



Why and How does The Dark Triad Personality Influence Knowledge Hiding? A Generativity Perspective

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Abstract

Purpose

Drawing on the generativity framework, this study investigates the relationship between the Dark Triad personalities (Machiavellianism, narcissism, and psychopathy) and knowledge hiding. This study also identifies the mediating role of generativity motivation and the moderating role of focus on opportunities.

Design/methodology/approach

Using a convenience sample, a two-wave time-lagged study collected survey responses from 498 employees from manufacturing industries in China, and the data was analysed using hierarchal regression and bootstrapping methods.

Findings

This study found that Machiavellianism and psychopathy are both positively related to generativity motivation. The generativity motivation plays a mediating role in the paths of Machiavellianism and psychopathy on knowledge hiding, and a focus on opportunities positively moderates the direct and indirect effect of Machiavellianism and psychopathy on knowledge hiding.

Originality/value

Based on the generativity framework, we find a new underlying mechanism between the Dark Triad personalities and knowledge hiding, thereby further enriching the literature in relation to their influence over knowledge management. Moreover, it also finds that a

focus on opportunities can weaken the negative relationships between the Dark Triad personalities and knowledge hiding.

Introduction

Knowledge is an essential resource for organizational development and fostering a culture of knowledge sharing among employees is imperative for organizations to maintain their competitiveness (Wang and Noe, 2010). Unfortunately, recent studies indicated that 42% of employees had intentionally rejected knowledge sharing when requested by knowledge seekers, leading to a phenomenon known as knowledge hiding (Peng et al., 2022). Knowledge hiding has significant adverse effects on both organizations and individuals, as it hinders organizational creativity, task performance, and new product development performance (Evans *et al.*, 2015; Singh, 2019; Zhou *et al.*, 2016). Furthermore, knowledge hiding can trigger a negative revenge spiral between knowledge seekers and hiders, resulting in personal experiences of loss, frustration, and stress (Černe *et al.*, 2014). Therefore, addressing the issue of knowledge hiding is of utmost importance and warrants further research.

Literature on knowledge hiding always emphasizes the importance of motivation (Connelly *et al.*, 2019; Gagne *et al.*, 2019). Identifying the motivational factors that lead to knowledge-hiding can help organizations design effective strategies to reduce it (Kumar Jha and Varkkey, 2018). We therefore introduce the concept of generativity motivation, which describes the motivation to guide and support younger colleagues or subordinates to benefit the “future generation” (Kooij and Van De Voorde, 2011). Thomas and Tee (2022) found that people with strong generativity motivation were more likely to engage in knowledge-sharing behaviors, such as providing feedback, guiding, and educating others. Given that those with high generativity motivation are more likely to support others, we propose that individuals with high generativity motivation are less likely to engage in knowledge-hiding behaviors.

Doerwald and colleagues (2021) conducted a meta-analysis that integrated the antecedents and outcomes of generativity motivation to extend the generativity

framework originally created by McAdams and de St Aubin (1992). They argued that personality traits have the potential to shape generativity motivation, which in turn influences a range of work-related behaviors. In other words, the generativity framework incorporates a personality-motivation-behavior mechanism (Doerwald *et al.*, 2021). Based on the generativity framework, the personality variables of communion and agency are considered the primary drivers of generativity motivation as they represent two key influences, interpersonal interaction and individual psychological characteristics.

Communion emphasizes fostering relationships and social connections with others (Frimer *et al.*, 2011). Individuals exhibiting the Dark Triad personalities typically lack concern and empathy for others. Instead, they prioritize their interests and place personal goals above the well-being of others, often resulting in relationships characterized by coldness, selfishness, and exploitation (Helgeson, 1994). Consequently, individuals with the Dark Triad personalities tend to exhibit low levels of communion. Agency emphasizes individual proactivity and goal orientation (Frimer *et al.*, 2011). Individuals with Dark Triad personalities place themselves at the center of actions, driven by their own desires and objectives, and employ tactics such as manipulation, deception, and control to attain goals (Jonason and Fletcher, 2018). Those who have a strong self-interested tendency to pursue personal gain and power frequently exert negative influences on others (Rauthmann, 2012). As a result, individuals with the Dark Triad personalities tend to exhibit high levels of agency. Our study therefore aims to investigate how the Dark Triad personalities characterised by high levels of agency and low levels of communion affect generativity motivation, and how this, in turn, impacts knowledge-hiding behavior.

Despite prior studies having investigated the relationship between the Dark Triad and knowledge hiding, we believe that these understandings are not comprehensive enough. For instance, Pan *et al.* (2018) and Karim (2022) utilized psychological contract theory and social exchange theory, to argue that individuals with Dark Triad personalities do not adhere to the reciprocity principle and are more likely to engage in negative behaviors. Soral *et al.* (2022) used protection motivation theory to explain that the relationship and knowledge hiding could be considered a protective coping strategy. It can be seen that the existing research lacks a motivational perspective to explain why individuals with Dark Triad personalities engage in knowledge-hiding behavior. Furthermore, existing research does not incorporate the effect of personality on knowledge-hiding into an explanatory motivational framework, which is much needed.

There has been a dearth of empirical research and discussion regarding mitigation of the negative impact of Dark Triad personalities. This gap primarily stems from the inherent stability of the Dark Triad as personality traits, which makes them resistant to change (O'Boyle *et al.*, 2012). Therefore, our study focuses on moderating the strength of the negative relationship between Dark Triad personality traits and generativity motivation. As suggested by Doerwald *et al.* (2021), boundary conditions can be explored from a broader range under the generativity framework. A relevant cognitive concept related to age is "focus on opportunities", which describes how many new goals, options, and possibilities individuals expect to have in their personal work-related future (Zacher and Frese, 2009). Employees who are highly focused on opportunities tend to have a positive perspective on their future at work, anticipating new goals and possibilities, and adopting a broader and more open view of the future. Furthermore, employees are more likely to focus on personal growth and development,

investing their time and effort into pursuing long-term goals rather than seeking short-term gains through knowledge-hiding behavior (Zacher and Frese, 2011). Focusing on opportunities can weaken the negative impact of the Dark Triad and facilitate the promotion of generativity motivation. Therefore, this study fills this gap in the knowledge management literature by examining the moderating role of focus on opportunities.

We use the generativity framework to explain the mediating mechanism of knowledge-hiding behavior in experienced employees with the Dark Triad traits, and how the focus on opportunities weakens this effect, thus addressing the research gap. We propose our theoretical model, which can be seen in Figure 1.

Insert Figure 1 about here

With our study, we aim to make three contributions. Firstly, we explain the relationship between the Dark Triad and knowledge-hiding behavior from the generativity perspective and identify the mediating role of generativity motivation as an important variable, finding that the effective stimulation of age-related motivation can reduce knowledge-hiding. Secondly, a focus on opportunities represents an important age-related cognitive structure, mobilizing individual cognition to generate a more open-minded perspective about future career opportunities. This in turn can weaken the negative effect of the Dark Triad on generativity motivation, which is an encouraging finding. Thirdly, our study broadens the application of the generativity framework. To our knowledge, no empirical research has been conducted based on the generativity framework since it was proposed (Doerwald *et al.*, 2021). We examine the mediating

path of personality-motivation-behavior based on the generativity framework and test the application of this theoretical framework in the workplace.

Theoretical Background and Hypotheses Development

Generativity Framework

The concept of generativity forms part of Erikson’s Psychosocial Development Theory (Erikson, 1950), which considers generativity as the seventh of eight developmental tasks across the lifespan. Generativity primarily consists of motivations and behaviors that support and guide younger people and benefit “future generations”. McAdams and de St. Aubin (1992) proposed a multidimensional framework of generativity, suggesting that generativity motivation stems from a combination of agency needs (e.g., leaving a legacy), communal needs (e.g., nurturing young people), and external needs (e.g., society expects adults to increasingly invest resources in “future generations”). Generativity motivation is thought to foster commitments and behaviors aligned with activities such as mentoring or volunteering (Thomas and Tee, 2022).

Doerwald and colleagues (2021) extended the generativity framework to the workplace, defining generativity motivation as the extent to which employees motivate and provide support to younger colleagues or subordinates. They conducted a meta-analysis that integrated the antecedents and outcomes of generativity motivation to extend the generativity framework in the workplace. Generativity motivation is determined by both person-related and context-related antecedents and is associated with outcomes in at least three domains, including motivational, well-being, and career-related. This framework deepens understanding of the nomological network of generativity at work and establishes a causal model based on the cross-sectional data. In addition, the framework also takes into account the potential influence of age-related

variables in an age-diversity working context (Doerwald *et al.*, 2021). Thus, a comprehensive framework of the antecedents and outcomes of generativity motivation is constructed. When applied to our research questions, the generativity framework suggests that personality traits affect generativity motivation and subsequently lead to knowledge-hiding behavior. However, age-related variables can weaken the negative effects of mediating mechanisms, inhibit the negative effects of the Dark Triad and partially maintain the level of generativity motivation, ultimately reducing the negative effects of knowledge hiding.

The Dark Triad and Generativity

The Dark Triad refers to a set of three negative personality traits, which are Machiavellianism, narcissism, and psychopathy. These traits are characterized by manipulative behavior, low agreeableness, lack of empathy, selfishness, apathy, dishonesty, and disregard for social norms and reciprocity principles (Paulhus and Williams, 2002). The term “dark” is used to describe these traits because they are at odds with fundamental human needs such as the need for social interaction and cooperation (Van Vianen, 2018).

The generativity framework posits that agency and communion are personality traits that act as antecedents to generativity motivation (Doerwald *et al.*, 2021; McAdams and de St. Aubin, 1992). Agency refers to the self-related components of personality traits, including self-achievement, power, and status (Ackerman *et al.*, 2000). Communion refers to the other-related components of personality traits, such as being empathetic, helping and caring for others, and engaging in social responsibility (Pan *et al.*, 2017). The Dark Triad primarily reflects the characteristics of motivations and behaviors that are agency-related rather than communion-related (Paulhus and Williams, 2002). Specifically, those high in Machiavellianism are willing and able to

manipulate situations and deceive others in violation of moral norms, and they employ strategies to exploit circumstances and persons for their interests (Triki *et al.*, 2017).

Those high in narcissism are characterized by a strong desire to exhibit greatness to others, often through self-promotion and exaggeration. They may engage in dishonest behavior, seek status validation and admiration from others, and react negatively when they perceive criticism or rejection (Hart *et al.*, 2017). Those high in psychopathy are characterized by impulsive and antisocial behavior. They are often driven by a desire for immediate gratification which means they are less likely to form meaningful relationships, show empathy, or be loyal to others (Caponecchia *et al.*, 2012).

Individuals with any of these Dark Triad traits tend to prioritize agency-related characteristics such as power, status, and external attractiveness over communion-related characteristics such as empathy, sympathy, and care. They tend to focus on their own interests, ignore the impact of their behavior on others, and have little interest in interpersonal relationships, societal values, or pro-social behaviors (Muris *et al.*, 2017).

Personality psychology research has also confirmed that personality is a strong predictor of generativity motivation (Blatný *et al.*, 2019), which develops over time as individuals transition into adulthood and is characterized by a concern for others, generosity, and altruism. In contrast, the Dark Triad reflects an individual's innate and relatively stable tendencies to think, feel, and act in negative ways (LeBreton *et al.*, 2018). According to the Social Investment Principle of personality (SIP), individuals change their behavior as they experience new social roles, which in turn influences their generativity development. In other words, dependent upon their personalities, individuals invest differentially over time in activities that influence their generativity development (Hang *et al.*, 2023). However, it is considered that owing to the self-

focused nature of Dark Triad personalities, they are less likely to invest over time in generativity development. Thus, we propose the following:

Hypothesis 1: The Dark Triad personalities (a: Machiavellianism, b: narcissism, c: psychopathy) are negatively related to generativity motivation.

Generativity motivation and knowledge hiding

Knowledge hiding is the intentional retention or concealment of knowledge from knowledge seekers (Connelly *et al.*, 2012). There are three dimensions of knowledge hiding, each indicating a different strategy that individuals adopt to retain the desired knowledge. For example, they may appear to be ignorant of the requested knowledge (playing dumb); they may provide inaccurate information or misleading promises of future responses even though they are unwilling to respond (evasive hiding); or they may tell knowledge seekers there are restrictions on the information they can share or the information is subject to confidentiality clauses (rational hiding) (Connelly *et al.*, 2019). Knowledge hidiers may use one or more strategies to hide knowledge, but regardless of which strategy they use, the final result is that the knowledge is not provided to the other party as requested by the knowledge seekers (Gagné, 2009).

Generativity motivation is considered a goal related to caring for others, focusing on the attention and guidance of younger employees in the workplace, and caring about their well-being. Those with strong generativity motivation do not just focus on their own job responsibilities but instead, focus and prioritize attention towards younger employees (Thomas and Tee, 2022). They also care about relationships and growth with younger colleagues and emphasize cooperation, knowledge sharing, and helping others, rather than hiding knowledge (Arnold and Clark, 2016). In contrast, those with low generativity motivation resist cooperation (Kankanhalli *et al.*, 2005). They view knowledge as “power” and believe that sharing knowledge will lead to the

loss of power. Therefore, when faced with knowledge requests, they may hide important knowledge from their colleagues to ensure exclusivity of valuable knowledge, which will maintain their knowledge power and help them gain bargaining power in subsequent negotiations, as well as greater economic benefits (Skilton, 2009). Thus, we hypothesize the following:

Hypothesis 2: Generativity motivation is negatively related to knowledge hiding.

Based on the generativity framework, we investigate the role of personality traits as antecedents and knowledge hiding behavior as the outcome, and we develop a model with generativity motivation as a mediator. The individuals with Dark Triad personalities tend to prioritize their interests and adopt self-centered approaches, including a desire for power, status, and external attractiveness. They prioritize short-term instrumental communication and may reduce or even avoid social-emotional communication with others in order to maximize their own gains (Harrison *et al.*, 2018; O'Boyle *et al.*, 2012). These behaviors are in stark contrast to behaviors related to generativity motivation which include a concern for younger colleagues and a desire to establish emotional relationships with colleagues. Interactions driven by positive motivation lead to positive results, while interactions driven by negative motivation lead to negative results (García-Sánchez *et al.*, 2017). Previous research has shown that generativity motivation can motivate employees to engage in more proactive knowledge-receiving and knowledge-sharing behavior (Fasbender *et al.*, 2021). Therefore, we propose that the individuals with Dark Triad personalities have less generativity motivation and prefer to establish instrumental relationships with others thereby increasing their knowledge-hiding behavior.

Hypothesis 3: Generativity motivation mediates the relationship between (a) Machiavellianism, (b) narcissism, (c) psychopathy and knowledge hiding.

The moderating role of focus on opportunities

Focus on opportunities refers to how many goals, options, and possibilities individuals expect to have in their personal work-related futures (Zacher *et al.*, 2010). It represents a form of positive thinking toward the future (Zacher and Frese, 2011). The generativity framework suggests that age-related factors (e.g., psychological age, tenure, agency, communion) are crucial in activating generativity motivation and corresponding behaviors (Doerwald *et al.*, 2021). This provides a better understanding of the critical role that generativity motivation plays throughout the entire lifespan (Kim *et al.*, 2017). These factors can lead to many desirable work outcomes such as work motivation, organizational affective commitment, and work relationships which avoid negative behaviors (e.g., counterproductive behaviors) (Doerwald *et al.*, 2021). Hence, we suggest that a high level of focus on opportunities can reduce the negative effects of the Dark Triad on generativity motivation.

On the one hand, individuals highly focused on opportunities tend to be more optimistic, so they set higher expectations and have greater ambitions for their careers. They believe that their career futures are full of possibilities, and they have options, plans, and goals to pursue in the future. As a result, they can take on the long-term responsibility of managing their careers proactively (Henry and Desmette, 2018; Zacher and Rudolph, 2019). One of these responsibilities is to coach and support lower-level and younger employees (Fasbender and Gerpott, 2022). Thus, those who have a higher level of focus on opportunities would be willing to spend time and effort on helping co-workers. As a result, it can be seen that a focus on opportunities could thereby weaken the relationship between the Dark Triad and generativity motivation. Similarly, individuals who are highly focused on opportunities are mentally oriented toward the future and actively align themselves to overcome difficulties so that they can achieve their goals (Kooij *et al.*, 2018). Focusing on opportunities has a self-regulatory and self-

motivating effect, as it can aid in selecting and pursuing goals while increasing intrinsic motivation (Rudolph *et al.*, 2018). Therefore, we propose the following hypothesis:

Hypothesis 4: Focus on opportunities moderates the negative relationship between (a) Machiavellianism (b) narcissism (c) psychopathy and generativity motivation, such as the negative relationship will be stronger when employees have a lower focus on opportunities.

Based on Hypothesis 3 and Hypothesis 4, we propose a moderated mediation model in which generativity motivation mediates the indirect effects of Machiavellianism, narcissism, and psychopathy on knowledge-hiding behavior, but these indirect effects are moderated by the focus on opportunities. Compared to individuals with a lower focus on opportunities, those with a higher focus on opportunities can obtain and fully mobilize their emotional and cognitive resources for self-regulation, resulting in higher generativity motivation and thereby reducing the tendency to hide knowledge. Therefore, we propose the hypothesis of moderated mediating effect.

Hypothesis 5: Focus on opportunities moderates the indirect relationship between the Dark Triad (a: Machiavellianism; b: narcissism; c: psychopathy) and knowledge hiding via generativity motivation, such as the relationship will be stronger when employees have a lower focus on opportunities.

Method

Sample and procedure

We collected data from four manufacturing companies located in central China (Hunan Province and Jiangxi Province). These companies primarily engaged in the production of cables and automotive parts. According to the criteria set by the National Bureau of

Statistics of China (<http://www.stats.gov.cn/zs/tjws/tjbz>), these four companies are categorized as medium-sized enterprises, as they employ fewer than 1,000 individuals and generate annual revenues ranging from ¥ 20 million to ¥ 400 million. Before starting the study, we explained the purpose and methodology to the employees and ensured their anonymity during the survey. All participants in this study provided their informed consent before taking part in the study. Because generativity motivation is an age-related construct and therefore more commonly found in supervisors and experienced employees (Doerwald *et al.*, 2021), we chose participants who have been in the company for at least five years. We used offline questionnaires at two time points, which were each one month apart. At time 1, participants answered questions about the Dark Triad (Machiavellianism, narcissism, psychopathy), generativity motivation, focus on opportunities, and demographic variables. 1132 employees were invited to participate in the study at time 1, and 750 valid participants were returned (i.e., the response rate was 66.25%). One month later, knowledge hiding was measured at time 2, and a total of 498 employees responded (i.e., the response rate was 66.40%). We used the employees' unique job IDs to match these participants.

There was a higher proportion of males than females, with 60.5% of males and 39.5% of females among 498 employees. The ages ranged from 30 to 60, with the average age being 38.23 years old. 21.3% of the employees had an education level below college, 34.6% had a college degree, 39.7% had a bachelor's degree, and 3.9% had a master's degree or above. Their tenure ranged from 5 years to 42 years, and the average tenure was 15.46 years.

Measures

All study variables were assessed with scales consisting of multiple items. Participants responded on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

All variable measures were translated from English to Chinese using the translation back translation procedure (Brislin, 1980).

Dark Triad. We used the Dirty Dozen to assess the Dark Triad (Jonason and Webster, 2010). The Dirty Dozen measured three dark personality traits, Machiavellianism, narcissism, and psychopathy. A sample item for Machiavellianism included “I manipulate others to attain my goals”; a sample item for narcissism included “I tend to seek prestige and status”; and a sample item for psychopathy such as “I may be more cynical”. The Cronbach’s α for Machiavellianism, narcissism, and psychopathy were 0.86, 0.76, and 0.75 respectively.

Generativity motivation. Generativity motivation was measured using a three-item scale developed by Kooij and Van De Voorde (2011). A sample item included “How important is the opportunity to share your skills with younger people for you?”. The Cronbach’s α was 0.87.

Focus on opportunities. Focus on opportunities was measured by a three-item scale from Zacher and Frese (2009), which assessed the extent to which employees perceive available career opportunities. A sample item included “I think many opportunities await me in my occupational future”. The Cronbach’s α was 0.87.

Knowledge hiding. Self-report measures were appropriate because knowledge hiding behavior can be misinterpreted, and other people’s ratings may underestimate or overestimate its frequency (Connelly *et al.*, 2019; Jiang *et al.*, 2019). Knowledge hiding was measured by a 12-item scale and sample items included “When a colleague asks for certain information, I promise to tell him/her but don’t intend to do so”, “When a colleague asks for certain information, I will pretend not to understand what he/she is saying”. The Cronbach’s α was 0.93.

Control variables. To explain the variance in the dependent variables, we controlled for participants' gender (Pan *et al.*, 2018; Pradhan *et al.*, 2020), education (Zutshi *et al.*, 2021), tenure (Gagne *et al.*, 2019), chronological age (Fasbender *et al.*, 2019), and job rank (Liu *et al.*, 2020). These variables have been shown to affect generativity motivation and knowledge hiding based on previous studies. Controlling for certain variables can eliminate confounding bias (Bernierth and Aguinis, 2016).

Results

Confirmatory Factor Analysis

A confirmatory factor analysis model was built with all variables (including the Dark Triad, generativity motivation, focus on opportunities, and knowledge hiding) using Mplus 8.0. The results show that the model fits the data well. The goodness-of-fit statistics for the model were $\chi^2 = 1041.10$, RMSEA = 0.05, SRMR = 0.04, CFI = 0.96, TLI = 0.95. We compare our measurement model with other alternative CFA models (see Table 1).

Insert Table 1 about here

All items loaded onto their respective factors with ranges from 0.67 to 0.93, all exceeding the 0.6 threshold. The average extracted variance (AVE) ranged from 0.58 to 0.79, all exceeding the 0.5 threshold. While the composite reliability (CR) ranged from 0.84 to 0.97, all of them exceeded the 0.7 threshold (see Table 2). Convergent validity is determined by a combined assessment of factor loadings, CR, and AVE. That means convergent validity is good and meets Hair *et al.*'s (2010; 2014) standards.

Insert Table 2 about here

Descriptive statistics

Table 3 presents the means, standard deviations, correlations, and internal consistencies of the focal variables.

Insert Table 3 about here

Testing of hypotheses

Table 4 presents the results of the regression analyses. We mean-centered all the variables and created interaction terms before entering them into the equations as suggested by Alikin (1991). First, we tested Hypotheses 1a-1c and Hypothesis 2, then we tested the simple mediation model (Hypotheses 3a-3c). Third, we integrated the proposed moderator variable into the model and empirically tested the overall moderated mediation hypotheses (Hypotheses 4a-4c, Hypotheses 5a-5c).

Insert Table 4 about here

Specifically, Machiavellianism was negatively associated with generativity motivation ($\beta = -0.12, p < 0.01$) supporting Hypothesis 1a; Narcissism was not associated with generativity motivation ($\beta = 0.01, p > 0.1$) not supporting Hypothesis 1b; Psychopathy was negatively associated with generativity motivation ($\beta = -0.15, p <$

0.01) supporting Hypothesis 1c. Furthermore, generativity motivation was negatively associated with knowledge hiding ($\beta = -0.16, p < 0.01$) supporting Hypothesis 2.

Hypotheses 3a-3c proposed the mediating role of generativity motivation between the Dark Triad and knowledge-hiding behavior. As suggested by Preacher and Hayes (2008), the mediating effect was tested using the Process (version 4.0) provided by Hayes (2013) (we selected Model 4). To compute the confidence intervals (CIs) of indirect effects, we used the parameter-based Bootstrap method where the mediating effect held if the result did not contain 0. The results of the data analysis indicated that the mediating effect of generativity motivation on the relationship between Machiavellianism and knowledge hiding was significant at the 95% confidence interval for bias correction not containing 0 (LLCI = 0.0103, ULCI = 0.0531) and the mediating effect was 0.031, therefore Hypothesis 3a was supported. The mediating effect of generativity motivation on the relationship between narcissism and knowledge hiding was not significant at the 95% confidence interval for bias correction containing 0 (LLCI = -0.0180, ULCI = 0.0144), therefore Hypothesis 3b was not supported. The mediating effect of generativity motivation on the relationship between psychopathy and knowledge hiding was significant at the 95% confidence interval because bias correction did not contain 0 (LLCI = 0.0077, ULCI = 0.0548), indicating the significant mediating effect of generativity motivation on the relationship between psychopathy and knowledge hiding, with the mediating effect of 0.03. Therefore, Hypothesis 3c was supported.

Hypotheses 4a-4c predicted the moderating role of focus on opportunities in the relationship of the Dark Triad and generativity motivation, and the results are shown in [Table 5](#).

Insert Table 5 about here

Focus on opportunities positively moderated the relationship between Machiavellianism and generativity motivation ($effect = 0.0588$, 95% CI = [0.0014, 0.1162]) meaning Hypothesis 4a was supported. Focus on opportunities did not positively moderate the relationship between narcissism and generativity motivation ($effect = 0.0456$, 95% CI = [-0.0010, 0.1162]) meaning Hypothesis 4b was not supported. Focus on opportunities positively moderated the relationship between psychopathy and generativity motivation ($effect = 0.075$, $p = 0.005$, 95% CI = [0.023, 0.1271]) meaning Hypothesis 4c was supported. In order to better test the effect of the value of a specific focus on opportunities (i.e., one standard deviation above and below the mean), we plotted Figure 2, Figure 3, Figure 4, further to verify Hypotheses 4a-4c.

Insert Figures 2, 3 and 4 about here

Hypotheses 5a-5c predicted the moderating role of focus on opportunities in the indirect relationship between the Dark Triad and knowledge hiding. The results of the hypothesis tests are shown in Table 6, Hypothesis 5a and Hypothesis 5c were supported because the differences between the two estimated indirect effects of Machiavellianism on knowledge hiding (95% CI = [-0.0282, -0.0001]) and psychopathy on knowledge hiding (95% CI = [-0.297, -0.011]) were significant. Hypothesis 5b was not supported and the indirect effect of narcissism on knowledge hiding (95% CI = [-0.0372, 0.0022]) was not significant.

Insert Table 6 about here

Discussion

Drawing on the generativity framework, this study sought to extend knowledge management and generativity motivation literature by examining how and when the Dark Triad individuals engage in knowledge hiding. We found that Machiavellianism and psychopathy positively influence knowledge hiding respectively. Besides, generativity motivation mediates the relationship between Machiavellianism and knowledge hiding and the relationship between psychopathy and knowledge hiding. Furthermore, the focus on opportunities moderated the relationship between Machiavellianism and psychopathy and knowledge hiding, as well as the indirect effects of Machiavellianism and psychopathy on knowledge hiding via generativity motivation. However, the positive relationship between narcissism and knowledge hiding was not significant. Therefore, the mediating role of generativity motivation between narcissism and knowledge hiding, as well as the moderating role of focus on opportunities on the indirect effects of narcissism on knowledge hiding were not supported. One plausible explanation is that the trait of narcissism differs from Machiavellianism and psychopathy as it encompasses both positive and negative aspects (Smith *et al.*, 2018), narcissistic individuals may not engage in negative behaviors for impression management motives (Hart *et al.*, 2019). Additionally, previous research has demonstrated that narcissism did not have a direct effect on employees' behaviors, it depended on situational factors (Smith *et al.*, 2016). In conclusion, our study extended the research on knowledge hiding, shedding light on the motivational mechanisms that connect the Dark Triad traits with knowledge hiding.

Theoretical and practical implications

There are three primary theoretical implications of our findings. First, using the generativity framework as the lens, we further elaborate on the relationship between the Dark Triad and knowledge hiding. The existing literature on how employee motivation affects knowledge hiding is very limited and has only been studied in terms of avoidance motivation and prosocial motivation (Babič *et al.*, 2019; Wang *et al.*, 2019). However, both Gange (2019) and Connly (2019) argued that the motivational antecedents regarding knowledge hiding are undeveloped and need to be further explored. Our findings expand motivational antecedents of knowledge hiding and deepen the call for knowledge-hiding research.

Second, we find that focus on opportunities moderates the negative relationship between the Dark Triad and generativity motivation and weakens the indirect effects of the Dark Triad on knowledge hiding through generativity motivation. Focus on opportunities is considered an important cognitive approach throughout the entire lifespan (Kooij and Van De Voorde, 2011; Zacher and Frese, 2009), and those with high levels of focus on opportunities appear to be more likely to remain concentrated and healthy and they tend to have excellent work outcomes (Rudolph *et al.*, 2018). Our study emphasizes the importance of focusing on opportunities, and this age-related cognitive variable can weaken the negative effects of the Dark Triad.

Third, to our knowledge, this study is the first empirical examination of the generativity framework. Doerwald *et al.* (2021) developed a generativity framework focused specifically on the workplace based on a meta-analysis but it has not yet been examined further. Fasbender *et al.* (2021) found that generativity motivation affects the bidirectional knowledge transfer between younger and older employees. To some extent, it illustrates the impact of generativity motivation on knowledge-related outcomes. Our study builds on the work of Doerwald *et al.*, (2021) by empirically

testing Dark Triad personality variables and their relationship with knowledge hiding, by demonstrating that generativity motivation is an important mediator, thereby confirming the usability of the generativity framework in the workplace.

Practical implications

Overall, there are also two important practical implications of our study. Firstly, we should focus on enhancing employees' generativity motivation, developing a sense of importance and dependence on the organization, and making employees feel a strong connection to the organization by giving them an understanding of the significance of their working environment, thereby making them feel responsible for the organization and their colleagues (Serrat *et al.*, 2018). Furthermore, companies could design jobs that offer mentorship and training opportunities, as well as express a company's focus on generativity (Grant *et al.*, 2010), such as mentoring, leading, or organizing CSR events. In conclusion, more attention should be paid to generativity motivation because it is beneficial for employees' growth and organizational development which in turn reduces knowledge-hiding.

Secondly, to further weaken the influence of the Dark Triad on knowledge hiding, organizations should encourage employees to focus on opportunities, and individuals should adopt a more open-minded approach toward their future careers. For instance, companies can offer comprehensive development opportunities for employees from all backgrounds, as well as focus on the future career goals of individuals. HR departments should take into account not only the company's development needs but also the individual's career development plans and goals when conducting organization and talent review (OTR) and align them with the company's needs. In addition, interventions such as mentoring activities by leaders, consistent coaching for employee

development, and goal setting may also be helpful to increase focus on opportunities (Thomas and Tee, 2022).

Limitations and directions for future research

Future research may develop in different directions. First, although we suggest generativity motivation as a mediator between the Dark Triad and knowledge hiding, the relationship may vary across firms in different sectors. For example, state-owned organizations usually have higher job security and mandatory mentoring systems and are less likely to engage in knowledge hiding compared to private firms (Serenko and Choo, 2020). Therefore, a comparative study could be conducted to examine the mediating effects in various types of organizations. This would help to shed light on the generalizability and robustness of our findings.

Second, knowledge-hiding antecedents can be analyzed from other motivational perspectives, such as emotional motivations or pro-social motivations (Wiktorowicz *et al.*, 2022). Additionally, there are many other time-related factors, such as the “GATE” proposed by North (2019), or different conceptions of age, such as subjective age and psychological age (Kooij *et al.*, 2008). Incorporating these factors theoretically may allow researchers and practitioners to be more informed in their management practices. Therefore, future research could explore these factors and their relationships with knowledge hiding to gain a more comprehensive perspective on this phenomenon.

Third, we may not be able to account for the potential influence of culture and context on the results of the study, which was drawn from a Chinese sample, which may differ from individuals in the Western world in terms of values, preferences, attitudes, and behaviors. Just as generative motivation is higher in regions with a strong collectivist cultural climate (Wiktorowicz *et al.*, 2022), it is for these reasons that models developed and tested in the Chinese context may not always be applicable to

other regions (Palvia *et al.*, 2017). Hence, we advocate for future research to explore and incorporate diverse cultural perspectives. Testing the model in different cultural contexts can provide a more comprehensive understanding of the phenomena under investigation.

Finally, although we collected data at different points, the fact we collected data via survey from only one data source (i.e., the perceptions of employees) limits our ability to draw conclusions about causality and may have resulted in response bias. Future research could therefore implement experimental design for the theoretical model or data could be collected from different sources.

Conclusion

Despite the negative effects of the Dark Triad personalities on employees' behaviors and attitudes, limited attention has been paid to how and when the Dark Triad personalities influence knowledge-hiding behaviors. To illuminate this unexplored motivational mechanism, we developed a moderated mediation model and empirically examined the model based on the generativity framework. The findings reveal that the Dark Triad (Machiavellianism and psychopathy) decreases personal generativity motivation, which, in turn, stimulates knowledge hiding. Furthermore, a focus on opportunities moderates the negative relationship between the Dark Triad (Machiavellianism and psychopathy) and knowledge hiding, which in turn is mediated by generativity motivation. This research has the potential to provide valuable insights for both practitioners and researchers, offering nuanced knowledge to enhance generativity motivation and foster an environment conducive to reducing knowledge hiding.

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Figure 1. The proposed theoretical model.

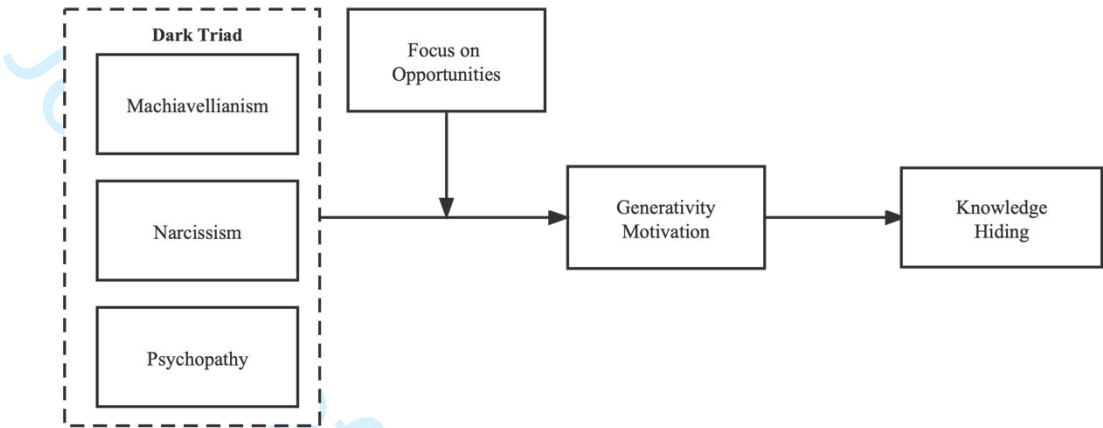


Figure 2. The moderating effect of focus on opportunities on the relationship between Machiavellianism and generativity motivation.

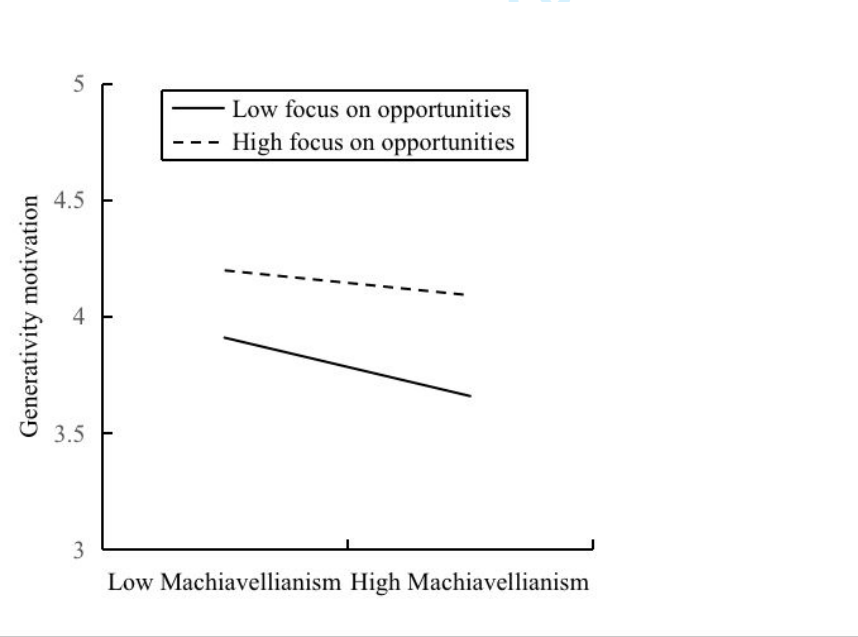


Figure 3. The moderating effect of focus on opportunities on the relationship between narcissism and generativity motivation.

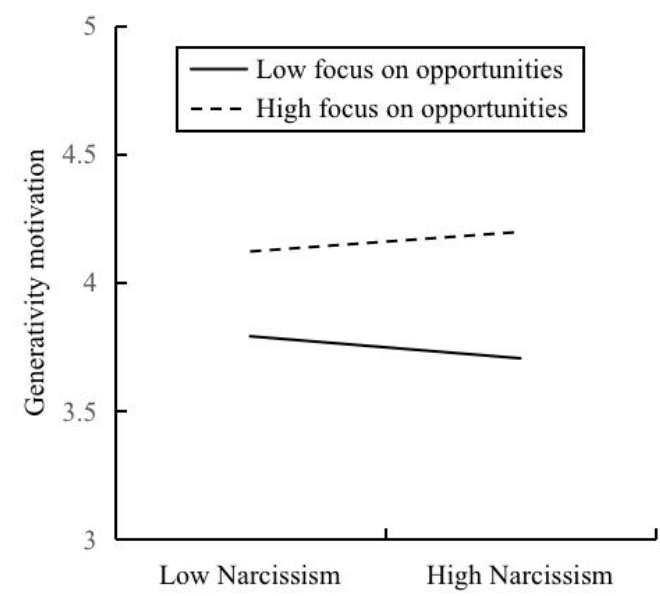


Figure 4. The moderating effect of focus on opportunities on the relationship between psychopathy and generativity motivation.

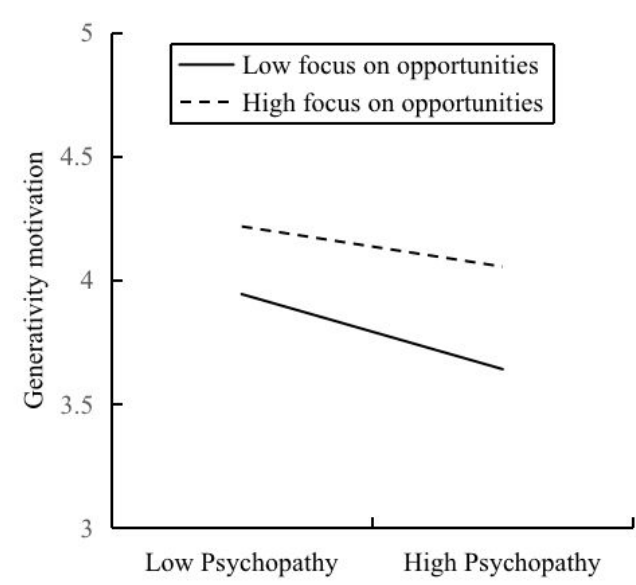


Table 1. Comparison of the measurement model.

Models	χ^2	χ^2/df	RMSEA	SRMR	CFI	TLI
The hypothesized model	1041.10	2.72	0.05	0.04	0.96	0.95
Three-factor model (focus on opportunities and generativity motivation combined)	3617.58	8.99	0.10	0.08	0.78	0.76
Three-factor model (the Dark Triad and knowledge hiding combined)	3822.45	9.51	0.11	0.10	0.75	0.76
Two-factor model (focus on opportunities, generativity motivation, and knowledge hiding combined)	4911.64	12.16	0.12	0.11	0.69	0.67
One-factor model (all four constructs combined)	7693.61	18.99	0.16	0.15	0.50	0.46

Note. χ^2 = chi-square; df = degrees of freedom; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; CFI =comparative fit index; TLI = Tucker-Lewis index. All models are compared with the hypothesized model.

Table 2. Factor loadings.

Construct	Items	Factor loading range	AVE	CR
Machiavellianism	4	0.71-0.84	0.72	0.91
Narcissism	4	0.74-0.79	0.58	0.84
Psychopathy	4	0.67-0.84	0.58	0.85
Focus on opportunity	3	0.84-0.92	0.78	0.91
Generativity motivation	3	0.84-0.91	0.79	0.92
Knowledge hiding	12	0.74-0.93	0.74	0.97

Note. AVE = average variance extracted; CR = composite reliability

Table 3. Means, standard deviations, correlations, and internal consistencies of variables.

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1.Gender	1.40	.49	-										
2.Education	2.26	.84	.12**										
3.Rank	1.41	.69	-.07	.32**									
4.Age (years)	38.23	6.72	-.10*	-.25**	0.15**								
5.Tenure (years)	15.46	6.85	-.08	-2.9**	-.14**	0.79**							
6.Machiavellianism	2.01	.79	-.13**	-.01	-.02	-.10*	-.10*	(0.86)					
7.Narcissism	3.49	1.10	-.03	.20**	.12**	-.12**	-.11**	.34**	(0.75)				
8.Psychopathy	2.11	.80	-.14**	-.03	-.01	-.01	-0.02	.75**	.28**	(0.73)			
9.Focus on opportunities	5.31	.88	-.05	.10*	.12**	-.16**	-.13**	-.21**	.12**	-.23**	(0.85)		
10.Generativity motivation	4.00	.53	-.02	-.03	.18**	.08	.08	-.24**	.03	-.30**	.36**	(0.87)	
11.Knowledge hiding	1.80	.79	-.10**	.08	.04	-.04	-.04	.36**	.16**	.34**	-.17**	-.17**	(0.92)

Note. *N* = 498, Gender was coded as 1 for male and 2 for female. Education was coded as 1= below college 2= college degree 3= bachelor's degree 4= graduate degree or above; Rank was coded as 1= general staff 2 = low-level managers 3 = middle-level managers 4= high-level managers
Cronbach's alphas are presented in diagonal. * *p* < .05. ** *p* < .01.

Table 4. Unstandardized coefficient estimates for the hypothesized model.

Variables	Generativity motivation						Knowledge hiding					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	<i>Estimate</i>	SE	<i>Estimate</i>	SE	<i>Estimate</i>	SE	<i>Estimate</i>	SE	<i>Estimate</i>	SE	<i>Estimate</i>	SE
Intercept	3.85**	.20	4.29**	.22	3.81**	.20	4.00**	.19	2.20**	.31	2.50**	.40
Gender	-.01	.48	-.03	.05	.03	.05	-.06	.50	-.19**	.07	-.10	.07
Education	-.05	-.03	-.04	.03	-.05	.03	-.05	.03	.08	.05	.07	.04
Class	.15**	.37	.15**	.04	.14**	.04	.13**	.04	.02	.06	.06	.05
Age	.01	.01	.01	.01	.02	.02	.01	.01	-.01	0.01	-.01	.01
Tenure	.01	.01	.01	.01	.01	.06	.01	.01			.01	.01
Machiavellianism			-.12**	.23							.19**	.05
Interaction ^a			.06*	.02								
Narcissism					.01	.02					.03	.04
Interaction ^b					.07**	.03						
Psychopathy							-.15**	.02			.10*	.05
Interaction ^c							.07**	.02				
Generativity motivation											-.16**	.07
R^2	.04		.10		.06		.14		.02		.17	
ΔR^2			.06***		.02**		.10**				.15***	

Note: Interaction a = Machiavellianism * focus on opportunities

Interaction b = Narcissism * focus on opportunities

Interaction c = Psychopathy * focus on opportunities

Table 5. Results of moderated mediation analysis.

Level of focus on opportunities	Effect	SE	95% Bias-corrected bootstrap confidence interval
Machiavellianism - Knowledge hiding			
Simple paths for low focus on opportunities	.03	.01	[.01, .06]
Simple paths for high focus on opportunities	.01	.01	[-.01, .03]
Narcissism - Knowledge hiding			
Simple paths for low focus on opportunities	.02	.01	[.00, 0.05]
Simple paths for high focus on opportunities	-.01	.01	[-.03, 0.10]
Psychopathy - Knowledge hiding			
Simple paths for low focus on opportunities	.03	.01	[.01, .06]
Simple paths for high focus on opportunities	.01	.01	[.00, .03]

Table 6 Index of moderated mediation.

	Effect	Boot SE	Boot LLCL	Boot ULCL
Machiavellianism →Generativity motivation → Knowledge hiding	-.01	.01	-.03	.00
Narcissism →Generativity motivation→ Knowledge hiding	-.01	.01	-.04	.01
Psychopathy →Generativity motivation→ Knowledge hiding	-.01	.01	-.03	-.01

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3 **Why and How Does the Dark Triad Personality Influence Knowledge Hiding? A**
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5 **Generativity Perspective**
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8 *Revision of Journal of Knowledge Management (Manuscript ID JKM-06-2023-0489)*
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12 Dear Professor Manlio Del Giudice,
13

14 Thank you for providing us with the opportunity to revise and resubmit our
15 manuscript for potential publication in the *Journal of Knowledge Management*. We are
16 especially grateful for the helpful comments that you and each reviewer offered. In the
17 revised manuscript, we have attempted to address each comment raised by the reviewers
18 and made substantial changes to the manuscript.
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26 On the following pages, we provide detailed responses to each comment (the
27 original reviewer comments are highlighted in **bold text**; our responses are shown in
28 standard text. We also highlighted revisions on the manuscript in **blue**. We sincerely
29 look forward to your further feedback and thank you for your help.
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35 The author team.
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Responses to Reviewer 1

General Comments: While China is a well-developed country, a more expansive view may be necessary. This is a well thought out paper. However, there are leaps of positive quotes that seem to take away from the premise of the paper. While a major revision is not noted, a minor revision to think through thoroughly why the tenets are selected and how they mesh with knowledge management would be important here.

Reply: Thank you for taking the time to review our manuscript and for providing valuable feedback. We understand your concern about the positive quotes within the paper possibly detracting from its premise. In response, we have carefully reassessed the placement and frequency of these quotes. Our aim is to ensure that they enhance the overall argument rather than overshadow the main points. Furthermore, your suggestion to thoroughly examine the selected tenets and their alignment with knowledge management is well-taken. We have explicitly outlined how these tenets interconnect with knowledge management principles, emphasizing their relevance and significance in the context of our paper. Below is our response addressing the points you raised.

First of all, in the first paragraph of the introduction, the negative effect of knowledge hiding has been pointed out at the outset, deleting “Although knowledge hiding can help employees maintain their competitive advantage in the short term, it will undermine their creativity and status, and reduce performance in the long term”, and replacing with “Knowledge hiding has significant adverse effects on both organizations and individuals, as it hinders organizational creativity, task performance, and new product development performance (Evans *et al.*, 2015; Singh, 2019; Zhou *et al.*, 2016)” Changing these positive quotes facilitates maintaining the same logic throughout the manuscript, please refer to page 3.

Second, we have taken care to elaborate on the domain of knowledge management when proposing both mediation and moderation in the introduction. Please see page 5 for details.

Finally, we have provided a more refined discussion of how the conclusions contribute to the literature on knowledge management in the discussion section. Please refer to pages 18-19.

Comment 1. Originality: Does the paper contain new and significant information adequate to justify publication?

Yes, the idea of bringing together a method of historical figures coupled with other disciplines is a good solid approach to adding to the knowledge management literature.

Reply 1: We deeply appreciate your favorable evaluation of the originality of our manuscript. Incorporating your general comment, we have undertaken a comprehensive revision to enhance its reflection of the originality.

Comment 2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?

Yes, it covers and expands the literature well.

Reply 2: We sincerely appreciate your comment on our paper's relationship to the literature. Taking into consideration your other comments, we have made additional contributions to the literature by expanding upon the Introduction and Discussion sections. These augmentations, highlighted in blue within the original version, aim to further enrich the scholarly discourse in the field (Please see the references section).

Comment 3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?

Somewhat limited since the study was only based in China. A broader spectrum would be necessary to ensure validity and reliability.

Reply 3: We are thankful for your comment on the methodology employed in our manuscript. We acknowledge the importance of enhancing the validity and reliability of our findings and make the following modifications regarding this point.

Firstly, in accordance with Brislin's back-translation process (Brislin, 1970), all scales were rigorously translated to ensure linguistic accuracy and cultural equivalence. Initially, an experienced management professor translated the scales from English to Chinese. Subsequently, another management professor proficient in both languages performed the reverse translation from Chinese to English. To further enhance the accuracy, two management doctoral students collaboratively scrutinized the divergences between the translated versions. By meticulously adhering to this rigorous methodology, the reliability and validity of the scales were effectively established for cross-cultural applicability (Brislin, 1980).

Secondly, these scales included in this manuscript have undergone testing within the Chinese contexts, demonstrating good reliability and validity, as summarized in Table 1_r.

Table 1_r. Reliability and validity of scales in Chinese contexts

Variables	Sample size	Sample source	Cronbach' α	Citation
Dark Triad	450	China	Machiavellian (0.94)	Zhuang <i>et al.</i> , 2022
			Psychopathy (0.88)	
			Narcissism (0.93)	
	303	China	Machiavellian (0.73)	Liu <i>et al.</i> , 2021
			Psychopathy (0.73)	
			Narcissism (0.70)	
Focus on opportunity	416	China	0.88 (study1)	Yeung and Ho, 2020
	268		0.80 (study2)	
	199	China	0.82	Ho and Yeung, 2016
Generativity motivation	339	China	0.92	Hu <i>et al.</i> , 2020
	223	China	0.85	Yang (2021)
Knowledge hiding	296	China	0.97	Long <i>et al.</i> , 2023
	754	China	0.88	Liao <i>et al.</i> , 2023

Thirdly, to dispel your consideration, we have added the AVE and CR metrics,

which can be seen on page 16 and page 33 and added the following text:

“All items loaded onto their respective factors with ranges from 0.67 to 0.93, all exceeding the 0.6 threshold. The average extracted variance (AVE) ranged from 0.58 to 0.79, all exceeding the 0.5 threshold. While the composite reliability (CR) ranged from 0.84 to 0.97, all of them exceeded the 0.7 threshold (see Table 2). Convergent validity is determined by a combined assessment of factor loadings, CR, and AVE. That means convergent validity is good and meets Hair et al.'s (2010; 2014) standards.”

Table 2. Factor loading.

Construct	Items	Factor loading range	AVE	CR
Machiavellianism	4	0.71-0.84	0.72	0.91
Narcissism	4	0.74-0.79	0.58	0.84
Psychopathy	4	0.67-0.84	0.58	0.85
Focus on opportunity	3	0.84-0.92	0.78	0.91
Generativity motivation	3	0.84-0.91	0.79	0.92
Knowledge hiding	12	0.74-0.93	0.74	0.97

Note. AVE = average variance extracted; CR = composite reliability

Finally, we have highlighted the limitations, underscoring that the implications of the findings are most pertinent to the Chinese and East Asian cultural context. The generalizability of these results to other Western countries necessitates careful reconsideration, and we have re-written on pages 22-23.

“Third, we may not be able to account for the potential influence of culture and context on the results of the study, which was drawn from a Chinese sample, which may differ from individuals in the Western world in terms of values, preferences, attitudes, and behaviors. Just as generative motivation is higher in regions with a strong collectivist cultural climate (Wiktorowicz *et al.*, 2022), it is for these reasons that models developed and tested in the Chinese context may not always be applicable to other regions (Palvia *et al.*, 2017). Hence, we advocate for future research to explore and incorporate diverse cultural perspectives. Testing the model in different cultural contexts can provide a more comprehensive understanding of the phenomena under investigation.”

References:

Brislin, R.W., (1970). "Back-translation for cross-cultural research", *Journal of Cross-Cultural Psychology*, Vol.1 No.3, pp.185-216.

Hair, J.F. Jr., Sarstedt, M., Hopkins, L. and Kuppelwieser, V.G. (2014), "Partial least squares structural equation modeling (PLS-SEM): an emerging tool in business research", *European Business Review*, Vol. 26 No. 2, pp. 106-121.

Hair, J.F., Sarstedt, M., Ringle, C.M. and Mena, J.A. (2012), "An assessment of the use of partial least squares structural equation modeling in marketing research", *Journal of the Academy of Marketing Science*, Vol. 40 No. 3, pp. 414-433.

Ho, H. C., and Yeung, D. Y. (2016). "Effects of occupational future time perspective on managing stressful work situations ", *International Journal of Psychology*, Vol.51 No.4, pp.261-268.

Liao, G., Li, M., Li, Y. and Yin, J. (2023), "How does knowledge hiding play a role in the relationship between leader-member exchange differentiation and employee creativity? A cross-level model", *Journal of Knowledge Management*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JKM-01-2023-0046>.

Liu, P., Li, X., Li, A., Wang, X. and Xiong, G., (2021), "How third parties respond to workplace incivility: the moderating role of the dark triad and task interdependence", *Personality and individual differences*, Vol.171, pp.110427.

Long, J., Liu, H. and Shen, Z. (2023), "Narcissistic rivalry and admiration and knowledge hiding: mediating roles of emotional exhaustion and interpersonal trust", *Journal of Knowledge Management*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JKM-11-2022-0860>.

Palvia, P., Jacks, T., Ghosh, J., Licker, P., Romm-Livermore, C., Serenko, A. and Turan, A.H. (2017), "The World IT Project: history, trials, tribulations, lessons, and recommendations", *Communications of the Association for Information Systems*, Vol. 41, pp. 389-413.

Wiktorowicz, J., Warwas, I., Turek, D. and Kuchciak, I., (2022), "Does generativity matter? A meta-analysis on individual work outcomes", *European Journal of Ageing*, Vol.19, No.4, pp.977-995.

Yang, B. (2021), "A study on knowledge sharing motivation of older employees in organizations: a perspective of social-emotional selectivity theory", unpublished doctoral dissertation, Central China Normal University, Wuhan.

Yeung, D.Y. and Ho, A.K.K., (2020), "Focus on opportunities or limitations? Their effects on older workers' conflict management ", *Frontiers in Psychology*, Vol.11, pp.571874.

Zhuang, W.L., Wu, S.C., Wang, L.H. and Huan, T.C., (2022), "Exploring the relationship between the Dark Triad personality traits and voice behaviour of hotel employees with the moderating effect of intention to leave ", *International Journal of Hospitality Management*, Vol.107, pp.103294.

Comment 4. Results: Are results presented clearly and analysed appropriately?

Do the conclusions adequately tie together the other elements of the paper?

Somewhat clear. Some extrapolations such as positive impacts of knowledge management when the study addressed the negative impact based on the tenets of the study.

Reply 4: We are grateful for your feedback regarding the presentation of results and the clarity of our conclusions. we have carefully re-evaluated our results and conclusions to ensure that they accurately reflect the tenets and scope of the study.

The primary relationships investigated in this study can be summarized as follows: firstly, the Dark Triad personalities are positively related to knowledge hiding (**main effect**); secondly, the Dark Triad personalities are negatively related to generativity motivation, and generativity motivation is negatively related to knowledge hiding (**indirect effect**); finally, focus on opportunities moderates these indirect relationships (**moderate effect**). Due to the complex nature of these effects, they might present challenges in terms of clarity. To enhance the comprehensibility of the results, we have added a paragraph describing the overall conclusions (see pages 19-20), allowing reviewers and readers to swiftly grasp the essential conclusions from this paper.

“Drawing on the generativity framework, this study sought to extend knowledge management and generativity motivation literature by examining how and when the Dark Triad individuals engage in knowledge hiding. We found that Machiavellianism and psychopathy positively influence knowledge hiding respectively. Besides, generativity motivation mediates the relationship between Machiavellianism and knowledge hiding and the relationship between psychopathy and knowledge hiding. Furthermore, the focus on opportunities moderated the relationship between Machiavellianism and psychopathy and knowledge hiding, as well as the indirect effects

of Machiavellianism and psychopathy on knowledge hiding via generativity motivation. However, the positive relationship between narcissism and knowledge hiding was not significant. Therefore, the mediating role of generativity motivation between narcissism and knowledge hiding, as well as the moderating role of focus on opportunities on the indirect effects of narcissism on knowledge hiding were not supported. One plausible explanation is that the trait of narcissism differs from Machiavellianism and psychopathy as it encompasses both positive and negative aspects (Smith *et al.*, 2018), narcissistic individuals may not engage in negative behaviors for impression management motives (Hart *et al.*, 2019). Additionally, previous research has demonstrated that narcissism did not have a direct effect on employees' behaviors, it depended on situational factors (Smith *et al.*, 2016). In conclusion, our study extended the research on knowledge hiding, shedding light on the motivational mechanisms that connect the Dark Triad traits with knowledge hiding."

References:

- Hart, W., Breeden, C. J., and Richardson, K. (2019), "Differentiating dark personalities on impression management", *Personality and Individual Differences*, Vol.147, pp. 58-62.
- Smith, M. B., Craig Wallace, J., and Jordan, P. (2016), "When the dark ones become darker: How promotion focus moderates the effects of the dark triad on supervisor performance ratings", *Journal of Organizational Behavior*, Vol.37, No. 2, pp. 236-254.
- Smith, M. B., Hill, A. D., Wallace, J. C., Recendes, T., and Judge, T. A. (2018). "Upsides to dark and downsides to bright personality: A multidomain review and future research agenda". *Journal of Management*, Vol.44, No.1, pp. 191-217.

Comment 5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact

upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?

Well received. This may be a potentially well cited article.

Reply 5. Thank you for your positive comments.

Comment 6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.

This paper is academically responsive to journal writing. The purpose needs further development. It is unclear whether the authors want to talk about the negative impact of knowledge management, the positive impact, or the mediating factors for one or the other.

Reply 6. We focus most of all on addressing the mediating role that generativity motivation plays in the relationship between the Dark Triad and knowledge hiding, and in conjunction with your fourth comment, we have rewritten the concluding section (see page 23) and emphasized the contribution to the field of knowledge management.

“Despite the negative effects of the Dark Triad personalities on employees’ behaviors and attitudes, limited attention has been paid to how and when the Dark Triad personalities influence knowledge-hiding behaviors. To illuminate this unexplored motivational mechanism, we developed a moderated mediation model and empirically examined the model based on the generativity framework. The findings reveal that the Dark Triad (Machiavellianism and psychopathy) decreases personal generativity motivation, which, in turn, stimulates knowledge hiding. Furthermore, a focus on opportunities moderates the negative relationship between the Dark Triad

(Machiavellianism and psychopathy) and knowledge hiding, which in turn is mediated by generativity motivation. This research has the potential to provide valuable insights for both practitioners and researchers, offering nuanced knowledge to enhance generativity motivation and foster an environment conducive to reducing knowledge hiding.”

Your comments are insightful and invaluable. Once again, we appreciate your thoughtful feedback.

Responses to Reviewer 2

General Comments: Thank you for your paper, I really enjoyed reading it. It provides a deep and thoughtful insight into particular working environment and applies theory into practice. There are some minor amendments to make, mainly where I wanted to know more about the specific context, but overall this is a well written paper.

Reply: We extend our sincere gratitude for your positive feedback on our manuscript. We have focused on adding the specific context of the study for clarification.

In our revisions, we paid specific attention to:

First, in the introduction section, our main focus lies in providing a detailed description of the integration context with Knowledge Management (refer to page 3 and page 5).

Second, in the methodology section, we have enriched the manuscript with detailed specifics about the participating companies. This addition is intended to enhance the accessibility of background information, ensuring both you and the readers can swiftly grasp a comprehensive understanding (refer to pages 13-14).

Besides, we have added a discussion section to more fully address the implications for theory and practice (see pages 18-19).

Thank you for your time and thoughtful review.

Comment 1. Originality: Does the paper contain new and significant information adequate to justify publication?

By focusing on a specific context, in this case Central China, the paper does provide an original insight to the relationship between dark triad dimension, opportunities, motivation, and knowledge hiding. The research in this paper

provides a detailed and deep view of a specific situation. On this basis publication is justified.

Reply 1. We are genuinely appreciative of your comment on the originality of our manuscript. China is becoming a major knowledge-based economy (Li *et al.*, 2022), utilizing a variety of information technologies, innovation, higher education, and specialized skills to create, disseminate, and use knowledge for growth. For this to happen, it is necessary to promote the exchange of knowledge, and therefore the hiding of knowledge in this country is a common phenomenon, and it is necessary to understand its possible causes.

Reference:

Li, J., Rim, G.N. and An, C.J., (2022), "Comparative study of knowledge-based economic strength between China and the USA". *Journal of the Knowledge Economy*, pp.1-37.

Comment 2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?

The literature is based on wide reading and includes many current references that allow a contemporary discussion on the topic. The literature is well-written and provides a reasoned discussion to underpin the research undertaken for this paper.

One minor point. Firstly, as this paper is set in the manufacturing industry in Central China, a brief introduction to the context would be helpful. A short paragraph outlining the nature of the industry and location would help the reader understand the background to the research findings.

Reply 2. Thank you for your comment. We chose the manufacturing industry as the research background mainly because of the highly specialized nature of the manufacturing industry, which tends to have special processes, technologies, and

production methods that require employees to possess specialized skills and knowledge related to them, which provides a feasible research background for studying knowledge hiding. We have added relevant content about the nature of the industry and location on page 13.

Comment 3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?

The methodology is clear and, through references, links to good practice. On page 13 it says the questionnaire was distributed to several manufacturing companies. A little more detail on these would be helpful to understand the size and nature of the organisation in relation to the research. By stating each hypothesis after the relevant literature, it is clear that this paper is based on appropriate theory and that these concepts are being tested within the questionnaire.

Reply 3. Thank you for your rigorous consideration. We recognize the importance of offering a clearer picture of the size and nature of these organizations in relation to our research. We incorporate this information to enhance the reader's understanding of our study's context (Please refer to page 13).

“We collected data from four manufacturing companies located in central China (Hunan Province and Jiangxi Province). These companies primarily engaged in the production of cables and automotive parts. According to the criteria set by the National Bureau of Statistics of China (<http://www.stats.gov.cn/zs/tjws/tjbz>), these four companies are categorized as medium-sized enterprises, as they employ fewer than

1,000 individuals and generate annual revenues ranging from ¥ 20 million to ¥ 400 million.”

Comment 4. Results: Are results presented clearly and analysed appropriately?

Do the conclusions adequately tie together the other elements of the paper?

The results comprise a series of tables and a supporting figure followed by a discussion. You need to look at where the tables are placed in relation to the discussion. The discussion does bring the paper together as clear links are made back to the literature review and the findings. The sections also allow clear identification of the implications for both theory and management practice. The conclusion is a little brief and could perhaps emphasise in more detail the key outcomes of this paper.

Reply 4. Thank you for pointing out this problem in the manuscript. Firstly, we have reviewed the manuscript to ensure that the placement of tables and the discussion is more coherent, ensuring that the presentation and analysis of results flows more smoothly. Secondly, we have added to the discussion section to make the discussion presentation more complete (pages 18-19). Thirdly, we have expanded the conclusion section (page 24) to provide a more detailed summary of the key findings of this paper and emphasize their significance to meet your expectations. This will help better tie the results to the other sections of the manuscript.

“Drawing on the generativity framework, this study sought to extend knowledge management and generativity motivation literature by examining how and when the Dark Triad individuals engage in knowledge hiding. We found that Machiavellianism and psychopathy positively influence knowledge hiding respectively. Besides, generativity motivation mediates the relationship between Machiavellianism and

knowledge hiding and the relationship between psychopathy and knowledge hiding. Furthermore, the focus on opportunities moderated the relationship between Machiavellianism and psychopathy and knowledge hiding, as well as the indirect effects of Machiavellianism and psychopathy on knowledge hiding via generativity motivation. However, the positive relationship between narcissism and knowledge hiding was not significant. Therefore, the mediating role of generativity motivation between narcissism and knowledge hiding, as well as the moderating role of focus on opportunities on the indirect effects of narcissism on knowledge hiding were not supported. One plausible explanation is that the trait of narcissism differs from Machiavellianism and psychopathy as it encompasses both positive and negative aspects (Smith *et al.*, 2018), narcissistic individuals may not engage in negative behaviors for impression management motives (Hart *et al.*, 2019). Additionally, previous research has demonstrated that narcissism did not have a direct effect on employees' behaviors, it depended on situational factors (Smith *et al.*, 2016). In conclusion, our study extended the research on knowledge hiding, shedding light on the motivational mechanisms that connect the Dark Triad traits with knowledge hiding."

"Despite the negative effects of the Dark Triad personalities on employees' behaviors and attitudes, limited attention has been paid to how and when the Dark Triad personalities influence knowledge-hiding behaviors. To illuminate this unexplored motivational mechanism, we developed a moderated mediation model and empirically examined the model based on the generativity framework. The findings reveal that the Dark Triad (Machiavellianism and psychopathy) decreases personal generativity motivation, which, in turn, stimulates knowledge hiding. Furthermore, a focus on opportunities moderates the negative relationship between the Dark Triad (Machiavellianism and psychopathy) and knowledge hiding, which in turn is mediated

by generativity motivation. This research has the potential to provide valuable insights for both practitioners and researchers, offering nuanced knowledge to enhance generativity motivation and foster an environment conducive to reducing knowledge hiding.”

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- Smith, M. B., Hill, A. D., Wallace, J. C., Recendes, T., and Judge, T. A. (2018). "Upsides to dark and downsides to bright personality: A multidomain review and future research agenda". *Journal of Management*, Vol.44, No.1, pp. 191-217.

Comment 5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?

The paper recognises that these findings relate to the manufacturing industry in Central China and are not generalisable to other situations. However, through the discussion and the points raised regarding the implications for theory and management practice, I feel that employees working in other sectors and countries, could reflect on this in relation to their own circumstances. The findings on the relationship between the dark triad dimension, focus on opportunities, generativity

motivation, and knowledge hiding could be developed and applied to other settings therefore allowing the research to have a wider impact.

Reply 5. Thanks for your comment, we totally understand the reviewer’s concern. We have emphasized the constraints of geographic and cultural contexts in the research limitations section. Please refer to page 23.

“Third, we may not be able to account for the potential influence of culture and context on the results of the study, which was drawn from a Chinese sample, which may differ from individuals in the Western world in terms of values, preferences, attitudes, and behaviors. Just as generative motivation is higher in regions with a strong collectivist cultural climate (Wiktorowicz *et al.*, 2022), it is for these reasons that models developed and tested in the Chinese context may not always be applicable to other regions (Palvia *et al.*, 2017). Hence, we advocate for future research to explore and incorporate diverse cultural perspectives. Testing the model in different cultural contexts can provide a more comprehensive understanding of the phenomena under investigation.”

References:

Palvia, P., Jacks, T., Ghosh, J., Licker, P., Romm-Livermore, C., Serenko, A. and Turan, A.H. (2017), "The World IT Project: history, trials, tribulations, lessons, and recommendations", *Communications of the Association for Information Systems*, Vol. 41, pp. 389-413.

Wiktorowicz, J., Warwas, I., Turek, D. and Kuchciak, I., (2022), "Does generativity matter? A meta-analysis on individual work outcomes", *European Journal of Ageing*, Vol.19, No.4, pp.977-995.

Comment 6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.

The paper is well written and easy to read. It is logically structured, develops a clear argument, and it is effectively backed up with references. No alterations need to be made in terms of style and structure.

Reply 6. Thank you for your positive comments! We have carefully checked the whole manuscript again and corrected some minor errors accordingly.

We would like to thank you again for taking the time to review our manuscript and we hope you will be satisfied with our revised version.