values, and consequently the overall social system (Ames, 2009; French, Raven, & Cartwright, 1959). Adaptive characteristics such as charm, assertiveness, impression management, and leadership are essential to facilitating such behaviours and the expression of their underlying traits (Ames, 2009; Paunonen, Lonnquvist, Verkasalo, Leikas, & Nissinen, 2006).

Dark personality refers to personalities deemed aversive yet fall within a normal range of functioning (Paulhus & Williams, 2002). Three traits of significance emerge and continue to be highlighted in research on dark personality – Machiavellianism, Narcissism, and Psychopathy – and are collectively referred to as the Dark Triad

(DT). Dark personality, unlike the five-factor model, offers a framework that allows for a better understanding and exploration of the aversive or socially undesirable behaviours individuals leverage in pursuing personal goals, motives, and interests.

The organizational literature examining the impact of dark personality in the workplace largely focuses on job performance and Counterproductive Work Behaviours (CWB) as outcomes (e.g., Giacalone & Knouse, 1990; Kessler, Bandelli, Spector, Borman, Nelson, & Penney, 2010). Such examinations heavily focus on individual-level outcomes, particularly as they pertain to the individuals exhibiting dark personality. Certainly, there is a need for research exploring the impact of dark personality on interaction patterns and on other employees' outcomes in the organizational context (O'Boyle, Forsyth, Banks, & McDaniel, 2012). Few empirical investigations have examined and operationalized the DT's group-level implications and outcomes. Cursory discussions of group-level implications within studies examining the impact of the DT on individual outcomes are more common. LeBreton, Shiverdecker, and Grimaldi (2018), in a review of the literature on the DT in the workplace, suggest that limited empirical research has explored the impact of DT traits within team contexts and those that have, primarily examined individual level characteristics as predictors of individual level outcomes within teams. In this study, I adopt dark personality as a model on which to describe team composition and explore the means through which DT traits impact team performance.

Alongside team personality composition, team leadership constitutes a significant factor in augmenting team performance. Specifically, the emergence of, and reliance

on, shared leadership within teams is attracting significant attention within the research domain exploring team composition and processes. Evidence substantiating the value of shared leadership continues to emerge and deliver results in support of its ability to facilitate team effectiveness and functioning (e.g. Hoch & Dulebohn, 2013; Pearce & Sims, 2002). It therefore behooves us to allocate further attention to understanding the processes by which shared leadership emerges and the antecedents that shape a context conducive to its emergence. This is necessary considering the emphasis placed across studies on emergent individual leadership within teams rather than leadership as a collective function and process. Accordingly, in this study I examine team dark personality composition as an antecedent of shared leadership emergence.

1.2 Purpose & contribution to scholarship & practice

An opportunity lends itself to the literature on team composition, processes, and performance to realize theoretical advances by (1) adopting a new theoretical lens that focuses on dark personality and (2) incorporating shared leadership emergence as a process – shaped by team dark personality composition – that can impact team performance. This study offers a model rooted in the Input-Process-Output (IPO) approach to studying team performance and draws on Social Interdependence Theory in exploring team dynamics. Team dark personality composition makes up the inputs in the proposed model and serves as an antecedent to the emergence of shared leadership as a process and mediator of the relationship between team dark personality composition and team performance. Specifically, I operationalize team

dark personality composition through heterogeneity or the variance in team-members' dark personality ratings to reflect the unique inputs and impact of each team-member. Allowing for the manifestation of unique member inputs is of significance by virtue of the characterization and conceptualization of dark personality as a driver of personal motives. In their review, LeBreton, Shiverdecker, and Grimaldi (2018) find a prevalent reliance on forms of central tendency and aggregation when studying the DT within teams. Specifically, the researchers note the common use of mean aggregations to quantify team level properties of DT traits and call for the reliance on alternative forms of aggregation.

The proposed model also incorporates two moderators, team mean-level DT rating and centrality of the team-member with the highest DT rating. Centrality captures the extent to which one is involved in relationships within a network; the more central a member is, the more profound their impact on the team, its processes, and outcomes. Employing a Social Network Analysis (SNA), the study delves deeper into the interactional team dynamics and seeks to allocate attention to how a team-member with the highest DT rating maneuvers in the group setting and attempts to exert their influence. O'Boyle et al.'s (2012) meta-analysis emphasizes the need to explore how individuals who rate highly on dark personality interact with one another. In gauging the moderating influence of a team's mean-level DT rating, the study is then able to contribute further insight into intra-team interactions.

Such a multi-level study is of value in the theoretical contributions it makes by adopting a differentiated lens that focuses on dark personality and shifts away from

the five-factor model. This is of significance to the dark personality literature as more research efforts are necessary to establish the incremental validity of the DT beyond the Big 5 and other individual difference variables in predicting employee outcomes (O'Boyle et al., 2012). Furthermore, the study addresses a need to extend our examination of the DT's implications beyond individual performance and CWB by adopting a multi-level approach that makes contributions to the team composition and performance literature. The study makes a theoretical contribution in its bridging of the literatures on shared leadership and dark personality. This makes for a novel approach that is of significance to uncovering antecedents of shared, rather than emergent, leadership. Lastly the study is rigorous in its use of socioanalytical methods in exploring intra-team interactions and dynamics.

CHAPTER 2: DARK PERSONALITY LITERATURE REVIEW

2.1 The Organizational Context

DT personality traits, across numerous empirical studies, predict a wide variety of negative outcomes and behaviours. Machiavellians are more likely to act in vengeful ways against others (Nathanson, 2008), to lie to friends more regularly (Kashy & DePaulo, 1996), and to exhibit the most cynicism towards others (Christie & Geis, 1970; Rauthmann, 2012). Narcissists exhibit hostility and aggressiveness when their egos come under threat, and their egocentrism and infidelity undermine their romantic relationships (Miller, Widiger, & Campbell, 2010). Psychopathy is associated with different forms of criminality (Megargee, 2009). Psychopaths make negative impressions in meetings (Rauthmann, 2012) and are most likely to get tattoos for intimidation purposes (Nathanson, Paulhus, & Williams, 2006b). Machiavellians and psychopaths tend to have the most doubted moral character (Arvan, 2013; Glenn, Iyer, Graham, Koleva, & Haidt, 2009). Those who rate high on the DT are more likely to exhibit ruthless self-advancement (Zuroff, Fournier, Patall, & Leybman, 2010), express and admit to negative prejudice towards immigrants, and exhibit a social dominance orientation (Hodson, Hogg, & MacInnis, 2009).

Relatively more recently, research efforts started exploring the manifestation of the DT in organizational contexts, drawing on the vast and foundational literature from Psychology and the Social Sciences. O'Boyle et al. (2012) did a meta-analysis of 245 studies in the literature concerning the influence of DT personality traits in organizational

contexts. The authors observed consistent declines in job performance to be associated with higher levels of psychopathy and Machiavellianism and higher levels of all three traits were associated with CWB. DT personality traits are largely highlighted in studies on counterproductive work behaviours (CWB; Harms, Spain, & Hannah, 2011; Hogan, 2007). Giacalone and Knouse (1990) reported that Machiavellians are more likely to engage in CWB such as abuse, theft, and sabotage. Alternatively, Kessler et al. (2010) reported that Machiavellians exhibit greater conscientiousness and are less likely to engage in CWB in the interest of remaining powerful in their respective organizational systems. Research efforts exploring the relation between DT personality traits and leadership have also emerged, highlighting phenomena such as toxic leadership and negative leadership behaviours that follow (Babiak, 1995; Dotlich & Cairo, 2003; Furnham, 2016; Hogan & Hogan, 2001; Kets de Vries, 2006; Lubit, 2004).

While early organizational research efforts largely emphasized negative work outcomes, consequent efforts have been uncovering another facet to the DT. Researchers have since started emphasizing the adaptive nature of the DT, seeking to explore contexts and factors that facilitate an advantageous manifestation of DT personality traits (Babiak & Hare, 2006; Chatterjee & Hambrick, 2007; Furnham, 2016; Hogan & Hogan, 2001). Such examinations made way for the emergence of such notions and phenomena as successful psychopaths and successful narcissists (Babiak & Hare, 2006; Chatterjee & Hambrick, 2007; Paulhus, Westlake, Calvez, & Harms, 2013), referring to those who leverage their dark personalities in adaptive self-serving ways to generate positive personal outcomes. For example, Furnham (2016) examined how in combination with

physical attractiveness and intelligence, those who report high levels of DT traits successfully pursue leadership positions.

Despite negative connotations, further substantiated by empirical evidence pointing to the primarily negative impact of the DT, emergent research efforts are starting to portray the DT in a more positive light. In particular, when it comes to work outcomes, the direction of the effect of DT personality traits is inconsistent. O'Boyle et al.'s (2012) meta-analysis features several empirical studies that exhibit positive, negative, and null findings. Such findings underscore the importance of the contextual element of situations and the significance of exploring facilitating conditions and factors that mobilize DT personality traits in different ways. Moreover, this raises questions surrounding the role of perception and attributions in such situations and how they interact with the DT in generating behaviours and outcomes. This gives way for further inquiry into the interpersonal dynamics shaped by such conditions and potentially manifest beyond the individual level within organizational systems. On dark traits in the workplace, Hogan (2007) suggests that while they may help individuals get ahead of others, they don't necessarily help those individuals get along with others. In fact, significant research efforts have sought to explore how DT personality traits influence social exchange, which then shapes their impact on work outcomes. O'Boyle et al. (2012) employed a social exchange perspective to highlight how dark traits may invoke behaviours that violate social exchange norms in work settings and consequently influence job performance and the occurrence of CWB. LeBreton, Shiverdecker, and Grimaldi's (2018) review underscores the highly complex and diverse nature of the associations observed between

DT traits and organizational outcomes as reflected through the effect size heterogeneity reported across meta-analytic reviews and the role of several moderators and mediators in influencing those effect sizes.

Doubts surrounding the presence of Machiavellians, narcissists, and psychopaths in the workplace remain. The three traits are still largely perceived as extreme disorders or clinical conditions that have no place in or means of entering the workplace. This premature dismissal of the likely presence of dark personality in the workplace is furthered by the low base rates (below 1%) of clinical expression of DT traits in the general population (Wu & LeBreton, 2011). A distinguishing feature of dark personalities and the DT, though, lies in the range of normal functioning they span despite their undesirability. Moreover, the adaptive characteristics and mechanisms (e.g., charm, manipulation, etc.) that accompany them undermine doubts surrounding the likelihood of their presence in organizational contexts. Nonetheless, subclinical expression of DT traits occurs with greater frequency in comparison to clinical expression with some researchers (e.g., Gustafson & Ritzer, 1995; Pethman & Earlandsson, 2002) suggesting base rates could be as high as 15% of the general population. It is therefore prudent that we dedicate further attention and research efforts to exploring the mechanisms through which the DT is manifest in the workplace and exerts influence across different organizational levels and outcomes.

2.2 DT Conceptualization & Measurement

Conceptualization The DT's negative connotations are not unfounded. In fact, narcissism and psychopathy emerged and gained their early conceptualizations in the clinical literature (Furnham & Crump, 2005) and are still classified as personality disorders in the DSM-IV-TR (Furnham, Richards, & Paulhus, 2013). Apart from the negative connotations socially associated with the dark traits, the differences in measurement approaches between the clinical and non-clinical (or subclinical) domains stand in the way of making it more realizable to reckon with their presence in the workplace. While outside the clinical domain continuous measures and distributions are more common and give room for the realization of different thresholds, intensities or cases; clinical samples tend to be subject to categorical classification. In psychiatric classification systems for example, one is either a psychopath or not and the threshold for classification is usually high, which inevitably spurs and reinforces negative and extreme connotations. Alternatively, in the domain of organizational behaviour, assessments are conducted through administering questionnaires and tend to be rooted in dimensional models. Continuous distributions are more prevalent and that facilitates conceiving such a thing as a functional range of aversive personalities. Wiggins and Pincus (1989) suggest that under such a school of thought and practice, pathological traits can be viewed as extremes of normality. It is imperative that such an approach to generating discourse surrounding dark personality is always highlighted, especially within the practitioner community, to not prematurely dismiss and undermine its manifestation at work or adopt a clinical approach to its assessment or screening. LeBreton, Shiverdecker, and Grimaldi

(2018) warn of the need to distinguish between clinical and subclinical forms of the DT (both, in terms of conceptualization and measurement) due to the legal implications that may ensue upon screening for DT traits in organizations. Should practitioners mistakenly adopt clinical assessments of dark personality traits (e.g., in pre-employment screening) organizations run the risk of litigation and incurring significant costs that undermine their effectiveness and business outcomes.

Narcissism entails holding inflated views of oneself, desires for control, success, and receiving admiration in such ways that reinforce one's self-love (Kernberg, 1989; Morf & Rhodewalt, 2001). Narcissism, then, holds the capacity to influence one's perceptions and behaviours. Viewing and associating oneself with extreme grandiosity has been a distinguishing characteristic of narcissism and has always been prominent in assessments of personality disorders. Nonetheless, in milder forms or amounts it is possible to display narcissism and for it to be a personality type rather than a disorder (Rhodewalt & Peterson, 2009). A clear distinction is made between holding confidence in and respect for oneself in a healthy manner and narcissistic self-love. Narcissists aggrandize their successes, do not compromise, are not receptive to criticism, are likely to respond aggressively in situations where they feel undermined, and seek interpersonal relations that reinforce their self-love (Bushman, Baumeister, Thomaes, Ryu, Begeer, & West, 2009; Campbell, 1999; Resick, Whitman, Weingarden, & Hiller, 2009). Narcissists tend to be viewed by others as arrogant, aggressive, unlikeable, and self-promoting (Buffardi & Campbell, 2008).

Psychopathy features impulsivity, lack of regard or guilt for harm to others, and a lack of concern for others and social regulatory mechanisms (Hare, 1985; Lilienfeld & Andrews, 1996). Psychopaths are usually skilled at impression management, charismatic, and lack emotional depth (Hare & Neumann, 2009). Psychopaths tend to be exploitative (Jonason, Li, Webster, & Schmitt, 2009) and generally exhibit aversive behaviours (e.g. cheating; Nathanson et al., 2006b). Williams, Paulhus, and Hare (2007), as cited in LeBreton, Shiverdecker, and Grimaldi (2018), suggested psychopathy spans four key dimensions: interpersonal manipulation (e.g., grandiosity, lying, superficial charm); callous affect (e.g., lack of empathy, lack of remorse); erratic lifestyle (e.g., impulsivity, irresponsibility, sensation seeking); and criminal tendencies (e.g., antisocial or counterproductive behavior). Like narcissism, psychopathy originally emerged in the clinical domain as a personality disorder. More recent efforts have established the viability of psychopathy to be a personality trait (Hare, 2003; Levenson, Kiehl, & Fitzpatrick, 1995).

Unlike psychopathy and narcissism, *Machiavellianism* has not been adopted from the clinical domain. Instead, Machiavellianism emerged from the philosophy of Nicolo Machiavelli surrounding power and politics, which advocated the use of ruthless, amoral, and deceptive methods. Christie and Geis (1970) established the construct and developed a measure of it based on Machiavelli's principles, which facilitated its emergence and uptake in psychology and management. Machiavellianism is characterized by a belief in the usefulness and value of employing manipulative tactics in interpersonal relations, a cynical view of people, and a moral perspective that emphasizes expediency over

principle (Furnham, Richards, & Paulhus, 2013). Machiavellians have been found to be more likely to make ethically questionable decisions (e.g., cheating, lying, betrayal) and endorse a negative view of people but are not as likely to regularly engage in extremely antisocial behaviour (Fehr, Samsom, & Paulhus, 2013; Jones & Paulhus, 2009; Kish-Gephart, Harrison, & Trevino, 2010). A lack of organizational structure creates facilitating conditions for them to experience success (Furnham, Richards, & Paulhus, 2013). They tend to overestimate their overall emotional intelligence and deem themselves to be skillful at manipulation (Dahling, Whitaker, & Levy, 2008). While not disliked, they have not been found to be particularly skilled at networking and forging good relations (Ferris & King, 1991; Ferris, Treadway, Kolodinsky, Hochwarter, Kacmar, Douglas, & Frink, 2005)

Individual DT Trait Measures The Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979) has been frequently used to measure narcissism. In fact, the NPI facilitated the transfer of ***narcissism*** as a construct from the clinical to the subclinical domain, where it is viable to measure it as a personality trait rather than a disorder. This was also aided by the alignment and consistency between the clinical and subclinical definitions of narcissism (Foster & Campbell, 2007; Morf & Rhodewalt, 2001). Items that constitute and make up a principal component of the NPI tap into criteria such as leadership, dominance, grandiosity, and entitlement (Corry, Merritt, Mrug, & Pamp, 2008). Examples of NPI scale items include: “I am going to be a great person”, “I like to be the center of attention”, and “I insist on getting the respect that is due me” (Raskin & Hall, 1979). Since Raskin and Hall (1979) introduced the NPI, several other researchers

have made efforts to reexamine the internal and external validity of the NPI and to refine its factor structure due to several concerns that were brought forward surrounding its psychometric properties and conceptual foundation (e.g., Corry et al., 2008, Cain, Pincus, & Ansell, 2008). Emmons (1987) proposed a four-factor version of the NPI that gauges the dimensions of leadership, self-absorption, superiority, and exploitativeness. Meanwhile, Ackerman, Witt, Donnellan, Trzesniewski, Robins, and Kashy (2011) derived a three-factor version of the NPI that spans leadership, grandiose exhibitionism, and exploitativeness. Other common measures of narcissism include Pathological Narcissism Inventory (PNI) consisting of seven-factors (*contingent self-esteem, hiding of the self, devaluing, entitlement rage, exploitativeness, grandiose fantasy, and self-sacrificing self-enhancement*; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009), and the Grandiose Narcissism Scale (GNS), also consisting of seven factors (*authority, self-sufficiency, superiority, vanity, exhibitionism, entitlement, and exploitativeness;* Foster, McCain, Hibberts, Brunell, & Johnson, 2015) .

The measurement of ***psychopathy*** as a personality trait has been facilitated by the availability of various questionnaires and scales that have emerged over time and have been documented across multiple reviews of the literature on psychopathy (Hall and Benning, 2006; Lebreton, Binning, & Adorno, 2006). Lilienfeld and Andrews' (1996) Psychopathic Personality Index (PPI) gauges the dimensions of sense of social influence and potency, impulsive non-conformity, fearlessness, callousness, ability to not be phased by stress, Machiavellian egocentricity and a lack of sentimentality. Paulhus, Hemphill, and Hare (2012) offered the Self-Report Psychopathy scale (SRP), which gauges the four

dimensions of callousness, erratic lifestyle, interpersonal manipulation, and criminal tendencies. Levenson et al. (1995) offered the Levenson Self-Report Psychopathy (LSRP) scale, which gauges primary and secondary psychopathy. Mathieu, Hare, Jones, Babiak, and Neumann (2013) offered the Business SCAN (B-SCAN) 360 scale, which gauges the four dimensions of manipulativeness, callousness, aggressiveness, and lack of reliability. Meanwhile, Mathieu, and Babiak (2016) offered the B-SCAN Self scale, which gauges the aforementioned four factors (same as B-SCAN 360) with fifteen subfactors.

Rooted in the philosophy and writing of Nicolo Machiavelli, Christie and Geis (1970) offered the MACH-IV questionnaire that sought to measure ***Machiavellianism***. The items that made up the questionnaire were based on tactics and behaviours advocated by Machiavelli in his original text (Machiavelli, 1950). The questionnaire is administered in such a way that requires individuals to express their level of agreement with statements that relate to Machiavelli's writings. Subsequent evidence in the field supported the link between agreeing to such statements and consequently behaving in ways that align. Those who rate high on Machiavellianism have been found to be cynical, lack principle, and support the manipulation of others for self-gains (Jones & Paulhus, 2009). Dahling et al. (2008) offered the Machiavellian Personality Scale (MPS), which spans the four factors of distrust of others, desire for status, desire for control, and amoral manipulation. Meanwhile, Kessler et al. (2010) offered the Organizational Machiavellianism Scale (OMS), which spans the three factors of power maintenance, manipulation, and management practices.

Composite DT Measure Despite the availability and frequent use of individual measures of each of the DT personality traits, efforts have been made to measure the three traits in tandem with a composite measure. Theoretically and conceptually the three constitute distinct constructs. Nonetheless, the three traits share several common features. Moreover, observed positive intercorrelations amongst the three traits in empirical findings have spurred their bundling into a composite measure and conceptualization as the DT by some researchers (e.g., Jonason, Li, & Teicher, 2010). Some researchers have even suggested that the three traits are indistinguishable (e.g., McHoskey, Worzel, & Szyarto, 1998). Multiple studies have sought to shed insight on the potential overlap and whether it is theoretically and empirically founded. Subclinical psychopathy and narcissism were found to load on a common factor across several factor analyses (Furnham & Crump, 2005; Furnham & Trickey, 2011; Hogan & Hogan, 1996). Another factor analysis generated evidence exhibiting all three traits loading on a common factor, the HEXACO Honesty-Humility factor (Lee & Ashton, 2005). Similar patterns of correlation were also observed between each of psychopathy and narcissism and a range of self-report, observer-report, and behavioural measures (Khoo & Burch, 2008; McHoskey et al., 1998; Moscoso & Salgado, 2004).

Furnham, Richards, and Paulhus (2013) conclude that any suggested indistinguishability or equivalence among the three traits is “illusory”. In their review, they highlight several studies that relied on regression analyses and yielded empirical results supporting the distinction between the DT personality traits, especially in the different outcomes they predict. Machiavellians were observed to be more likely (in

comparison to subclinical psychopaths and narcissists) to plagiarize (Nathanson, Paulhus, & Williams, 2006a) and avoid risky betting behaviour (Jones & Paulhus, 2014). Narcissists, on the other hand, exhibited greater tendencies to exhibit self-enhancement behaviours (Paulhus & Williams, 2002) and aggressive behaviour when their egos are under threat (Jones & Paulhus, 2010). Subclinical psychopaths were found to be more likely to bully (Baughman, Dearing, Giammarco, & Vernon, 2012; Williams, McAndrew, Learn, Harms, & Paulhus, 2001), and act on their revenge fantasies (DeLongis, Nathanson, & Paulhus, 2011). Paulhus and Williams (2002) suggest that multiple regression analysis of data collected on all three dark personality traits, drawing from a single sample, provide evidence of the independent contributions of the three traits in predicting various outcomes. Such studies lend support for the distinctiveness of the DT personality traits. Further, several studies that have relied on observer-report measures showed that the behavioral manifestation of the three DT can be distinguished (Paulhus & Jones, 2012; Ziegler and Lammle, 2012).

Paulhus and Williams (2002) suggest that the three traits share common underlying elements that drive their positive inter-correlations. Specifically, the literature suggests that disagreeableness, low honesty-humility, interpersonal antagonism, and callousness constitute the strongest underlying elements of the three DTs (Ashton & Lee, 2001; Derefinko & Lynam, 2006; Egan & McCorkindale, 2007; Jakobwitz & Egan, 2006; Jonason et al., 2009; Jones and Paulhus, 2011; Jones & Figueredo, 2013; Lee & Ashton, 2005; Miller et al., 2010).). In any event, there is a need for research aimed at clarifying

the distinctiveness of the DT traits, including their differential prediction of individual and team level outcomes.

Hogan and Hogan (1996) were the first to offer a composite measure of the DT with their Hogan Development Survey (HDS), consisting of eleven factors of which five (*boldness, mischief, colourfulness, skepticism, and excitability*) were commonly used to measure the DT. Two other and more succinct composite measures of the DT have since emerged and prove to be popular among researchers. The Dirty Dozen, derived by Jonason and Webster (2010), has capitalized on its conciseness in gaining popularity as an efficient measure that taps into each component of the DT through four items corresponding to each. While efforts have been undertaken to support its validity (Jonason & Kavanagh, 2010), many researchers have been critical of the Dirty Dozen for the broadness of its items and its limited ability to fully capture the features of the original individual measures of the DT traits (Lee, Ashton, Wiltshire, Bourdage, Visser, & Gallucci, 2013; Miller & Lynam, 2012; Paulhus & Jones, 2015; Rauthmann & Kolar, 2013).

Another popular composite measure of the DT is Jones & Paulhus' (2014) 27-item Short Dark Triad (SD3), which strikes an optimal balance between length and reliability and validity. Several studies support its validity (Arvan, 2012; Baughman et al., 2012; Giammarco, Atkinson, Baughman, Veselka, & Vernon, 2013; Holtzman, 2011; Lee et al., 2013). Jones and Paulhus (2014) established the convergence of the SD3 with the original individual measures of the three DT traits, demonstrated its external validity, and

confirmed that the three subscales align with the circumplex locations deemed appropriate. Furthermore, the SD3 has shown broader predictive power relative to the Dirty Dozen (Egan, 2014; Jones & Paulhus, 2014; Lee et al., 2013). In sum, the consensus at this point is in support of the use of the SD3 for situations featuring time and resource constraints due to its brevity and respectable psychometric standards. Of course, the original individual measures of the three DT traits remain suitable options, especially if no constraints exist.

CHAPTER 3: SHARED LEADERSHIP LITERATURE REVIEW

3.1 Shared Leadership: Literature Review

Conceptualization Leadership is conventionally thought of at the individual level and to reside within one individual. Accordingly, most research on leadership within teams highlights the influence of an individual team leader (Kozlowski & Bell, 2003; Stewart & Manz, 1995). Pearce and Sims (2002) refer to this as vertical leadership, emphasizing the hierarchical position of a sole manager – usually above and external to the team – who holds formal authority and responsibility for the team's processes and outcomes (e.g., Druskat & Wheeler, 2003; Hackman, Walton, & Goodman, 1986). As early as the 50s, however, management and leadership scholars have debated the viability of leadership as a collective or group quality that is shared among multiple individuals or team members (Gibb, 1954; Katz & Kahn, 1978). Gibb (1954, pp. 884) suggested "*Leadership is probably best conceived as a group quality, as a set of functions which must be carried out by the group*". Gibb (1954) argued for the existence of two forms of team leadership: (1) focused leadership that resides within a single individual and (2) distributed leadership that occurs when two or more individuals share the roles, responsibilities, and functions of leadership. Katz and Kahn (1978) argued for the competitive advantage organizations can derive from sharing influence as a means for supporting shared goals. Specifically, they suggested that shared leadership could prove effective in boosting commitment, facilitating the provision of resources for handling complex tasks, creating openness to reciprocal influence between individuals, and

facilitating information sharing. Empirical work substantiating the viability and value of shared leadership was lacking until recently (e.g. Hoch & Dulebohn, 2013; Hoch & Dulebohn, 2017; Pearce & Sims, 2002).

Day, Gronn, and Salas (2004) suggested that shared leadership constitutes a condition of mutual influence among team members and within their interactions, holding the viability to shape team and organizational performance. Hoch (2016) and Pearce and Conger (2003) echo Day et al.'s (2004) conceptualization, which reflects Gibb's (1954) framing of shared leadership as a group property and a series of functions taken on by the group. Carson, Tesluk, and Marrone (2007) defined shared leadership as an emergent property of teams that arises when leadership influence is distributed across team members. Yukl (1989, pp. 5) conceptualized leadership as "*influence processes involving determination of the group's or organization's objectives, motivating task behavior in pursuit of these objectives, and influencing group maintenance and culture*". Rooted in this definition, Carson et al. (2007) emphasize the need for team members to alternate between their engagement in influential activities that feature more decision-making and taking charge and in activities pertaining to direction, motivation, and support. Consequently, this spurs interactions among team members where leadership responsibilities are negotiated and shared. Their definition emphasizes leadership as conceptualized in relation to the multiplicity of sources of influence and the prevalence of influence, rather than acutely focusing on specific leadership behaviours or positions.

Across multiple research endeavours (Carson et al., 2007; Hoch & Dulebohn, 2013; Pearce & Conger, 2003) and as cited in Hoch and Dulebohn (2017), consensus is emerging surrounding collaborative decision-making, exerting influence and supporting others, fostering motivation, and taking responsibility for outcomes as necessary precursors for shared leadership to emerge. Such a conceptualization of leadership allows for dynamism and reciprocity whereby team members can lead and follow across different types of tasks or functions and at different points in time, which also reinforces existing relationships among team members. In this paper I adopt the conceptualization and definition of shared leadership offered by Carson et al. (2007) and concur with the aforementioned precursors that create the facilitating conditions for its emergence.

Measurement With respect to the operationalization of shared leadership and facilitating its examination in empirical studies, multiple approaches exist. Carson et al. (2007) root their suggested measure in social network theory. They argue such a route is appropriate due to the patterns of relationships examined and reflected in social networks. Further, Mehra, Dixon, Brass, and Robertson (2006) argue for the suitability of social network theory as a basis for measuring shared leadership due to it being a relational phenomenon that features mutual influence among team members working towards a common objective. Accordingly, Carson et al. (2007) suggest the reliance on network density, gauged through social network analysis, as a means of measuring shared leadership. Specifically, such an approach entails asking team members to rate the extent to which they believe the team relies on every team member for leadership, drawing from their personal implicit theories of leadership (Lord, Foti, & Phillips, 1982; Lord & Maher,

1991). Viewing leadership as a network, they posit such a network reflects the patterns of individuals relying on others for leadership and its density increases as this mutuality of influence, a key feature of shared leadership, begins to emerge. Sparrowe, Liden, Wayne, and Kraimer (2001, pp. 317) describe density as being "*...analogous to the mean number of ties per group member. The more ties each group member enjoys with the other group members, the greater the density of the network*". Ties reflect links between different actors (or nodes) within a network where resources flow and social relations or interactions take place. In the case of shared leadership within a team network and to operationalize it, ties reflect corresponding behaviours necessary for its emergence as exhibited by the team members. Consequently, shared leadership can be said to have emerged when the density of a leadership network – mean number of ties involving leadership influence – increases.

Alternatively, other researchers (e.g., Avolio, Jung, Murry, & Sivasbramaniam, 1996; Pearce & Sims, 2002) have adapted measures of vertical and traditional leadership to reflect the team level. For example, Ensley, Hmieleski, and Pearce (2006) gauged the distributed influence of transactional leadership and Boies, Lvina, and Martens (2011) gauged that of transformational leadership. Such an approach, while intuitive, is limited in that it is rooted in one form of leadership despite shared leadership's reliance on differential forms of influence from various team members and at different points in time when contextual requirements may be different. Morgeson, DeRue, and Karam (2010) argue that team members don't have to opt for the same type of leadership behaviours to participate in shared leadership.

Wang, Waldman, and Zhang's (2014) meta-analysis offers a review of the viable avenues for the conceptualization, and consequently measurement, of the content of shared leadership. They posit that shared leadership could reflect: (1) traditional behaviours such as initiating structure and consideration (Fleishman, 1953) and other transactional forms; (2) new-genre leadership that emphasizes such styles as transformational, charismatic, and empowering leadership (Avolio, Walumbwa, & Weber, 2009); and (3) cumulative or overall leadership that combines various styles. The authors argue that in contexts that place emphasis on the collective and underscore the significance of a shared vision, new-genre and cumulative (or overall) forms are more likely to be associated with team effectiveness. For a more extensive discussion on the conceptualization of shared leadership's content refer to Wang, Waldman, and Zhang (2014). In the current thesis I support and adopt the approach used by Carson et al. (2007) and Mehra et al. (2006), whereby shared leadership is not strictly rooted in a specific style. Rather, it is cumulative.

CHAPTER 4: TEAM DARK PERSONALITY COMPOSITION, SHARED LEADERSHIP & PERFORMANCE – THEORY & HYPOTHESES

4.1 Shared Leadership & Team Performance

It is undoubted that leadership is critical to the effectiveness of a team (Cohen & Bailey, 1997; Hackman, Walton, & Goodman, 1986; Sinclair, 1992; Zaccaro, Rittman, & Marks, 2001). However, as the realm within which we work evolves and increases in complexity, achieving effectiveness becomes more onerous and requires versatility in skills, resources, etc. Day et al. (2004) argued that a single external leader might not be sufficient to effectively cope with the complexity and ambiguity teams experience. Further, DeNisi, Hitt, and Jackson (2003) warn of the need and desire of highly skilled and experienced employees – in an economy that is increasingly reliant on knowledge-based work – for autonomy, to make an impact, and participate in leadership functions. Muethel and Hoegl (2016), in a study of globally dispersed software development teams, found formal team leaders tend to underestimate team members' self-leadership capacity, monopolize decision-making authority, and provide insufficient autonomy for team members. Bell and Kozlowski (2002) argue that shared leadership is especially beneficial for teams consisting of members competent in self-management and self-leadership. This is further emphasized with the prevalence of flatter organizations and self-managing teams (Lawler, Mohrman, & Benson, 2001; Manz & Sims, 1987), which call for team leadership that is shared.

Recent efforts have begun to allocate attention to the relationship between shared leadership and team performance (e.g. Ensley, Hmieleski, & Pearce, 2006; Hoch & Dulebohn, 2013; Hoch & Dulebohn, 2017; Pearce & Sims, 2002; Sivasubramaniam, Murry, Avolio, & Jung, 2002). Pearce and Conger (2003) found shared leadership to be advantageous to the performance of virtual teams through its reliance on collaborative decision-making and its ability to provoke building trust, cohesion, and commitment among team members. Bell and Kozlowki (2002) and Pearce, Yoo, and Alavi (2004) suggest that shared leadership allows for less formal communication to take place among team members, allowing them to overcome communication difficulties more easily. Meanwhile, Sharon Hill (2005) observed a propensity within shared leadership to encourage collaborative behaviour that enhances trust and knowledge sharing within teams. In a recent meta-analysis, Nicolaides, LaPort, Chen, Tomassetti, Weis, Zaccaro, and Cortina (2014) found support for the positive association between shared leadership and team performance ($r=0.35$) in a sample that consisted of 3,882 teams. Support was also found for the negative moderating influence of team tenure and for the positive moderating influence of task interdependence and the subjectivity (vs. objectivity) of the measure of team performance. The authors, among others (e.g., Jehn, 1997; Jehn, Northcraft, & Neale, 1999), attribute the negative moderating influence of team tenure to the difficulty in sustaining shared leadership over time due to the likely emergence of power struggles and process conflict as some team members vie to retain their power. As for the positive moderating influence of the subjectivity (vs. objectivity) of the team performance measure used, the authors explain that, when team members rate team

performance (vs. an external third party), common method variance and cognitive biases are likely to be the key drivers of an augmented association. D'Innocenzo, Mathieu, and Kukenberger's (2016) meta-analysis similarly reported a positive association (r=0.21) between shared leadership and team performance in their review of 3,198 teams. The authors observed the nature of the measure of team performance (subjective vs. objective) to have no significant effect. Wang et al.'s (2014) meta-analysis offered support for the positive association between shared leadership and team effectiveness (r=0.29) across 42 samples. The authors observed the relationship to be moderated by the criteria or type of measure used to gauge team effectiveness. They found shared leadership to be more strongly related to attitudinal and behavioral outcomes in comparison to subjective and objective measures of team performance. The three meta-analyses offer promising evidence in support of shared leadership's ability to predict team outcomes and its incremental validity over vertical leadership.

Hypothesis 1: Shared leadership within a team is positively associated with team performance.

4.2 Dark Personality within Teams

Research on teams, more specifically team composition, largely tends to rely on mean scores and aggregations when examining the influence of team-member inputs (e.g., personality characteristics). This ignores the unique inputs and influences of each team-member that may be significant drivers of certain outcomes and processes. This is especially critical when gauging team dynamics and the nature of interactions among

team-members. Humphrey and Aime (pp. 444, 2014) warn of the reliance on "*...highly static explanatory collectivism, privileging aggregated inputs and structures over dynamic interactions and organizing events*". While team research always alludes to the significance of examining and accounting for individual differences and their interactions, rarely do we encounter endeavours that dig beyond the surface and into the different mechanisms and processes at play. Among others (Arrow, McGrath, & Berdahl, 2000; Bell & Kozlowski, 2012; Crawford & LePine, 2013; Cronin, Weingart, & Todorova, 2011), Humphrey & Aime (2014) emphasize the need for research endeavours that examine interdependence, organizing, and the relational dynamics within teams that are more reflective of an open systems approach. In this thesis I adopt a widely accepted definition of work teams as assemblies of highly interdependent members with a collective purpose and working on a series of important tasks (e.g., Hackman, 1987; O'Neill & Allen, 2014).

The aforementioned concerns pertaining to research on team composition align with some of the concerns and gaps encountered in the dark personality literature. Despite the individualistic nature of employees who rate higher on dark personality and their emphasis on the pursuit of self-gains, their need to draw on resources from their organizational systems and direct teams is inarguable. An examination of the interactional dynamics that emerge is therefore necessary. The ability of employees to successfully mobilize their dark traits and draw on resources from their environment is contingent on how well they maneuver their organizational setting and strategically navigate interactions with others. O'Boyle et al. (2012), using a social exchange perspective, raise

concern surrounding the sustainability of employees' exploitative behaviours. The authors argue that while at first they may be successful in exploiting others, in the long run such positive effects are likely to wear off. Once others observe such tendencies and inequitable exchanges, they learn to withhold resources to restore equity. The authors call for future research to explore how individuals high on the DT bear influence on social networks and team dynamics. Similarly, Küfner, Nestler, and Back (2013) explored the decline of positive evaluations of narcissists by others over the course of their interactions. The authors suggested an initial reliance by narcissists on agentic behaviours such as exerting dominance and assertiveness, which then transitions to more antagonistic behaviours like aggression and arrogance. Leckelt, Küfner, Nestler, and Back (2015) offered empirical support of Küfner et al.'s (2013) theoretical proposal in a longitudinal study that tracked agentic and antagonistic behaviours among individuals (unacquainted) working in groups over the course of three weeks.

O'Neill and Allen (2014) examined the impact of Manipulativeness, Narcissism, and Secondary Psychopathy on team conflict resolution, team innovation, and team task performance. While the combination of traits examined by the authors does not constitute the DT, they are deemed to be dark personality traits and bear relevance to the DT. O'Neill and Allen (2014) observed mean team level of Secondary Psychopathy to be the most significant predictor of negative team task performance – as strong of a predictor as any of the Big 5 personality traits. The authors also found team task resolution to mediate the negative relationship between Secondary Psychopathy and team task performance. This study was conducted using a student sample from an engineering design course. The

authors argue that due to the task not involving opportunities for self-gains (all team-members were working towards securing a high grade for the team) the impact of Manipulativeness and Narcissism, which are more aligned with the pursuit of self-gains, was suppressed. Such findings substantiate the need for further inquiry into the impact of dark personality, specifically the DT, on team- or group-level outcomes and especially on team dynamics and interaction patterns. Furthermore, while in this study the authors focused on mean team levels, there is a need to examine the impact of dark personality heterogeneity within teams.

Baysinger, Scherrer, and LeBreton (2014) examined how the implicit and explicit aspects of traits related to interpersonal aggression shape processes and outcomes within groups. Specifically, they examined how group psychopathy and implicit aggression predict team effectiveness (cohesion, commitment, and performance) via task participation and negative socioemotional behaviours across 112 groups completing multiple tasks. Groups reporting greater mean levels of psychopathy and implicit aggression exhibited greater dysfunctional interactions and negative perceptions of the group. Task participation and negative socioemotional behaviours (e.g., disagreeing, showing tension) fully mediated the associations between each of group psychopathy and implicit aggression and group cohesion and commitment, while only the latter was found to fully mediate the associations with group performance.

In an experimental study by Drory and Gluskinos (1980), featuring two conditions, the impact of leader Machiavellianism on the task performance of groups of

undergraduate male students constructing toy cube bridges was examined. Under the favourable condition the leader's power was emphasized to followers and task performance was assessed using a single criterion, whereas under the unfavourable condition the leader's power was not emphasized and task performance was assessed using multiple criteria. In the favourable condition, the leader's power was emphasized through a formal assignment of authority, presenting him as someone who holds highly relevant qualifications, and allowing him exclusive access to informational resources pertaining to the task in advance. High and low Mach leaders were assigned to groups in either one of the conditions. No performance differences were observed between groups led by high Machs and ones led by low Machs. However, the author observed significant differences in group interactions, whereby high Mach leaders were found to give out more orders and be less involved in reducing tension. High Mach leaders were also less directive and required more assistance in groups where their power was not emphasized. Low Mach leaders were observed to behave consistently across conditions.

Jonason, Slomski, and Partyka (2012) examined the role of the DT in predicting manipulation tactics in the workplace. High levels of Psychopathy and Machiavellianism were observed to be positively associated with the adoption of hard tactics (e.g., uttering threats), whereas Machiavellianism and narcissism were positively associated with the adoption of soft tactics (e.g., compliments). The adoption of tactics such as threats was found to be reflected primarily in the different levels of psychopathy. The adoption of charm and overt manipulation was reflected in Machiavellianism. Narcissism was found to reflect the reliance on one's appearance as a means of charming and engaging others

(e.g., presentable dress, confident demeanor, etc.). Overall, the authors suggest that the correlations driven by the three DT traits were stronger in relevance to the adoption of hard, rather than soft, tactics.

Chatterjee and Hambrick (2007) examined the impact of CEO Narcissism on firm-level strategy and performance. The authors found a positive correlation between CEO narcissism and each of strategic dynamism, the number and size of acquisitions, and grandiosity. Moreover, the authors found CEO narcissism to positively relate to the engendering of extreme and fluctuating organizational performance. Overall, the authors conclude that CEO narcissism renders firms' performance no better or worse. The authors raise questions and call for further inquiry into the impact of CEO narcissism on the individuals interacting closely with the CEOs, their turnover, and career trajectories. Moreover, the authors question how narcissistic CEOs handle successes and losses, specifically questioning whether narcissistic CEOs hoard all the success but externalize the blame for losses. Lastly, inquiry into the impact of CEO narcissism on top management team processes is called for (Chatterjee & Hambrick, 2007; Peterson, Smith, Martorana, & Owens, 2003).

4.3 Dark Personality & Shared Leadership

Dark personality – its heterogeneity within a team, specifically – is of primary interest in this study and constitutes the input in the proposed model. The dark personality literature could benefit from further empirical investigations surrounding the impact of dark personality on team outcomes and an emphasis on intra-team interactions.

Operationalizing the team input in terms of heterogeneity allows for a more thorough analysis that teases out unique inputs and impacts. Further, of specific importance to the dark personality literature is our ability to gain better insights surrounding how team members with different or similar DT ratings interact with one another and consequently shape team-level outcomes.

The shared leadership literature offers significant room for the examination of antecedents of shared leadership emergence. As such, the proposed study makes a significant contribution in seeking to examine the association between dark personality composition and the emergence of shared leadership within a team. Shared leadership is susceptible to the influence of personality, given its reliance on collaboration, exerting influence, being receptive to influence, being accountable, and fostering motivation.

Mutual and collective influence is a key feature of shared leadership that is critical to its emergence. Theoretical reasoning leads us to expect dark personality composition of a team to impact the dynamics of influence among team members. Machiavellians tend to retain power, psychopaths are nonchalant about how outcomes affect others, and narcissists seek to divert attention towards themselves. Accordingly, I argue that dark personality is not conducive to the facilitation of shared leadership emergence in its capacity to undermine reciprocity and effective relational dynamics. Shared leadership thrives on collaboration and mutuality of influence, members of a team must know when to lead and when to follow. Further, shared leadership capitalizes on promoting motivation among team members and encouraging a sense of accountability for

outcomes. Dark personality, on the other hand, is more aligned with personal gains and self-advancement, which run counter to the collective orientation necessary for shared leadership to emerge. Drawing on Social Interdependence Theory, I expect greater heterogeneity in dark personality to reflect a misalignment in team-members' goals, which will frustrate the emergence of shared leadership. Shared leadership's rootedness in social network theory, as discussed earlier, and its reflection of the ties and interactions among team members, makes for a novel and insightful dynamic mechanism through which a greater understanding of the DT's implications can be derived. Teams feature interdependence and work towards a common goal, the extent to which a team can report positive outcomes is contingent on the level of alignment between team-members' individual goals. Further, proactive and conscious efforts to be in alignment with other team-members are critical to achieving such level of group alignment. I argue that shared leadership, as a team quality and process, makes for a mechanism that holds promise in bringing together team-members and cementing their commitment to the team's success. Accordingly, I argue that shared leadership holds significance as a mediator of the association between DT heterogeneity and team performance.

Hypothesis 2: Dark Triad heterogeneity among team members is negatively associated with shared leadership within a team.

Hypothesis 3: Shared leadership will mediate the negative relationship between dark triad heterogeneity among team members and team performance.

4.4 Team Mean-Level Dark Personality Composition

Further depth in the exploration of the impact of within-team variance in dark personality is necessary in uncovering the intra-team dynamics that emerge among team members. As such, I posit that a team's mean-level dark personality composition will have a moderating influence on the association between DT heterogeneity and shared leadership. Hogan and Holland (2003) posit that personality traits reflect one's motivation to "get ahead" or "get along". Theoretical reasoning leads us to expect individuals with greater levels of dark personality to be more motivated by self-gains, advancing their own agendas, and exerting their own influence. Accordingly, the interactional dynamics that emerge among individuals reporting similar or contrasting levels of dark personality is of particular interest and significance to advancing knowledge in the literature on dark personality in the organizational context. Drawing from Social Interdependence Theory and research by Johnson (2003) and Tjosvold (1998), contexts featuring interdependence pose interesting landscapes for the manifestation of dark personality. Interdependence is likely to provoke the emergence of conflict; however, Deutsch, Coleman, and Marcus (2011) argue that goal alignment and compatibility among team members facilitate overcoming the challenges brought on by contexts featuring interdependence.

As previously discussed, I expect a team reporting greater variance in team members' dark personality levels to have trouble "getting along" and to frustrate the emergence of shared leadership. Further, I expect the negative association between DT heterogeneity and shared leadership to be susceptible to the mean-level dark personality

levels within teams. More specifically, in heterogeneous teams with a greater (lower) mean-level of dark personality, I expect the frustration of shared leadership emergence to be amplified (weakened). The more members there are within a team reporting greater levels of dark personality, the greater the likelihood of goal misalignment and self-serving behaviours that run counter to a team's collective good. In homogeneous teams with a greater mean-level of dark personality, I also expect the frustration of shared leadership emergence to be amplified.

Hypothesis 4: Team mean-level dark personality will moderate the relationship between dark triad heterogeneity and shared leadership, such that the negative association will be greater in teams where the team mean-level of dark personality is higher.

4.5 Centrality of the Dark Triad

In working towards conducting research that delves into the relational and organizing aspects of teams, it behooves us to examine the network structure within teams. Social networks within teams help map the flow and exchange of resources (e.g., advice, information) between team-members (Brass, Galaskiewicz, Greve, & Tsai, 2004). Of key importance in the study of networks is network position and specifically the centrality of members, indicating the extent of a member's relational involvement with other members (Wasserman & Faust, 1994) and contribution to team functioning (Freeman, 1978). Team-members that are peripheral, rather than central, tend to exhibit limited involvement in the relational and interactional team dynamics, which ultimately limits their impact (Reinholt, Pedersen, & Foss, 2011). The types of ties formed between

team-members are also of significance in networks, indicating the nature of resources being exchanged. Accordingly, three types of networks have been coined and commonly examined in research: workflow (Brass, 1984), advice (Klein, Lim, Saltz, & Mayer, 2004; Krackhardt & Porter, 1986; Sparrowe et al., 2001), and friendship (Baldwin, Bedell, & Johnson, 1997; Klein et al., 2004). Workflow networks are concerned with the exchange of goods and work materials, advice networks pertain to the exchange of knowledge and information, and friendship networks focus on the exchange of affect (Tichy, Tushman, & Fombrun, 1979).

Through a review of the literatures on dark personality and shared leadership, the emphasis on influence and power has emerged as a major common theme. Accordingly, I believe this substantiates the examination of centrality within the team network as a moderator of the association between DT heterogeneity and the emergence of shared leadership. Specifically, of interest is the centrality of the team member with the highest DT rating. The conceptualization, key characteristics, and associated behaviours of each of the DT traits (for more details, refer to section 2.2) lead us to expect an individual who reports high levels of dark personality to be motivated to exert dominance, retain power, and ultimately influence team functioning and outcomes. As such, I am particularly interested in the network position of such an individual and whether it affords them the ability to influence. Here I am interested in how their influence will ultimately facilitate or hamper the emergence of shared leadership, which relies on such mechanisms as collaborative decision-making, influencing and being receptive to influence, being accountable for outcomes, and fostering motivation. In other words, through gauging the

moderating influence of the centrality of the team member with the highest DT rating, I am able to further uncover the mechanisms through which the DT is manifest. Moreover, this allows us to offer a basis for future research to examine how team members who rate high on the DT are treated or cope within a team environment. Perhaps such an individual is not well received by team members and in turn ostracized. Alternatively, their dark personality could be so powerful such that their influence cannot be thwarted and prevails in the end.

Hypothesis 5: The centrality of the team member with the highest dark triad rating will moderate the relationship between dark triad heterogeneity and shared leadership, such that the negative association will be greater in teams where the team member with the highest dark triad rating is more central within the team network.

CHAPTER 5: METHODS

5.1 Sample & Procedure

The data for this study were collected from students enrolled in a fourth-year commerce course in strategy at a mid-size Ontario university. A total of 626 students from fifteen different sections of the course were invited to participate in the study. Of the 626 students invited, only 10% did not participate in the study. These students were working on a semester-long group project in self-selected teams of four to seven (mean team size = 5.72). Data on previous teamwork experience and social relationships amongst team members within each group were collected, 57% and 59% of respondents reported having previous work connections (e.g., worked together on a different class project) and social connections (e.g., friends outside class), respectively. 59% of respondents identified with "Man" as a gender identity, 39% identified with "Woman", and 2% did not report a gender identity with which they identify. 88% of respondents fell in the 20-24 age-group. Despite a low non-response rate of 10%, the main implication manifests when it comes to the team-level data – the SNA in particular. In total, data from 110 teams were collected, of which 47 were eliminated for not meeting the retention criterion of featuring data from all members of the team (i.e., actor non-response). The final dataset consisted of 63 teams (353 respondents in total). 60% and 62% of the 353 respondents reported having previous work connections (e.g., worked together on a different class project) and social connections (e.g., friends outside class), respectively. 58% of the 353 respondents identified with "Man" as a gender identity, 40% identified

with “Woman”, and 2% did not report a gender identity with which they identify. 93% of the 353 respondents fell in the 20-24 age-group. Further discussion of the retention criterion and the decision to eliminate teams where actor non-response was an issue is available in section 5.3.

The students were working on a management simulation where, in teams, they were responsible for making strategic decisions for their respective companies with a $100M budget and over eight simulated years. Teams were competing in the same market and against each other. Throughout the semester teams met on a regular basis to agree on strategic decisions and review their performance across the several phases. For each simulated year, the team had to input their strategy into the simulation. Each team’s performance in the simulation was based on such metrics as profit, market share, ending stock price, ending market capitalization, Return on Equity (ROE), Return on Assets (ROA), Return on Sales (ROS), and asset turnover. The task embedded teams in an environment that required a high level of interaction, negotiations, and firm decision-making processes. The realistic nature of the simulation utilized in this course and the length and frequency of engagement amongst team members rendered this team task appropriate for the purposes of this study.

The self-reported individual-level data were collected in class through paper and pencil questionnaires during the week when teams had to input their final strategy for the eighth and last simulated year. In exchange for completing the questionnaires, students received a $5 cash incentive. On average, students took between ten and fifteen minutes

to complete the questionnaires. Students completed personality assessments as part of the questionnaires as well as a SNA to gauge each team-member's centrality and a measure of each team's shared leadership density. As part of the SNA, students rated the strength of their workflow, advice, and friendship ties with other team-members. To gauge shared leadership within each team, each team member offered a rating of the extent to which *they* personally thought the *team* relied on each of their team mates for leadership. Students also rated the extent to which they perceived each of their team-members exhibited effective leadership *(using a scale of one (**not at all**) to five (**to a great extent**)*, which facilitated the derivation of an individual leadership effectiveness score for each member. Additionally, other individual characteristics were measured, including age, gender, education, and the ethnic group with which the individual most identified. The course instructors provided each team's performance data at the end of the semester - performance scores were algorithmically generated by the simulation and based on the eight-aforementioned metrics. Deriving objective team performance data, as generated by the simulation software, from a different source aided in reducing single-source bias. As part of the simulation and for each simulated year, students also assigned each other peer evaluation scores (out of five). While individual leadership effectiveness and peer evaluation scores are not included in the model I test in this study, they are beneficial in shedding further light on the different dynamics manifest within teams.

5.2 Measurement Models

Dark personality The 27-item SD3 scale (Jones & Paulhus, 2014) was administered to derive individual team members' dark personality levels. Respondents were asked to rate their level of agreement *(using a scale of one (**strongly disagree**) to five (**strongly agree**))* with each of the 27 statements. Sample items included: "I like to use clever manipulation to get my way" and "Whatever it takes, you must get the important people on your side". Dark triad heterogeneity was then gauged based on a dispersion model (Chan, 1988) and through calculating the coefficient of variation (Allison, 1978) of team members' dark triad scores (calculated as standard deviation divided by mean). The subscales of the SD3 exhibited Cronbach alpha coefficients ranging from 0.66 to 0.69 (*Machiavellianism: 0.66; Narcissism: 0.67; Psychopathy: 0.69*), coming close to the range of coefficients (*0.7 to 0.8*) reported by Paulhus and Jones (2014, 2015) when developing the scale.

Shared Leadership I measured shared leadership using a social network approach that is used to measure network density. This approach has been recommended by Mayo, Meindl, and Pastor (2003) and adopted by Carson et al. (2007). Network density captures the ratio of actual to potential ties within a binary network (Wasserman & Faust, 1994). Specifically, for networks where relations or ties are valued (i.e., a measure of the strength of relation is gauged – *usually on a scale of one to five* – and not simply whether it exists or not – *zero or one*), the strength or weight of the tie is considered. Network density can be gauged through summing team members' ratings of each other on a

criterion of interest (e.g., leadership) and dividing by the sum of all possible valued ties among them. For example, in a field study involving 190 employees in 38 work groups, Sparrowe et al. (2001) sought to examine the impact of hindrance network density on group performance, whereby the hindrance network reflected the negative behavioural and attitudinal relations expressed by members of a group towards one another. To gauge hindrance network density, they asked each team member to rate (using a scale of one to seven) the extent to which they thought each of their team mates displayed negative attitudes or behaviours. The researchers then summed team members' ratings of each other and divided it by the sum of all possible valued relations or ties among them.

I adopted an approach like that of Sparrowe et al. (2001) to gauge a measure of leadership density for each team. I asked each team member to rate the extent to which *they* personally thought the *team* relied on each of their team mates for leadership *(using a scale of one (**not at all**) to five (**to a great extent**)*. Carson et al. (2007) argue that such a measure enables one to gauge whether leadership influence is widely distributed within a team network or restricted to a small proportion. Inter-rater reliability was assessed by determining the degree of agreement among members' leadership ratings.

Centrality To gauge the centrality of the team member with the highest dark triad score within each team, I aggregated three centrality scores from advice, friendship, and workflow networks. I argue that the three types of networks span a relatively diverse range of transaction types and a centrality score drawing on them collectively constitutes a comprehensive gauge. Tichy et al. (1979) suggest that the three types of networks

constitute a taxonomy of tangible and intangible transactions that entail the exchange of content or resources between team members. In each group, I asked team-members to report and rate their transactions with each of their other team members. To capture advice relations, I asked participants to rate the extent to which they went to each team member for project-related advice (Klein et al., 2004). Similarly, I asked participants to rate the extent to which each team member is someone they would socialize with during their free time (Klein et al., 2004). To assess workflow relations, I asked participants to rate the extent to which each team member provided them with inputs to their tasks (Brass, 1984).

Given my interest in gauging the strength of interactions within each team and not simply the existence of interactions across the three types of networks, each of the centrality facets was assessed using a scale of one (***not at all***) to five (***to a great extent***). Specifically, I calculated "in-degree" centrality scores, which capture the interactions (across the advice, friendship, and workflow networks) directed *towards* a given team member and not the interactions stemming *from* them (e.g., how much advice they receive from team members rather than how much advice they contribute). This is in line with my interest in examining how the team member with the highest dark triad rating draws on or benefits from the team network (and the resources of its members). Further, Klein et al. (2004) argue that "in-degree", unlike "out-degree", centrality scores do not suffer from the limitations of self-reports. For instance, to gauge "out-degree" centrality within an advice network, the measure considers a self-report rating of how much advice one thinks they personally provide to others.

Using Borgatti, Everett, and Freeman's (2002) UCINET 6 software and following other researchers' approaches (e.g., Borgatti, Everett, & Freeman, 1992; Klein et al., 2004), I derived normed in-degree centrality scores to facilitate comparisons across teams of different sizes.

Team Performance I operationalized team performance using the score generated by the simulation for each team upon the completion of the task at the end of the semester. For further details on the components included in the score generated by the simulation, refer to section 5.1 of this dissertation

Controls I statistically controlled for several variables that are not focal ones in the proposed model yet could bear influence on the outcome of interest. I controlled for team size due to its potential influence on performance through resources and task requirements (Kirkman & Rosen, 1999). I also controlled for the number of previous relationships (work-related and non-work-related) reported by team members within each team since the sample did not feature a random team assignment process. Given the significance of personality, particularly as captured by the Five Factor Model, as a factor in team functioning and performance, I controlled for each of the Big 5 personality traits as measured by Rammstedt and John's (2007) 10-item Big Five Inventory (BFI). In a meta-analysis that sought to estimate the relationships between several deep-level team composition variables and team performance, Bell (2007) reported significant results in support of the ability of the Big 5 personality traits to predict team performance in field studies. Using an additive model (Chan, 1998), all control variables (except for team size)

were operationalized at the team level through an aggregation of individual team-members' ratings and scores.

5.3 Data Analysis

Individual-level responses were entered into SPSS. All data were scanned for missing variables. The substitution by mean approach for handling missing data was used to replace missing items. Specifically, the group mean on each of the items was used to impute missing item-level data. The data were then aggregated to the team level and reported separately. Ten percent of students invited to take part in the study did not participate (n=63) and as such no corresponding personality data was available. Furthermore, no participation from those 63 students had implications on the retention of data corresponding to their respective teams – specifically, social network data. The literature on social networks features several studies that explored the impact of missing data and actor non-response (Huisman, 2009; Kossinets, 2006; Žnidaršič, Ferligoj, & Doreian, 2012, 2017). Such studies have largely cautioned of the significant impact of missing data on social networks and offered different remedies that also bear several shortcomings. As such, teams that did not feature data from all members within them were eliminated from the study.

The model specified in this thesis explores the emergence of a collective phenomenon that is shaped by contextual factors and interaction patterns and is the result of compilation processes pertaining to the heterogeneity of team personality makeup (Kozlowski & Klein, 2000). Compilation processes assume that apparent differences are

manifest between aggregated and nonaggregate data rendering it unnecessary to establish consensus at the lower or individual levels prior to aggregation (LeBreton & Senter, 2008). Upon reviewing various composition and compilation models, Chan (1998) and Bliese (2000) argue that interrater reliability and interrater agreement are more important when using a composition, rather than compilation, model.

The model in this thesis involves a combination of mediation and moderation. Specifically, the model constitutes a "First stage moderation model" (Edwards & Lambert, 2007). Team mean-level dark personality and the centrality of the team member with the highest DT rating moderate the relationship between DT heterogeneity and shared leadership emergence, which mediates the relationship with team performance.

CHAPTER 6: RESULTS

6.1 Descriptive Statistics and Zero Order Correlations

Tables 1 and 2 show descriptive statistics for all variables at the individual and team levels, respectively (after data cleanup and treatment of missing values). Figures 7 – 10 show distributions of individual-level scores on each of the three DT traits and DT composite scores. On a scale of one to five, individual-level scores ranged from 1.33 to 4.67 (*mean: 3.13*) for Machiavellianism, 1.56 to 4.67 (*mean: 3.10*) for narcissism, and 1.11 to 4.11 (*mean: 2.30*) for psychopathy. Composite scores ranged from 1.63 to 4.11 (*mean: 2.84*). The mean levels of the three DT traits reported in this study are in line with those observed in other studies that have also administered the SD3. For example, Özsoy, Rauthmann, Jonason, and Ardıç (2017) reported mean Machiavellianism, narcissism, and psychopathy scores of 3.27, 3.16, and 2.3, respectively. In their paper that introduced the SD3 scale and featured multiple administrations of the scale across different samples, Jones and Paulhus (2014) reported mean Machiavellianism, psychopathy, and narcissism scores ranging from 3.02 to 3.34, 2.74 to 2.89, and 2.11 to 2.23, respectively. Individuals reporting higher levels of Machiavellianism and DT composite scores received lower peer evaluation scores *(-.132 and -.105, $p<0.05$)*, suggesting team-mates may have found them difficult to collaborate and interact with by virtue of the controlling and manipulative behaviours they exhibited. Peer evaluation scores positively associated with leadership effectiveness scores - as rated by a team-member's team-mates *(.107, $p<0.05$)*. Gender-

based differences across Machiavellianism (M^{men}=3.18, M^{women}=3.05; t=-2.16, *p<0.05*), psychopathy (M^{men}=2.44, M^{women}=2.1; t=-5.54, *p<0.00*), and the DT composite measure (M^{men}=2.92, M^{women}=2.73; t=-4.32, *p<0.00*) were observed with men reporting higher scores. This aligns with other studies that have reported significant gender-based differences across the DT personality traits (e.g., Dinić & Wertag, 2018; Jones & Paulhus, 2014; Pineda, Sandin, & Muris, 2018).

The descriptive statistics show a statistically significant negative correlation between DT Heterogeneity within a team and the team mean-level of dark personality *(-.315, p<0.05*). Machiavellianism and psychopathy were highly correlated at the individual level (*.46, p<0.01*) and team level (*.56, p<0.01*), which is in line with evidence from studies mapping the DT traits on the Interpersonal Circumplex (Jones & Paulhus, 2010). Narcissism was correlated with Machiavellianism and Psychopathy at the individual level only (*.22 and 0.21, p<0.01).* Furthermore, team mean levels of Machiavellianism and Psychopathy were highly and positively correlated with the overall team mean-level of dark personality *(.816 and .794, p<0.01*, respectively). Narcissism similarly exhibited a significant positive association with the team mean level of dark personality but of a lower magnitude (*.491, p<0.01*). The high magnitude of association between team mean levels of Machiavellianism and psychopathy and the overall team mean-level of dark personality is noteworthy, exhibiting the significance of the two specific traits in driving the level of dark personality within a team. Team mean levels of Machiavellianism and Psychopathy exhibited significant negative associations with DT heterogeneity (*-.251, p<0.05 and -.354, p<0.01*, respectively) while Narcissism exhibited

a non-significant relationship. Such an observation warrants further attention as it could better inform research on dark personality and intra-team interactions. Specifically, it could suggest that Machiavellians and psychopaths tend to prefer working in less heterogeneous teams and with members who are like them (especially when teams are self-selected, as in the case of this study's sample). Another interesting observation is the positive and significant association between shared leadership and the number of previous social and work ties reported within teams (*.41 and .36, p<0.01* respectively). This is not surprising as it likely implies that teams where some level of rapport already exists between members could be more conducive to the emergence of shared leadership due to a greater likelihood of openness to collaboration, trust, and cohesion. Another interesting observation is the positive and significant association between the reported number of previous social and work ties and individual-level (.156, *p<0.01* and .129, *p<0.05* respectively*)* and team-level (*.318 and .31, p<0.05* respectively) narcissism. This could imply a preference by narcissists to work in familiar environments that could be more likely to facilitate the receipt of admiration and attention from others. Team mean level of agreeableness exhibited a significant and negative association with team performance (-*.249, p<0.05*). This runs counter to a moderate positive association (*.34, p<0.05*) reported in Bell's (2007) meta-analysis examining the impact of team composition variables on team performance. Such a negative association could be indicative of a prioritization of harmony, "getting along", and limited disagreement among members of a team, which could negatively impact the quality of outcomes produced.

6.2 Hypothesis Testing

All hypotheses were tested at the team level. DT heterogeneity was measured through calculating the coefficient of variation (Allison, 1978) of team members' dark triad scores (calculated as standard deviation divided by mean; Allison, 1978). Team performance was measured objectively using the scoring algorithm of the management simulation software (*details previously discussed in section 5.1*).

6.2.1 Direct Effects

6.2.1.1 H1: Shared Leadership and Team Performance

The hypothesized positive relationship between shared leadership emergence and team performance was not supported (*b = 1.65, ns*).

6.2.1.2 H2: Shared Leadership and DT Heterogeneity

The hypothesized negative relationship between DT heterogeneity and shared leadership emergence was not supported (*b = 0.01, ns*).

6.2.2 Mediating Effects of Shared Leadership Emergence

Shared leadership emergence was hypothesized to mediate the relationship between DT heterogeneity and team performance. As reported above, the relationships between DT heterogeneity and shared leadership and between shared leadership and team performance were both not statistically significant (b = 0.01 and b = 1.65, respectively). Nonetheless, I tested the mediating effect using Preacher and Hayes' (2004)

recommended bootstrapping procedure for mediator models. The analysis was conducted with Hayes' (2017) PROCESS macro for SPSS using 5,000 bootstrapped samples. The analysis yielded a 95% bias-corrected confidence interval that included zero (-1.43, .67), suggesting that shared leadership did not mediate the relationship between DT heterogeneity and team performance. Figure 2 shows the mediation model tested and the unstandardized coefficients. This, then, prompted the examination of the direct relationship between DT heterogeneity and team performance, excluding shared leadership from the model as a mediator. No statistically significant relationship between DT heterogeneity and team performance – as moderated by team mean-level dark personality and centrality of the team member with the highest DT rating – was observed (*b* = 12.15, *ns*).

6.2.3 Moderated-Mediation

The Index of Moderated Mediation is a test of equality of the conditional indirect effect(s) for a moderator(s) at its different thresholds (low, average, and high). The indices corresponding to each of the two proposed moderators were not significant, indicating moderated mediation did not occur. Specifically, the indirect effects were not different across low, average, and high levels of team mean-level dark personality (*b*=-*.07, SE=.70,* 95% CI [-1.92, 0.92]) and centrality of the team member with the highest DT rating (*b= .24, SE=1.31,* 95% CI [-2.37, 3.32]). The hypothesized positive moderating impact of team mean-level dark personality on the relationship between dark triad heterogeneity and shared leadership was not supported *(ΔR^2=0.01, F (1, 49) = 0.74,*

ns). The hypothesized positive moderating impact of team mean-level dark personality on the relationship between dark triad heterogeneity and shared leadership was not supported *(ΔR^2=0.04, F (1, 49) = 3.54, ns).*

6.2.4 Test of the Model without Controls

In addition to testing the proposed model while controlling for team size, the number of previous relationships, and the Big 5 personality traits, I ran the model without controls. I did so to account for any potential overlap between any of the DT traits and any of the Big 5 personality traits, which could have attenuated the impact of the dark personality traits. In their review of the DT personality literature, Furnham, Richards, and Paulhus (2013) reported that associations between the Big 5 and dark personality traits have consistently been observed. For example, Jakobwitz and Egan (2006) offered evidence in support of the viability of describing the dark dimension of dark personality in terms of low agreeableness. The analysis conducted without including any controls in the model yielded results consistent with those of the analysis that accounted for the aforementioned controls. None of the tested hypotheses received support *(see Tables 6, 7, & 8).*

CHAPTER 7: DISCUSSION

7.1 General Overview

The purpose of this study was to better understand the manifestation of dark personality within teams and specifically how it impacts the emergence of shared leadership and team performance. The study was inspired by a need to explore the DT's implications beyond individual-level outcomes such as CWB and performance and by a need to delve further into examinations of the impact on intra-team interactions (O'Boyle et al., 2012). The study is of significance in its offering of a novel framework that explores team composition through the lens of dark personality and not the Five Factor Model. Furthermore, the proposed model makes a theoretical contribution through its bridging of the shared leadership construct as a process with dark personality as a predictor. This study did not support the hypothesized negative relationship between DT heterogeneity and the emergence of shared leadership. The individual moderating influences of team mean-level dark personality and the centrality of the team member with the highest DT score were also not supported. Lastly, the hypothesized positive relationship between shared leadership emergence and team performance was also not supported. A discussion of the findings, limitations, and potential theoretical and practical implications follows.

7.2 Discussion of Hypotheses

The hypothesized positive relationship between shared leadership emergence and team performance did not receive support. While it was expected that shared leadership

could augment team performance through greater collaboration amongst team members and further commitment to the team's collective goal, no significant relationship was observed between the two variables. Given the significance of the group task to a student's overall grade in the class, it is possible that regardless of how distributed leadership, accountability, and commitment to the collective goal were the task had to be completed and the minority of team members could have driven such performance. That is, upon observing a lack of participation or initiative from all team members, one or a couple of team members could have taken greater ownership of the task and helped the team realize positive performance. Alternatively, this could signal the emergence of an individual leader within the team who helped carry the group to success. This is noteworthy and calls for further research efforts examining the underlying processes that could mediate the shared leadership-performance association and/or comparing the significance of shared vs. emergent (individual) leadership in driving team performance.

The hypothesized negative relationship between shared leadership emergence and DT heterogeneity did not receive support. While it was expected that DT heterogeneity would frustrate the emergence of shared leadership due to the misalignment of goals amongst team members, no significant relationship was observed between the two variables. One explanation could be that the level of heterogeneity exhibited within each team in the sample was not sufficient to significantly reflect the misalignment of goals in such a way that would frustrate collaborative decision-making, trust building, cohesion, etc. The lack of a significant effect of DT heterogeneity could also be rooted in the choice of measure used. Despite meeting acceptable psychometric standards and

capturing the conceptualization of the DT traits (Jones & Paulhus, 2014), perhaps a measure of dark personality with greater validity than that of the SD3 would have been more suitable. Moreover, the operationalization of dark personality at the team level using heterogeneity, rather than mean, could have also limited its predictive power. It is possible that the level of variation in dark personality traits within the teams included in this study was not sufficient to render it of significance in predicting any team processes or outcomes.

Accordingly, this prompted examining the relationship between team mean-level of dark personality (DT mean) as an alternative operationalization, and team performance, through a supplementary analysis (see Table 9). Like DT heterogeneity, DT mean did not relate significantly with shared leadership (*b = -2.37, ns*) or team performance (*b = -92.1, ns*). However, the index corresponding to centrality of the team member with the highest DT rating as a moderator was significant, indicating moderated mediation *(ΔR^2=0.05, F (1, 51) = 4.26, p<0.05)*. Specifically, the indirect effects were different across low (*b=-0.21, SE=.46*, 95% CI [-1.13, 0.70]), average (*b=0.67, SE=.31*, 95% CI [0.04, 1.30]), and high levels of centrality (*b=1.09, SE=.42*, 95% CI [0.26, 1.94]). Such a finding is noteworthy and warrants further exploration. Multiple scenarios are possible. Higher (*lower*) mean levels of dark personality within a team could be a result of all members scoring high (*low*) on the DT. This could suggest that such teams constitute an environment more conducive to being brought together or coordinated by a team member who is highly central in the team network. The similarity of personality profiles in such teams may make for a situation that is easier to navigate and coordinate,

thereby fostering a more participation from all members, ownership over, or accountability for, respective tasks, and facilitating shared leadership. Alternatively, high mean levels of dark personality within a team could be driven by one or a few members scoring high on the DT. Such a situation highlights the level of control and influence exerted by the select member with the high - and most likely the highest - DT score who is aided by their centrality within the team network. This finding emphasizes the need to allocate further attention to the team member who is highly central in the network. Perhaps such a member plays a pivotal role in bringing the team members' individual efforts together in such a way that facilitates shared leadership. Perhaps a highly central individual exhibits influence (e.g., leadership behaviours) that builds synergy from team members' similarity in levels of dark personality (as reflected by a high DT Mean) rather than allowing it to manifest in the form of prioritization of personal (vs. team) goals.

Lastly, the context within which the teams were operating and the implications of poor task performance may not have been sufficient to trigger the expression of DT traits. A key feature of dark personality lies in its account for personal motives and self-interest, and its expression is of relevance to team members pursuing their own agendas and goals at the expense of the collective interest. The motivation to "get ahead" and further one's own agenda is necessary to elicit the behaviours predicted by the DT traits. Similarly, a state of negative interdependence, whereby the goal attainment of one member frustrates that of another, is also necessary to provoke an adaptive response. Whether team members were in actuality perceiving and pursuing opportunities for achieving personal goals remains unknown. The task the teams were involved in may have also lacked the

situational characteristics and strength that trigger the expression of DT traits and reliance on its relevant adaptive behaviours (e.g., the stakes were not high enough perhaps). For example, individual peer evaluation scores were not generated and revealed to each student until the end of the simulation, which could have limited the need for one to resort to adaptive means to preserve their ego, retain power, and maintain control over the situation throughout the course of the simulation. This calls for further team-level examinations using (1) different measures of dark personality that may be a better fit for weak situations and more subdued expressions of dark personality, (2) different team-level operationalizations of dark personality that may be a better fit for the type of task involved, and (3) stronger situations featuring more salient stimuli.

The hypothesized moderating impact of team mean-level of dark personality and the centrality of the team-member with the highest DT rating on the association between DT heterogeneity and shared leadership emergence was also not supported. The lack of significance of the moderating impact of the centrality of the team-member scoring highest on the DT could have been driven by the presence of several team members, making it tougher for one individual to exert influence over the whole team and its processes when central. Alternatively, such a team-member may also strategically choose to remain less influential or visible and simply free-ride. The lack of significance of the moderating impact of team mean-level of dark personality could have been caused by the choice of dark personality measure. As previously discussed, despite its sound psychometric quality and credibility, the SD3 may not have been suitable and one of greater validity may have been necessary. The SD3 is a relatively new measure

introduced in 2014 but it has been gaining momentum among researchers (e.g., Atari & Chegeni, 2016; Rogoza & Cieciuch, 2017). While its brevity is beneficial, the SD3 as a composite measure may not fully capture the conceptualization of the DT traits (in comparison with individual measures of the DT traits) and may therefore lack in terms of content validity. Consequently, this limits the ability to accurately gauge members' dark personality levels and the between-person differences. Ideally, individual measures of each of the DT traits would have been gauged alongside the measure derived from the administration of the SD3. However, the questionnaires would have become impractically lengthy and posed risks on the response rate.

7.3 Limitations

One main limitation of the study is the use of a student sample. However, given the need for many teams and the convenience of the sample, engaging students seemed reasonable. This also allowed for engaging many respondents and teams working on the same task and under similar and realistic work-related simulations. Furthermore, reliance on a sample of students working on a widely-used and well-established management simulation allowed for the representation of a context of work that is heavily reliant on collaborative decision-making, strategizing, and team-based efforts. Lastly, participants were in their senior years of their undergraduate degree, had some professional work experience, and were about to enter the workforce, thereby enhancing the generalizability of this study's results to a business sample.

As previously discussed, 47 teams did not meet retention criteria due to actor non-response and were eliminated. The final sample consisted of 63 teams, which arguably could have posed a limitation by limiting the observed power of the statistical tests. Upon briefly surveying the literature on teams, the number of teams sampled across studies varied with some utilizing as little as 34 teams and others including over 100 teams (e.g., 34 teams in Lee, Gillespie, Mann, & Wearing (2010); 60 teams in Pearsall, Ellis, & Bell (2010); 73 teams in LePine (2003); 82 teams in Neuman, Wagner, & Christiansen (1999); 117 teams in Bradley, Klotz, Postlethwaite, & Brown (2013)). In a meta-analysis examining the relationship between shared leadership and team performance, D'Innocenzo, Mathieu, and Kukenberger (2016) reported a mean number of teams of 63.96. While 63 teams may have been on the lower end, it is not out of the norm to encounter published empirical team-level studies reporting results based on a similar number of teams.

As previously discussed (see section 7.2), despite the quality of the management simulation used for the group task and its resemblance of a real work environment, the risks associated with not performing well on the task are not heightened and the need to "get ahead" is not salient. In a research context aiming to tease out self-motives and the pursuit of self-interests, it is arguable that such a task may have not provided the necessary stimuli for team-members' dark personality traits to be triggered and expressed at their fullest, or at least in such a way that can be captured by the scale administered. This could have suppressed the impact on team processes and did not allow for fully

capturing the potential magnitude of the manifestation of dark personality within a team environment.

Another key limitation is the process by which teams were assigned. Teams were not randomly formed; students selected their own teams independently. This could have had negative implications on the level of heterogeneity in dark personality observed and team dynamics and processes reported. Students may have chosen to work with individuals they have worked well with in previous situations that have allowed for rapport to be built and limited the likelihood of conflict emerging in the task at hand. Students may have also drifted towards or preferred to work with others who are like them (in terms of personality). Nonetheless, data pertaining to team-members' previous work-related and social connections with one another, as well as their Big 5 personality traits, were collected and controlled for as part of the analysis.

Lastly, the study featured a cross-sectional design, which undermines causal explanations. Gauging the emergence of shared leadership as a process at multiple points in time would have allowed for a longitudinal study design better suited to establish causality. Moreover, the model tested is rooted in the IPO framework, which does not account for feedback loops.

7.4 Future Research

Despite the lack of support for the hypotheses and relationships proposed in this dissertation, the framework offers a platform to draw upon for future research. Continued efforts to examine the impact of dark personality beyond the individual level and the

spillover effect onto others are necessary. This is of significance considering the negative outcomes and influence predicted by the DT traits and likely to be of concern in interpersonal relations in organizations. Such examinations are especially important in contexts where power and influence are emphasized. More specifically, examinations of dark personality in tandem with LMX or within the context of leader-follower relationships would be of importance due to the relevance to follower outcomes.

Continued efforts to explore dark personality as a predictor of organizational fit is also of significance. Research is necessary to further derive and uncover means to better screen for dark personality traits as part of selection processes in organizations. Moreover, a better understanding of how dark personality predicts different forms of organizational fit is critical to generating theoretical contributions that can better inform the selection literature. Specifically, it would be valuable to more closely examine the relationship between dark personality and Person-Group fit as we place greater emphasis on understanding the impact of dark personality on others and in shaping interpersonal relations. Applicant screening for jobs or organizations that emphasize teamwork may then be better informed by dark personality ratings as predictors of Person-Group fit. Moreover, it is worthwhile to explore the relationship between dark personality and Person-Job fit. For instance, a job that calls for a great deal of information sharing, or transparency may not be a good fit for a Machiavellian who tends to favour ambiguity.

As previously discussed, mixed findings surrounding the nature of outcomes predicted by dark personality traits have been documented (O'Boyle et al., 2012). This

calls for further exploration of moderators that could help us gain clarity surrounding the specific conditions and contexts under which dark personality could generate positive versus negative outcomes. Research exploring how organizational culture facilitates the expression of dark personality in the form of negative outcomes or behaviours (e.g., CWB) is worthwhile. Perhaps, organizations that foster cultures of transparency, accountability, and/or reciprocity may not pose situations conducive to the maladaptive expression of dark personality. Research examining structure of or approaches to performance assessment could also be of benefit in uncovering how the negative impact of dark personality could be limited by having processes and procedures in place that don't reward it. For instance, a job that requires a great deal of collaboration would benefit from incorporating a behavioural outcome that reflects this facet of performance and on which the incumbent will be assessed. The formal incorporation and assessment of performance facets – that are susceptible to the negative impact of dark personality – may dissuade maladaptive behaviours associated with dark personality.

The proposed framework in this dissertation also brings attention to the need for longitudinal research efforts that shed light on the manifestation of dark personality over time. O'Boyle et al. (2012), through a social exchange perspective, argued that individuals' dark personality traits may aid them in getting ahead in the short run, but an opposite trend will emerge once time elapses, others learn their ways and strategies, and realize that norms of reciprocity have been violated. Further empirical and longitudinal research studies are critical to this area of research. Moreover, longitudinal research is also necessary when it comes to improving our understanding of the implications of

shared leadership. While positive outcomes predicted by shared leadership have been documented in the literature (e.g., D'Innocenzo, Mathieu, & Kukenberger, 2014; Wang et al., 2014), multiple researchers (e.g., Jehn, 1997; Jehn, Northcraft, & Neale, 1999) have also questioned the sustainability of shared leadership and its positive influence over time due to the likelihood of conflict and role ambiguity emerging or a need for a disruptor to challenge the status quo being realized. This warrants further inquiry and empirical examinations as organizations increasingly show interest in practices and processes that capitalize on self-organizing teams (e.g., holocracy).

Research on the Five Factor Model of personality has already examined the interactions of the five traits using the person-centered statistical approach of Latent Profile Analysis (LPA; Little & Rubin, 2014) to organize individuals into groups with homogeneous trait profiles (e.g., Lanza, Flaherty, & Collins, 2003). Profiles are then examined in relation to outcomes or variables (e.g., organizational commitment) to tease out group differences among the different profiles. No LPA has been conducted on the DT to examine whether different profiles emerge based on the interactions among the three traits and whether they relate differently to various individual outcomes of relevance. It is also prudent that researchers pursue such an endeavour at the team level in seeking to gauge whether interactions among team-members' dark personality makeup yield profiles that could be predictive of team performance outcomes.

Continued improvement of the scales available within the organizational literature to gauge dark personality traits is of major importance. Jones and Paulhus' (2014) SD3

scale exhibits respectable psychometric standards. Nonetheless, further endeavours to establish its predictive power and explore potential improvements to the scale and its items would be beneficial to the organizational literature on dark personality.

Lastly, qualitative studies would constitute a significant contribution to the literature on dark personality. Specifically, the literature lacks studies seeking to capture the interpersonal experiences of employees working in team settings using qualitative methods and with an emphasis on the manifestation of dark personality. Such efforts would allow for the derivation of deeper insights surrounding the behaviours exhibited by those who report higher levels of dark personality and their impact on others. Consequently, this could better inform research efforts geared towards improving dark personality scales and measures.

7.5 Practical Implications

Socially undesirable and aversive behaviours associated with dark personality are widely documented in the literature. Such behaviours range from ethically questionable decision-making (Furnham, Richards, & Paulhus, 2013) to aggressive reactions (Jones & Paulhus, 2010) to holding negative attitudes towards others (Hodson, Hogg, & MacInnis, 2009). This underscores the need to better understand and manage dark personality in the workplace. The need is emphasized in a business environment that heavily capitalizes on teamwork. However, in light of the relative infancy of the literature on dark personality in organizational contexts, and the limited availability of measures, caution must be exercised in drawing conclusions from the findings of this study.

Nonetheless, this study is significant from a practical perspective in that it raises awareness concerning the presence of dark personality in a non-clinical sample (and traditionally highly sought business school students). As the negative connotations associated with the DT has not garnered it the attention it deserves in organizational contexts, we must ramp up efforts to understand how dark personality is manifest in organizations. Developing better means to assess dark personality as part of selection systems are critical to better gauging fit, particularly person-group fit.

The study raises awareness surrounding the viability of positive and negative outcomes to emerge from dark personality. This emphasizes context and the significance of situational elements to shaping the nature or direction of outcomes of dark personality. Therefore, in tandem with reckoning with the existence of dark personality within the workplace, practitioners must account for dark personality in job design and performance management. While dark personality could bear negative outcomes, we should seek to deliver insights on ways that individuals' dark personality could be leveraged in ways beneficial to their organization. In other words, we need to understand what modifications to job design or performance management approaches can be made to maximize individual and team outcomes considering individuals' standing on the dark triad.

7.6 Summary & Conclusion

As organizations increasingly rely on teams, collaborative forms of organizing, and defer greater autonomy to employees, research that delves into the interactional dynamics that unfold and that mirrors the changing nature of work is necessary.

Furthermore, amidst increasing performance pressures within organizations and a general competitive landscape that heighten the need to "get ahead", organizational research should also seek to uncover the means through which employees pursue self-interests while actively contributing to the collective. This underscores the need for multi-level research that enhances understanding of the means through which employees navigate their context of work, both, on an individual level that prioritizes their career path and personal work outcomes, and on a higher level that embeds them within a larger collective unit working towards a common goal. In this thesis, I sought to achieve this through adopting the lens of dark personality to better understand what shapes individuals' personal goals and how it might shape the alignment of those goals with the goals of team members and impact team outcomes.

Despite the lack of support for the hypotheses tested, the implications are numerous. Primarily, the study raises awareness of the value of pursuing a better understanding of dark personality as manifested in a team context. This is especially important when considering the varied nature of negative outcomes predicted by the dark personality traits that bear relevance to organizational functioning and employee behaviour (e.g., ruthless self-advancement, negative prejudice towards immigrants, doubted moral character, etc.). Similarly, this research also brings attention to the need to explore and compare different means of operationalizing dark personality at the team level. It also draws attention to other constructs that could prove insightful to examine in tandem with dark personality (e.g., LMX, Person-Group fit) given their relevance to relational dynamics and team functioning in organizations. Lastly, this thesis emphasizes

the need for practitioners to remain aware of dark personality and its manifestation in the workplace and for the research community to provide better tools that enable efforts towards addressing it in practice.

Arguably, organizational research on dark personality, and specifically multi-level research, is relatively in its infancy. More research is necessary to better gauge and understand the complexity of relationships between dark personality and processes and outcomes across levels of analysis. This will enrich the organizational literature and expand the scope of its exploration of this line of inquiry. Similarly, this will facilitate the development of tools and programs within organizations that seek to better account for and manage dark personality.

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APPENDIX A: Tables

Table 1: Means, Standard Deviations, and Correlations of Individual Ratings (N=353)

Correlations - Individual Level Ratings (N=353)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Gender	0.5930	0.49199	1														
2. Age Group	2.0146	0.22247	.135*	1													
3. Machiavellianism	3.1256	0.54921	.116*	-0.017	1												
4. Narcissism	3.1045	0.53042	0.086	0.071	.223**	1											
5. Psychopathy	2.3019	0.58284	.287**	0.048	.460**	.207**	1										
6. DT (composite score)	2.8440	0.40489	.228**	0.046	.770**	.637**	.779**	1									
7. Extraversion	3.1997	0.55178	-0.071	-0.026	0.033	0.038	-0.028	0.018	1								
8. Agreeableness	3.4844	0.63886	0.002	0.054	0.021	.212**	-0.028	0.089	.245**	1							
9. Conscientiousness	3.0510	0.45876	0.011	-0.008	0.002	-.143**	0.040	-0.042	0.103	0.056	1						
10. Neuroticism	3.1700	0.51759	-0.004	-0.048	0.052	-0.060	-0.055	-0.029	.214**	.167**	0.050	1					
11. Openness to Experience	3.2535	0.59247	0.068	-.128*	0.008	0.000	0.090	0.047	0.062	0.050	.125*	-0.032	1				
12. Leadership Effectiveness	3.4671	0.87369	-0.059	-.108*	0.041	-0.043	0.000	0.000	0.043	0.070	0.067	0.068	-0.047	1			
13. Peer Evaluation Score	4.4646	0.63000	0.087	0.025	-.132*	-0.002	-0.092	-.105*	-0.070	0.009	0.079	0.004	-0.001	.107*	1		
14. Previous Social Ties	1.2578	1.37297	0.001	-0.042	0.073	.156**	0.008	.105*	0.057	0.040	-0.046	-0.054	0.068	0.099	.141**	1	
15. Previous Work Ties	1.2323	1.35780	0.000	-0.022	-0.012	.129*	0.024	0.062	-0.030	0.042	-0.092	-0.056	0.040	.121*	.208**	.689**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Means, Standard Deviations, and Correlations of Team Ratings (N=63)

Correlations - Team-Level Ratings (N=63)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Team Size	5.60	0.85	1														
2. Extraversion	3.09	0.53	-0.011	1													
3. Agreeableness	3.49	0.63	-0.066	0.210	1												
4. Conscientiousness	3.05	0.43	0.097	0.196	0.077	1											
5. Neuroticism	3.17	0.49	-0.139	0.157	.266*	0.113	1										
6. Openness to Experience	3.30	0.63	-0.014	0.017	0.057	0.155	0.035	1									
7. Previous Social Ties	1.37	1.05	0.013	-0.060	0.174	-0.021	-0.190	0.040	1								
8. Previous Work Ties	1.37	1.01	0.078	-0.069	0.205	0.103	-0.130	-0.051	.875**	1							
9. Machiavellianism	3.13	0.25	0.019	0.105	0.016	-0.052	0.006	-0.104	0.168	0.076	1						
10. Narcissism	3.10	0.21	0.055	0.011	.342**	0.144	0.011	-0.146	.318*	.310*	0.116	1					
11. Psychopathy	2.30	0.26	-0.009	-0.015	-0.101	0.006	0.119	0.012	0.044	0.025	.560**	0.044	1				
12. DT (composite score)	2.84	0.17	0.023	0.048	0.097	0.035	0.069	-0.108	0.235	0.178	.816**	.491**	.794**	1			
13. DT Heterogeneity	13.67	4.75	-0.017	-0.001	-0.045	-0.055	0.078	-0.037	0.126	0.154	-.251*	-0.038	-.354**	-.315*	1		
14. In-Degree Centrality (of highest DT member)	0.68	0.17	0.037	-0.002	.255*	-0.133	0.183	0.006	.395**	.350**	0.057	0.218	-0.059	0.087	-0.117	1	
15. Shared Leadership	3.42	0.46	0.090	-0.040	0.199	-0.080	0.103	-0.067	.405**	.360**	0.158	.273*	0.175	.280*	-0.185	.546**	1
16. Team Performance (simulation score)	43.17	18.77	-0.088	0.063	-.249*	0.208	-0.128	0.143	-0.108	-0.182	-0.074	-0.084	0.119	-0.011	-0.144	-0.134	-0.081

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX B: STATISTICAL ANALYSIS OUTPUT TABLES

Table 3: Test of Shared Leadership Emergence as a Mediator of DT Heterogeneity and Team Performance while Controlling for Team Size, Big 5, and Number of Previous Ties

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.00 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 9
    Y  : Capsimsc
    X  : DTHetero
    M  : SharedLe
    W  : DTMean
    Z  : InDegree

Covariates:
 Teamsize Extmean  Agrmean  Conscmea Neuromea Openmean PrevSocT PrevWork

Sample
Size:  63

**************************************************************************
OUTCOME VARIABLE:
 SharedLe

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6760      .4570      .1479     3.1723    13.0000    49.0000      .0017

Model
             coeff         se          t          p       LLCI       ULCI
constant    1.4086     2.4312      .5794      .5650    -3.4771     6.2943
DTHetero     .0112      .1597      .0701      .9444     -.3097      .3321
DTMean      1.0471      .7655     1.3678      .1776     -.4913     2.5855
Int_1       -.0447      .0519     -.8612      .3933     -.1490      .0596
InDegree    -.9043     1.1070     -.8169      .4179    -3.1290     1.3204
Int_2        .1445      .0769     1.8804      .0660     -.0099      .2990
Teamsize     .0401      .0593      .6767      .5018     -.0790      .1593
Extmean     -.0464      .1014     -.4576      .6493     -.2501      .1573
Agrmean     -.0187      .0897     -.2080      .8361     -.1989      .1616
Conscmea    -.1306      .1346     -.9701      .3368     -.4011      .1399
Neuromea     .0732      .1172      .6248      .5350     -.1623      .3087
Openmean    -.0328      .0825     -.3977      .6926     -.1987      .1331
PrevSocT     .0586      .1137      .5152      .6087     -.1698      .2870
PrevWork     .0484      .1113      .4347      .6657     -.1753      .2721

Product terms key:
 Int_1    :        DTHetero x        DTMean
 Int_2    :        DTHetero x        InDegree

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0082      .7417     1.0000    49.0000      .3933
```

```
X*Z      .0392     3.5360     1.0000    49.0000      .0660
----------
    Focal predict: DTHetero (X)
          Mod var: DTMean   (W)
          Mod var: InDegree (Z)

Conditional effects of the focal predictor at values of the moderator(s):

     DTMean   InDegree     Effect         se          t          p       LLCI       ULCI
     2.6700      .5048     -.0352      .0214    -1.6461      .1061     -.0781      .0078
     2.6700      .7100     -.0055      .0145     -.3796      .7059     -.0347      .0237
     2.6700      .8100      .0089      .0165      .5427      .5898     -.0242      .0421
     2.8500      .5048     -.0432      .0193    -2.2415      .0296     -.0820     -.0045
     2.8500      .7100     -.0136      .0119    -1.1394      .2601     -.0375      .0104
     2.8500      .8100      .0009      .0145      .0620      .9508     -.0282      .0300
     2.9876      .5048     -.0494      .0206    -2.3959      .0204     -.0908     -.0080
     2.9876      .7100     -.0197      .0144    -1.3721      .1763     -.0486      .0092
     2.9876      .8100     -.0053      .0167     -.3137      .7551     -.0389      .0284

**************************************************************************
OUTCOME VARIABLE:
 Capsimsc

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4578      .2096   332.1870     1.3786    10.0000    52.0000      .2163

Model
              coeff         se          t          p       LLCI       ULCI
constant    50.6250    36.3353     1.3933      .1695   -22.2877   123.5377
DTHetero     -.3789      .5248     -.7221      .4735    -1.4320      .6741
SharedLe     1.6531     5.9823      .2763      .7834   -10.3513    13.6575
Teamsize    -2.7792     2.8147     -.9874      .3280    -8.4273     2.8689
Extmean      2.5090     4.6389      .5409      .5909    -6.7997    11.8177
Agrmean     -7.2961     4.1008    -1.7792      .0811   -15.5251      .9329
Conscmea    11.5409     5.9368     1.9439      .0573     -.3724    23.4541
Neuromea    -4.7940     5.3214     -.9009      .3718   -15.4722     5.8842
Openmean     2.6868     3.8423      .6993      .4875    -5.0234    10.3970
PrevSocT     3.8198     5.0235      .7604      .4505    -6.2607    13.9003
PrevWork    -6.3526     5.1291    -1.2385      .2211   -16.6449     3.9398

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI
     -.3789      .5248     -.7221      .4735    -1.4320      .6741

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 DTHetero    ->    SharedLe    ->    Capsimsc

     DTMean   InDegree     Effect     BootSE   BootLLCI   BootULCI
     2.6700      .5048     -.0581      .2881     -.7290      .5187
     2.6700      .7100     -.0091      .1165     -.2350      .2727
     2.6700      .8100      .0148      .1803     -.2843      .4697
     2.8500      .5048     -.0714      .3338     -.8395      .5233
     2.8500      .7100     -.0224      .1295     -.3725      .1694
     2.8500      .8100      .0015      .1530     -.3297      .3378
     2.9876      .5048     -.0816      .3930    -1.0301      .5634
     2.9876      .7100     -.0326      .2015     -.5844      .2411
     2.9876      .8100     -.0087      .1945     -.4691      .3562

      Indices of partial moderated mediation:
              Index     BootSE   BootLLCI   BootULCI
DTMean       -.0739      .6994    -1.9200      .9211
InDegree      .2389     1.3147    -2.3662     3.3153
```

```
---

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: Variables names longer than eight characters can produce incorrect output.
      Shorter variable names are recommended.

------ END MATRIX -----
```

Table 4: Test of Team Mean Level Dark Personality as a Moderator of the Relationship between DT Heterogeneity and Shared Leadership Emergence while Controlling for Team Size, Big 5, and Number of Previous Ties

```
Indices of partial moderated mediation:
             Index     BootSE   BootLLCI   BootULCI
DTMean       -.0739      .6994    -1.9200      .9211
```

Table 5: Test of the Centrality of the Highest Rating DT Team Member as a Moderator of the Relationship between DT Heterogeneity and Shared Leadership Emergence while Controlling for Team Size, Big 5, and Number of Previous Ties

```
Indices of partial moderated mediation:
             Index     BootSE   BootLLCI   BootULCI
InDegree      .2389     1.3147    -2.3662     3.3153
```

Table 6: Test of Shared Leadership Emergence as a Mediator of DT Heterogeneity and Team Performance without Controls

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.00 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 9
    Y  : Capsimsc
    X  : DTHetero
    M  : SharedLe
    W  : DTMean
    Z  : InDegree

Sample
Size:  63

**************************************************************************
OUTCOME VARIABLE:
 SharedLe

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6373      .4061      .1390     7.7956     5.0000    57.0000      .0000

Model
             coeff         se          t          p       LLCI       ULCI
constant    3.4149      .0489    69.8485      .0000     3.3170     3.5128
DTHetero    -.0089      .0107     -.8378      .4056     -.0303      .0124
DTMean       .5910      .2985     1.9800      .0525     -.0067     1.1887
Int_1       -.0601      .0463    -1.2983      .1994     -.1528      .0326
InDegree    1.3994      .2896     4.8317      .0000      .8194     1.9794
Int_2        .1133      .0670     1.6897      .0965     -.0210      .2476

Product terms key:
 Int_1    :        DTHetero x        DTMean
 Int_2    :        DTHetero x        InDegree

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0176     1.6857     1.0000    57.0000      .1994
X*Z      .0297     2.8551     1.0000    57.0000      .0965

**************************************************************************
OUTCOME VARIABLE:
 Capsimsc

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .1806      .0326   352.3390     1.0118     2.0000    60.0000      .3697

Model
             coeff         se          t          p       LLCI       ULCI
constant    58.5758    18.0346     3.2480      .0019    22.5009    94.6506
DTHetero     -.6495      .5108    -1.2716      .2084    -1.6713      .3723
SharedLe    -4.5041     5.2282     -.8615      .3924   -14.9622     5.9539

***************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************
```

```
Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI
     -.6495      .5108    -1.2716      .2084    -1.6713      .3723

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 DTHetero    ->    SharedLe    ->    Capsimsc

     DTMean   InDegree     Effect     BootSE   BootLLCI   BootULCI
     -.1732     -.1774      .0840      .2359     -.1425      .8268
     -.1732      .0278     -.0207      .1138     -.3353      .1433
     -.1732      .1278     -.0718      .1919     -.6122      .1303
      .0068     -.1774      .1327      .2474     -.1781      .8310
      .0068      .0278      .0280      .0838     -.1896      .1802
      .0068      .1278     -.0231      .1591     -.5130      .1250
      .1444     -.1774      .1699      .2862     -.2388      .9048
      .1444      .0278      .0652      .1377     -.2367      .3376
      .1444      .1278      .0142      .1816     -.5426      .2345

      Indices of partial moderated mediation:
              Index     BootSE   BootLLCI   BootULCI
DTMean        .2706      .6141     -.8878     1.6954
InDegree     -.5103     1.2101    -4.0440      .6739
---

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: The following variables were mean centered prior to analysis:
          DTMean   InDegree DTHetero

NOTE: Variables names longer than eight characters can produce incorrect output.
      Shorter variable names are recommended.

------ END MATRIX -----
```

Table 7: Test of Team Mean Level Dark Personality as a Moderator of the Relationship between DT Heterogeneity and Shared Leadership Emergence

```
      Indices of partial moderated mediation:
              Index     BootSE   BootLLCI   BootULCI
DTMean        .2706      .6141     -.8878     1.6954
---
```

Table 8: Test of the Centrality of the Highest Rating DT Team Member as a Moderator of the Relationship between DT Heterogeneity and Shared Leadership Emergence

```
      Indices of partial moderated mediation:
              Index     BootSE   BootLLCI   BootULCI
InDegree     -.5103     1.2101    -4.0440      .6739
---
```

Table 9: Test of Shared Leadership Emergence as a Mediator of DT Mean and Team Performance while Controlling for Team Size, Big 5, and Number of Previous Ties

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.00 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 8
    Y  : Capsimsc
    X  : DTMean
    M  : SharedLe
    W  : InDegree

Covariates:
 Teamsize Extmean  Agrmean  Conscmea Neuromea Openmean PrevSocT PrevWork

Sample
Size:  63

**************************************************************************
OUTCOME VARIABLE:
 SharedLe

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6629      .4394      .1467     3.6347    11.0000    51.0000      .0008

Model
             coeff         se          t          p       LLCI       ULCI
constant    9.6661     4.3769     2.2085      .0317      .8791    18.4531
DTMean      -2.3743     1.4227    -1.6688      .1013    -5.2305      .4820
InDegree   -11.1823     5.9993    -1.8639      .0681   -23.2266      .8619
Int_1        4.2864     2.0762     2.0646      .0441      .1183     8.4544
Teamsize      .0396      .0590      .6718      .5048     -.0788      .1580
Extmean      -.0857      .0995     -.8612      .3931     -.2855      .1141
Agrmean       .0452      .0864      .5223      .6037     -.1284      .2187
Conscmea     -.1070      .1318     -.8118      .4207     -.3715      .1576
Neuromea      .0879      .1133      .7758      .4414     -.1396      .3154
Openmean     -.0984      .0856    -1.1487      .2560     -.2702      .0735
PrevSocT      .1172      .1080     1.0848      .2831     -.0997      .3340
PrevWork     -.0699      .1118     -.6255      .5345     -.2943      .1545

Product terms key:
 Int_1    :        DTMean   x        InDegree

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0468     4.2624     1.0000    51.0000      .0441
----------
    Focal predict: DTMean   (X)
          Mod var: InDegree (W)

Conditional effects of the focal predictor at values of the moderator(s):

   InDegree     Effect         se          t          p       LLCI       ULCI
      .5048     -.2105      .4558     -.4619      .6461    -1.1256      .7045
      .7100      .6690      .3120     2.1440      .0368      .0426     1.2955
      .8100     1.0977      .4185     2.6229      .0115      .2575     1.9379

**************************************************************************
OUTCOME VARIABLE:
 Capsimsc
```

```
Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4811      .2314   335.9205     1.2546    12.0000    50.0000      .2747

Model
              coeff         se          t          p       LLCI       ULCI
constant   331.4651   219.2474     1.5118      .1369  -108.9100   771.8402
DTMean     -92.1019    69.9207    -1.3172      .1938  -232.5429    48.3391
SharedLe       .0909     6.7012      .0136      .9892   -13.3690    13.5508
InDegree  -408.7747   296.7240    -1.3776      .1745 -1004.7673   187.2179
Int_1      142.9811   103.4257     1.3825      .1730   -64.7573   350.7195
Teamsize    -2.8975     2.8345    -1.0223      .3116    -8.5908     2.7957
Extmean       .8831     4.7969      .1841      .8547    -8.7519    10.5181
Agrmean     -6.5663     4.1479    -1.5830      .1197   -14.8978     1.7651
Conscmea     9.2174     6.3468     1.4523      .1527    -3.5306    21.9655
Neuromea    -4.5413     5.4541     -.8326      .4090   -15.4962     6.4136
Openmean      .9162     4.1500      .2208      .8262    -7.4193     9.2518
PrevSocT     4.4374     5.2282      .8487      .4001    -6.0638    14.9385
PrevWork    -8.7034     5.3687    -1.6211      .1113   -19.4869     2.0800

Product terms key:
 Int_1    :        DTMean    x        InDegree

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0294     1.9112     1.0000    50.0000      .1730

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Conditional direct effect(s) of X on Y:
   InDegree     Effect         se          t          p       LLCI       ULCI
      .5048   -19.9251    21.8580     -.9116      .3664   -63.8285    23.9784
      .7100     9.4147    15.5919      .6038      .5487   -21.9029    40.7322
      .8100    23.7128    21.3358     1.1114      .2717   -19.1419    66.5674

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 DTMean      ->    SharedLe    ->    Capsimsc

   InDegree     Effect     BootSE   BootLLCI   BootULCI
      .5048     -.0191     4.7812    -8.3436    11.7154
      .7100      .0608     7.3236   -15.0146    15.8618
      .8100      .0998    10.8829   -22.4207    23.2320

      Index of moderated mediation:
              Index     BootSE   BootLLCI   BootULCI
InDegree      .3897    40.3970   -89.1845    82.2713
---

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: Variables names longer than eight characters can produce incorrect output.
      Shorter variable names are recommended.

------ END MATRIX -----
```

APPENDIX C: Figures

Figure 1: Proposed Model

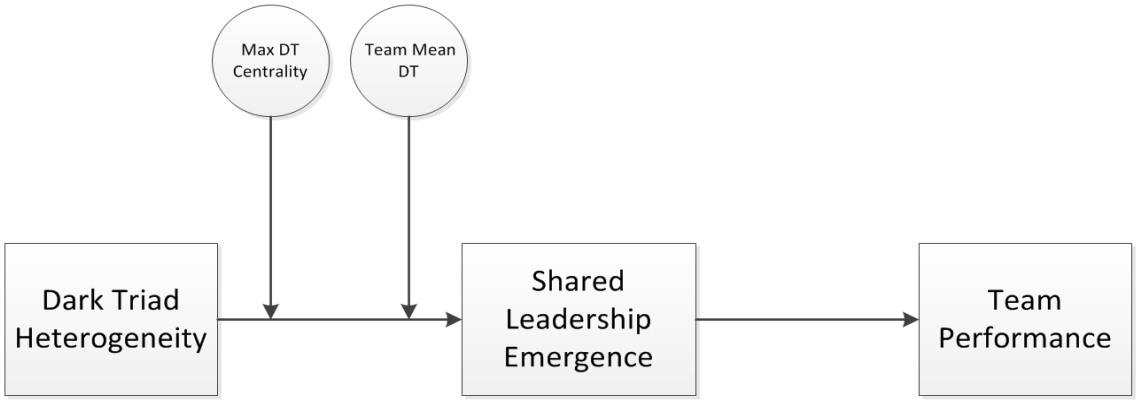


Figure 2: Proposed Mediation Model

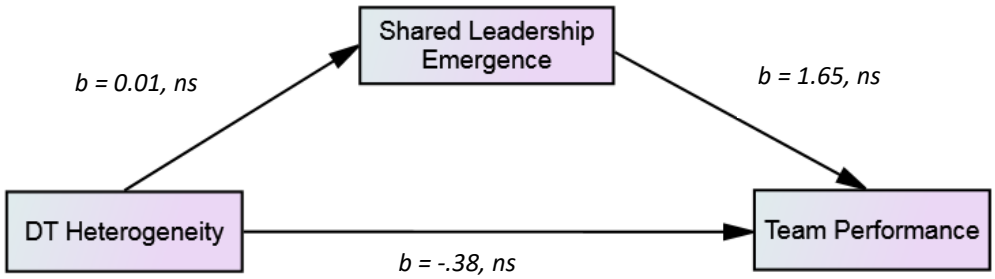


Figure 3: Moderating Effect of Team Mean Level Dark Personality on the Relationship between DT Heterogeneity and Shared Leadership Emergence while Controlling for Team Size, Big 5, and Number of Previous Ties

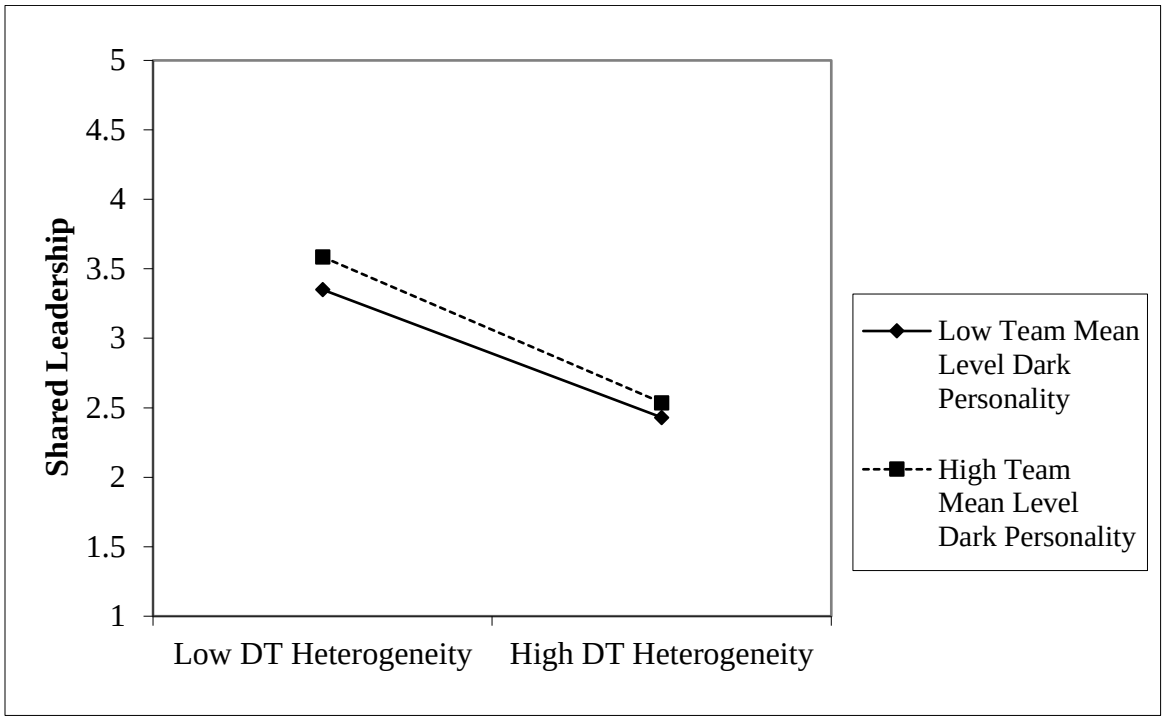


Figure 4: Moderating Effect of Team Mean Level Dark Personality on the Relationship between DT Heterogeneity and Shared Leadership Emergence without Controls

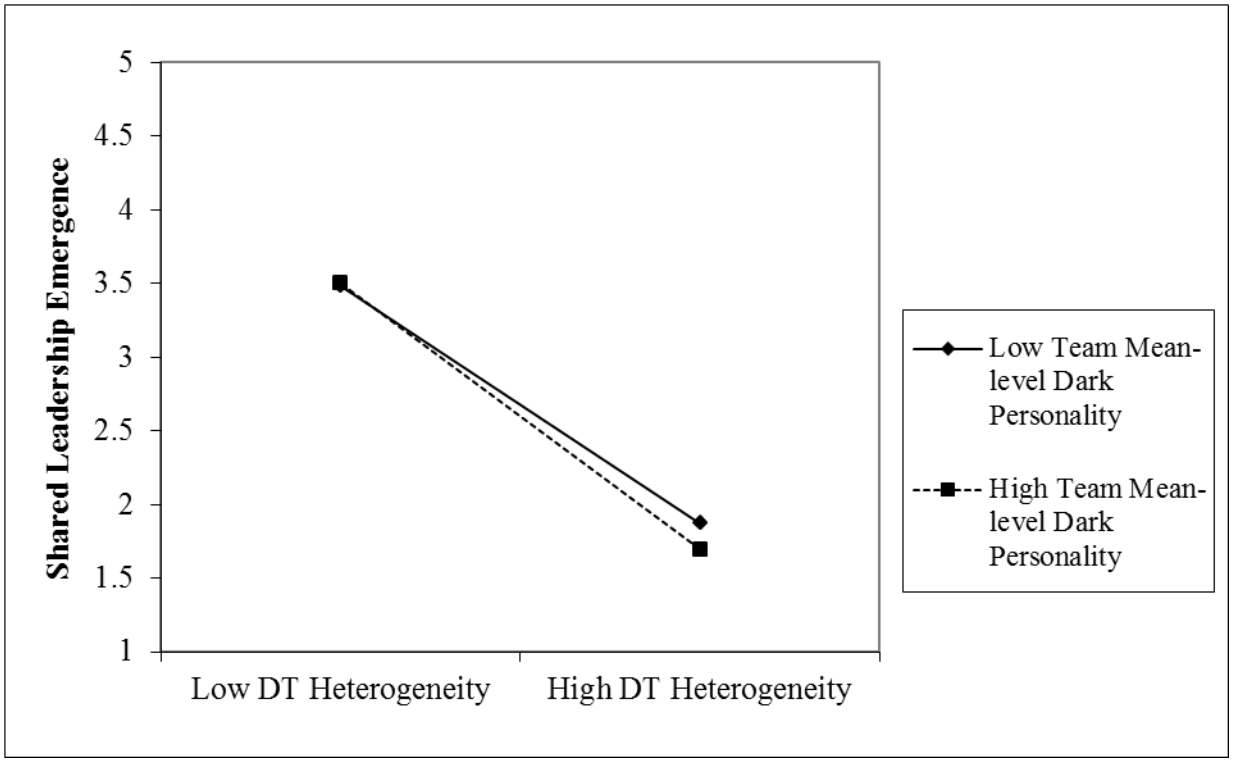


Figure 5: Moderating Effect of the Centrality of the Highest Rating DT Team Member on the Relationship between DT Heterogeneity and Shared Leadership Emergence while Controlling for Team Size, Big 5, and Number of Previous Ties

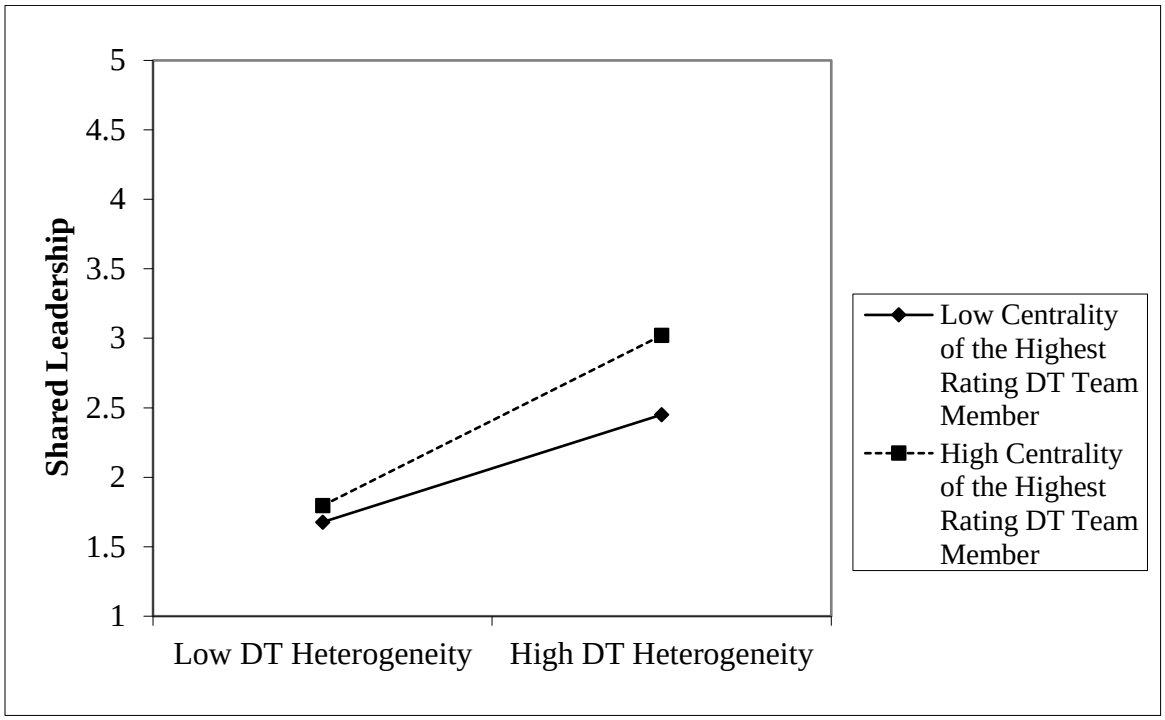


Figure 6: Moderating Effect of the Centrality of the Highest Rating DT Team Member on the Relationship between DT Heterogeneity and Shared Leadership Emergence without Controls

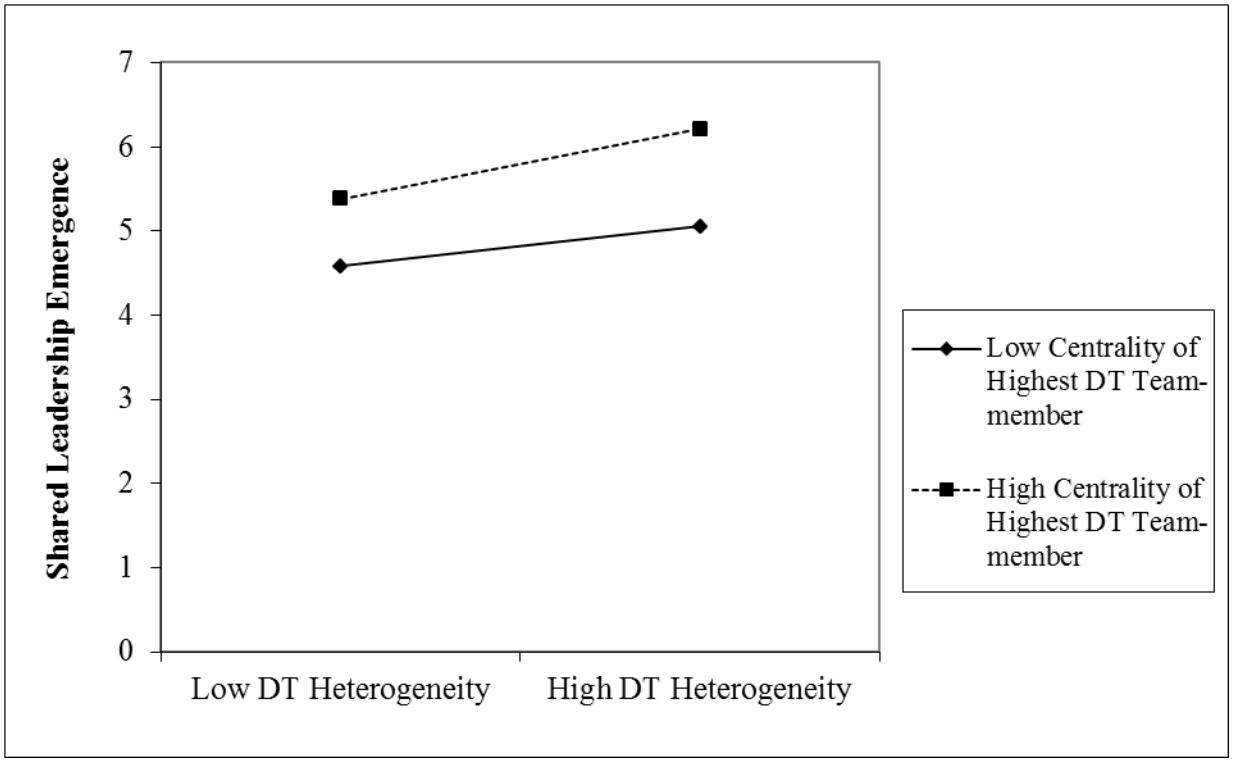


Figure 7: Distribution of Individual-Level Machiavellianism Scores (N=353)

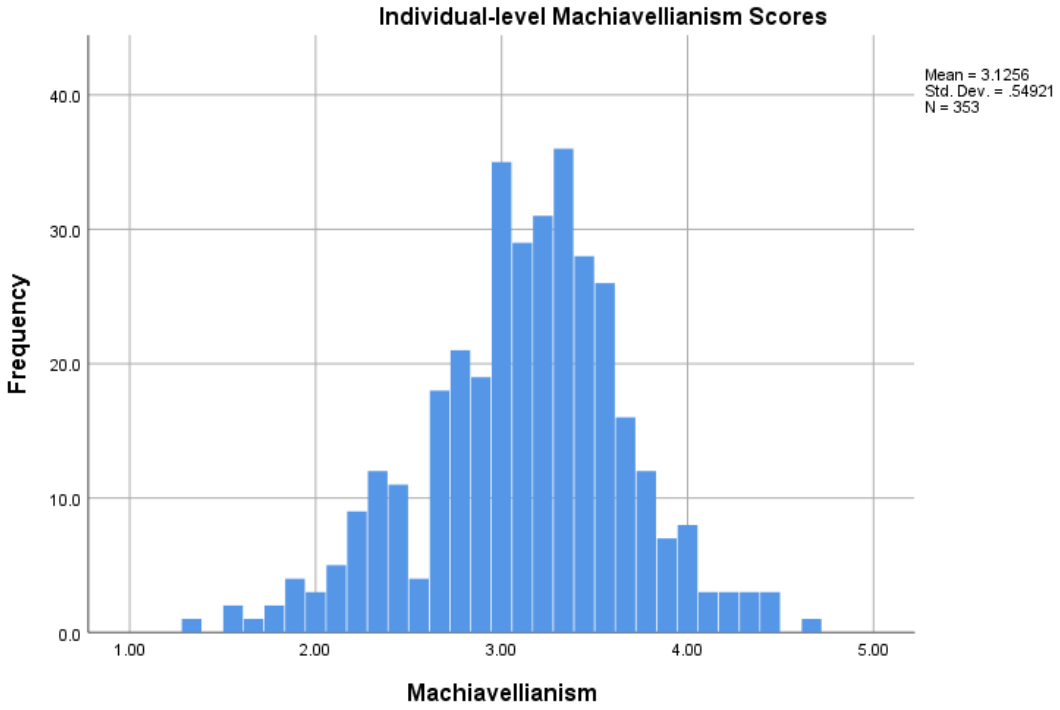


Figure 8: Distribution of Individual-Level Narcissism Scores (N=353)

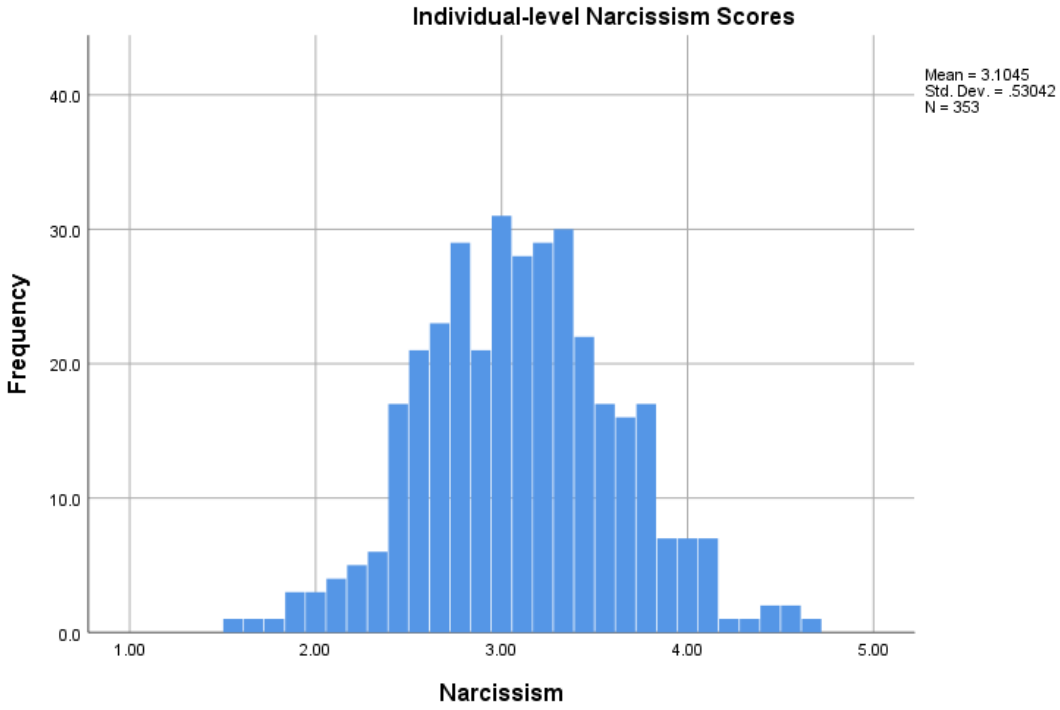


Figure 9: Distribution of Individual-Level Psychopathy Scores (N=353)

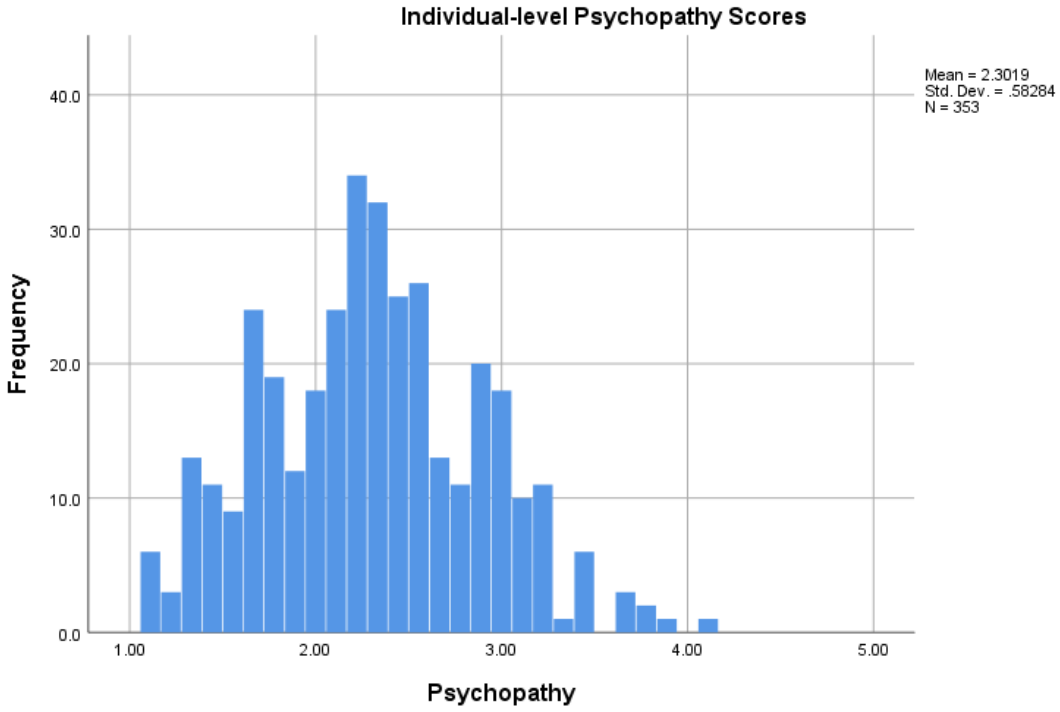
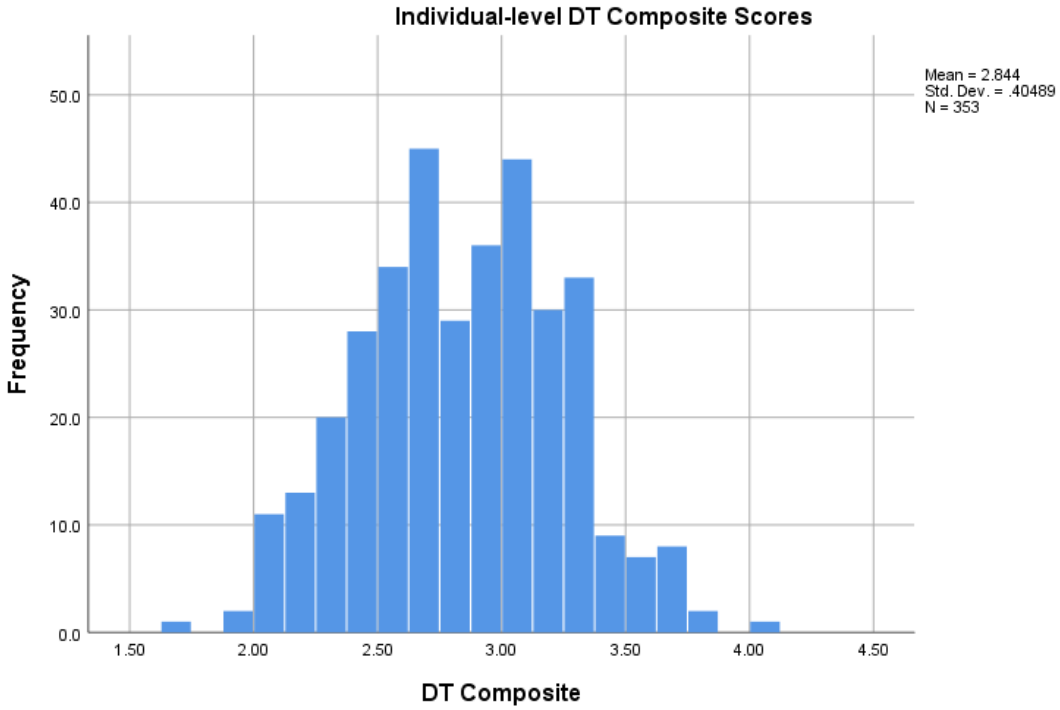


Figure 10: Distribution of Individual-Level DT Composite Scores (N=353)



APPENDIX D: Survey Items

Questionnaire

Dark Personality: SD3 Items

SD3MACH1	It's not wise to tell your secrets.
SD3MACH2	I like to use clever manipulation to get my way.
SD3MACH3	Whatever it takes, you must get the important people on your side.
SD3MACH4	Avoid direct conflict with others because they may be useful in the future.
SD3MACH5	It's wise to keep track of information that you can use against people later.
SD3MACH6	You should wait for the right time to get back at people.
SD3MACH7	There are things you should hide from other people to preserve your reputation.
SD3MACH8	Make sure your plans benefit yourself, not others.
SD3MACH9	Most people can be manipulated.
SD3NAR1	People see me as a natural leader.
SD3NAR2	I hate being the center of attention.
SD3NAR3	Many group activities tend to be dull without me.
SD3NAR4	I know that I am special because everyone keeps telling me so.
SD3NAR5	I like to get acquainted with important people.
SD3NAR6	I feel embarrassed if someone compliments me.
SD3NAR7	I have been compared to famous people.
SD3NAR8	I am an average person.
SD3NAR9	I insist on getting the respect I deserve.
SD3PSY1	I like to get revenge on authorities.
SD3PSY2	I avoid dangerous situations.
SD3PSY3	Payback needs to be quick and nasty.
SD3PSY4	People often say I'm out of control.
SD3PSY5	It's true that I can be mean to others.
SD3PSY6	People who mess with me always regret it.
SD3PSY7	I have never gotten into trouble with the law.
SD3PSY8	I enjoy having sex with people I hardly know.
SD3PSY9	I'll say anything to get what I want.

Five Factor Model: 10-Item Big Five Inventory (BFI)

EXT1	Is extraverted, enthusiastic
AGR1	Is critical, quarrelsome
CON1	Is dependable, self-disciplined
NEU1	Is anxious, easily upset
OPE1	Is open to new experiences, complex
EXT2	Is reserved, quite
AGR2	Is sympathetic, warm
CON2	Is disorganized, careless
NEU2	Is calm, emotionally stable
OPE2	Is conventional, uncreative

Please fill in the following information:

Before the start of this project, how many of your current team-members did you know or form connections with through **social activities**? _____

Before the start of this project, how many of your current team-members did you know or form connections with through **other school-related activities** (e.g., other projects in other classes)? _____

Which gender identity do you most identify with?
[ ] Woman
[ ] Man
[ ] Trans-woman
[ ] Trans-man
[ ] Gender non-conforming
[ ] Not listed _____

Age Group:
[ ] Less than 20
[ ] 20-24
[ ] 25-30
[ ] 31-35
[ ] Over 35

Education Level:
[ ] First year
[ ] Second year
[ ] Third year
[ ] Fourth year
[ ] Fifth year or more

Which racial or ethnic group(s) do you most identify with?
[ ] White
[ ] South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.)
[ ] Chinese
[ ] Black
[ ] Filipino
[ ] Latin American
[ ] Arab
[ ] Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian, etc.)
[ ] West Asian (e.g., Iranian, Afghan, etc.)
[ ] Korean
[ ] Japanese
[ ] Other _____

Program of Study:
[ ] Accounting
[ ] Finance
[ ] Marketing & Strategy
[ ] Human Resources
[ ] Information Systems
[ ] Operations Management
[ ] Commerce & Engineering
[ ] Other

Cumulative GPA:

Number of courses taken so far: _____