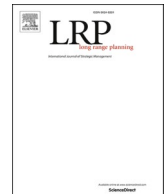




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How paradoxical leaders guide their followers to embrace paradox: Cognitive and behavioral mechanisms of paradox mindset development

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ABSTRACT

Organizational members must constantly confront and manage numerous paradoxical tensions inherent in organizational life, such as exploration and exploitation. Although prior research suggests that a paradox mindset helps individuals navigate such tensions, we know little about how paradoxical leaders might engender such a mindset in their followers. To shed light on this issue, we differentiate between cognitive and behavioral influences on followers' paradox mindset development. Drawing on primary data from 273 employees, our study indicates that the two influences are interrelated, with behavioral mechanisms mediating the effects of cognitive mechanisms. Our study advances extant theory by providing insights into how paradoxical leaders guide employees to situationally engage with specific paradoxical tensions and influence followers' paradox mindset in general.

1. Introduction

What I hear, I forget.

What I see, I remember.

What I do, I learn.

(Chinese Proverb)

Employees in modern organizations are increasingly facing paradoxical tensions (Lewis, 2000), such as exploration versus exploitation (March, 1991). Recent research (Miron-Spektor et al., 2018) has found enduring differences between individuals' proclivity and ability to manage these "persistent contradictions between interdependent elements" (Smith and Lewis, 2011: 381): Individuals with a *paradox mindset* detect, cognitively represent, and engage with paradoxical tensions in their environment. In contrast to paradoxical frames, which emerge from nudges in the environment (e.g., task-framing to prime more paradoxical cognition; Miron-Spektor et al., 2011), paradox mindset refers to an individual-level factor, which determines how effectively individuals manage paradoxical tensions (Miron-Spektor et al., 2018).

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Paradox mindset can be alternatively understood as a rather malleable state or an early-formed and relatively fixed trait. Initial research has built on the latter view (e.g., Liu et al., 2020; Miron-Spektor et al., 2018) and, for example, suggested early cultural imprinting as an explanation for how paradoxical mindset as a trait emerges (Keller et al., 2017). Foundational psychological theory, however, suggests that mindsets are malleable (Dweck, 2006). In line with this observation, emerging research has begun to develop a state perspective of paradox mindset (Zheng et al., 2018). Given the surging interest in paradox mindset, this perspective offers the potential to answer one of the foundational challenges of paradox theory: “if paradoxical thinking can be taught, we need to clarify what might be some of the best ways to do so” (Schad et al., 2016: 41).

In order to further develop a potential state perspective on paradox mindset, understanding antecedents and drivers of paradox mindset becomes increasingly important. Initial research (Zheng et al., 2018) focusing on the development of paradox mindset in female leaders has, for example, theorized on individual-level antecedents, such as openness to experience, and on organizational-level drivers such as climate or gender representation. However, there is still little theory explaining how leaders may help their followers develop a paradox mindset. Prior research is limited to introducing mindset as a moderator for the organizational-level effects of paradoxical leadership (Pan, 2021). Gaining a better understanding of the mechanisms that allow leaders to develop a paradox mindset amongst their followers appears important, as prior research emphasizes leaders’ crucial relevance for determining organizational responses to paradoxes (Knight and Paroutis, 2017; Smith and Tushman, 2005).

In order to understand how leaders influence followers’ paradox mindset, we differentiate between cognitive (e.g., Blackwell et al., 2007) and behavioral (e.g., Aronson et al., 2002) influences on paradox mindset development. On the one hand, paradoxical leaders may directly affect the cognitive foundations of followers’ paradox mindset. For example, they can increase the salience of paradoxical tensions (Knight and Paroutis, 2017) and build the confidence in employees to productively work through tensions (Shao et al., 2019). On the other hand, paradoxical leaders can instruct followers to engage in paradoxical behavior, for example by assigning both explorative and exploitative tasks (Rosing et al., 2011). We predict that both mechanisms are related to followers’ paradox mindset and that the behavioral influences mediate the effect exerted by the cognitive influences.

We draw on primary data from 273 employees of four Central European companies to empirically test our hypotheses. Empirically, our study follows prior research to develop paradox theory by studying the concrete tensions between exploration and exploitation (e.g., Leung et al., 2018; Miron-Spektor et al., 2011; Smith, 2014). Our results support our hypotheses that experiencing paradoxical leadership is associated with a paradox mindset, but that the effect of paradoxical leadership is fully mediated by followers’ engagement in paradoxical tasks.

Our results have important implications for both theory and practice. For theory, we contribute to an emerging state-perspective on paradox mindset. Specifically, we introduce leadership as an antecedent of paradox mindset development and elucidate cognitive and behavioral influences through which paradoxical leaders might shape followers’ paradox mindset. Furthermore, we find that the effect of paradoxical leadership on followers’ paradox mindset is fully mediated through follower engagement in paradoxical tasks. This suggests that followers do not tend to learn paradox mindset from a persuasive role model, but, rather, need to engage in paradoxical behavior and learn paradox mindset by *doing*. In addition, our insights also advance our understanding of the mechanisms through which paradoxical leaders affect follower outcomes. Finally, our results hint at the possibility that a paradox mindset not only leads to more paradoxical behavior, but that paradoxical behavior may also be associated with the development of a stronger paradox mindset. If further supported by future research, this would call into question linear conceptualizations of mindset and behavior within paradox research. In contrast, recursive, causal loops between the two might warrant further investigation.

2. Theory

2.1. Paradox theory

Paradox theory draws from the rich conceptual background provided by thinkers such as Aristotle, Hegel, Freud, and Kierkegaard (cf. Chen, 2008; Hampden-Turner, 1981; Harris, 1996; Smith and Berg, 1987) to reflect on modern challenges posed by seemingly irreconcilable demands. Paradoxes are defined as persistent contradictions between interdependent elements (Schad et al., 2016). They can generally be categorized into four types of paradoxical tensions: learning (e.g., exploration versus exploitation), performing (e.g., social versus financial), belonging (e.g., individual versus collective), and organizing (e.g., control versus flexibility) (Smith and Lewis, 2011). In organizations, over-emphasizing one side of a paradox fuels vicious cycles of reinforcement (Tsoukas and Cunha, 2017) and, ultimately, spurs organizational decline (Sundaramurthy and Lewis, 2003).

Paradox theory replaces the choice between competing demands from contingency theory with the insight that these demands are often interrelated in a persistent relationship over time. For example, exploration creates capabilities that later can be exploited, whereas exploitation creates the resources necessary to fund exploration. Accordingly, choosing between competing demands is impossible. Instead, a dynamic equilibrium (Smith and Lewis, 2011) between the opposing poles of a paradox is required to create long-term viability. This, in turn, necessitates a paradigm shift away from strategic choices between alternatives and towards embracing the unity of opposites. Organizations that are able to achieve this paradoxical orientation frequently show enhanced long-term performance and sustainability (e.g., Chung and Beamish, 2010; Schmitt and Raisch, 2013; Smith et al., 2011). Besides organizational-level structures and contexts (Raisch et al., 2009), researchers have emphasized the crucial role of individual employees in managing paradoxical tensions (Gibson and Birkinshaw, 2004; Mom et al., 2009).

2.2. Paradox mindset

Recently, paradox mindset was introduced to capture the notion of inter-individual differences in paradoxical thinking (Miron-Spektor et al., 2018). A paradox mindset is conceptualized as a proclivity for accepting, valuing, and proactively integrating paradoxical tensions irrespective of the specific tension type (Miron-Spektor et al., 2018). Extant research shows that paradox mindset shapes the way people perceive and make sense of paradoxical tensions. Instead of perceiving these tensions as dilemmas, a paradox mindset “shifts expectations from rationality and linearity to accepting paradoxes as persistent and unsolvable puzzles” (Smith and Lewis, 2011: 385). Furthermore, paradox mindset has been found to moderate the effects of paradoxical tensions, such as exploration and exploitation, on performance. While high paradoxical tensions have a positive impact on the performance of employees with a high paradox mindset, they appear to have a negative effect for those with a low paradox mindset (Miron-Spektor et al., 2018).

The construct of paradox mindset extends earlier research on paradoxical frames (Keller et al., 2017; Miron-Spektor et al., 2011). Paradoxical frames refer to nudges in the environment, such as changing the framing of experimental tasks in order to increase the saliency of paradoxical tensions (Miron-Spektor et al., 2011). In contrast, paradox mindset refers to a general tendency within the individual rather than a cue in the environment. Furthermore, paradox mindset also captures the emotional reaction to paradoxical tensions, such as feeling uplifted, energized, and comfortable (Miron-Spektor et al., 2018). While prior research has largely focused on the nature and effects of paradox mindset, it remains to be determined whether paradox mindset is a relatively fixed trait, which is culturally imprinted (Keller et al., 2017), or a more malleable state which can be learned (Zheng et al., 2018).

In developing a state perspective on paradox mindset, researchers have begun to analyze antecedents of paradox mindset. In this endeavor, they have argued for individual-level antecedents and drivers in the organizational context (Zheng et al., 2018). Interestingly, while leadership has been discussed as an important antecedent of paradoxical behaviors (Knight and Paroutis, 2017; Liu et al., 2020), we have yet to develop theory on the question if and how leadership may be associated with the development of a paradox mindset in followers. Researchers interested in other forms of mindset have documented that these may purposefully be developed through leadership. The underlying mechanisms can thereby broadly be categorized into cognitive and behavioral influences.

Cognitive influences directly change followers’ mindsets by persuasively presenting new perspectives about the object of the mindset. For example, Blackwell et al. (2007) changed the mindset of students towards a growth mindset of intelligence during an eight-week course that explained the mechanisms of neural plasticity. Chiu et al. (1997) appealed to authority by presenting students with a scientific article that argued compellingly for either a fixed or a malleable view of intelligence to change mindsets.

Behavioral influences can serve as another angle to change followers’ mindsets. This is based on insights from dissonance and self-perception theories, which outline that behaving in a way that demonstrates commitment to a given attitude fosters that attitude (e.g., Higgins and Rholes, 1978). An illustration of this principle is the well-known foot-in-the-door technique (Freedman and Fraser, 1966): To get people to do something costly, one should first get them to do something smaller that is consistent with the costly behavior. The desire to perceive themselves as consistent and be perceived as such by others makes individuals more likely to internalize this attitude (Burger, 1999). Building on this interaction between behavior and cognition, social psychological studies use behavior changes to nurture mindsets. For example, Aronson et al. (2002) had students write to pen pals about how intelligence is developed over time in order to increase their own growth mindset of intelligence. While these more general studies suggest that leaders can have an impact on followers’ mindset, we still know little about if and how these mechanisms also apply for paradox mindset.

2.3. Paradoxical leadership

Researchers have extensively studied how leaders may engage in behaviors that are “contradictory, yet interrelated, to meet competing workplace demands simultaneously and over time” (Zhang et al., 2015: 538). Although different dimensions of such paradoxical leadership behaviors have been studied, a substantial share of research has looked at how leadership behaviors are related to managing learning tensions between exploration and exploitation (Rosing et al., 2011) as “a key example of strategic paradoxes” (Smith, 2014: 1593). For example, paradoxical leaders may engage in opening leadership behaviors, which stimulate exploration, and closing leadership behaviors, which enforce discipline and exploitation (Rosing et al., 2011). The ability to reconcile and simultaneously pursue exploration and exploitation is referred to as ambidexterity and can be held by an organization (Tushman and O’Reilly, 1996), a team (Jansen et al., 2016), or an individual leader (Mom et al., 2009).

Research on paradoxical leadership has provided important insights regarding its effect on desirable employee outcomes such as proficiency, proactivity, and team innovation (Zacher and Rosing, 2015; Zhang et al., 2015). However, little is known so far if paradoxical leadership is also related to followers’ paradox mindset. We address this question by developing hypotheses about the interplay of leaders’ cognitive and behavioral influences on paradox mindset development. We also illustrate our conceptual arguments by means of the learning paradox between exploration and exploitation and how it is managed through ambidextrous leadership, behavior, and mindset.

2.4. Hypothesis 1: cognitive influences on paradox mindset development

Paradoxical leaders are in a unique position to influence their followers’ paradox mindset via the cognitive angle. Research has shown that paradoxical leaders can increase the salience of paradoxical tensions (Knight and Paroutis, 2017). For example, Smith (2014) describes how leaders in a software company started each meeting by stating the strategic business unit’s overarching goals and noting how these goals depended both on the success of exploratory innovation and the exploitative success of the legacy product. More recently, research has documented how leaders have shaped adaptive spaces to build awareness and establish a context for

dealing with paradoxes during the COVID-19 pandemic (Pradies et al., 2021). Through such activities, leaders may redefine the interpretative context away from trade-off decisions on how to allocate scarce resources between the two activities, instead highlighting the enduring interrelatedness of exploratory and exploitative success (Knight and Paroutis, 2017).

Besides increasing the salience of paradoxical tensions, leaders may also increase the self-efficacy of employees dealing with paradoxical tensions (Shao et al., 2019). By representing how paradoxical tensions relate to the capabilities of an individual, paradoxical leaders may serve as a role model to showcase how one can feel comfortable in his/her ability to deal with paradoxical tensions and expect increased success through dealing with them (Miron-Spektor et al., 2018). Through role-modeling and persuasive communication, paradoxical leaders can convince followers that they too possess the ability to successfully engage with paradoxical tensions (Bandura, 2001) and thus foster their paradox mindset.

In summary, we submit that paradoxical leaders can change followers' paradox mindset through cognitive influences, which challenge a trade-off perspective on paradoxes. Through increasing the salience of paradoxical tensions by shaping the interpretative context and through increasing the self-efficacy of followers dealing with them, leaders can increase follower's proclivity for paradoxical cognition.

Knight and Paroutis (2017) illustrate this cognitive mechanism in the context of ambidexterity. The authors highlight how a manager increased the salience of learning tensions by reframing the strategic positioning of a news outlet towards "entertainment and media" to integrate both the exploitative print journalism and the exploratory digital content. By reflecting on how their work creates synergies between digital and print in their performance reviews, the manager was able to shift the followers' interpretative context away from a trade-off perspective towards a paradox perspective. Furthermore, the same manager also used verbal persuasion and offers of support to increase the self-efficacy of followers when they raised the tension between exploration and exploitation: "That's true ... [But] you are the only content person in the business with a brain big enough to solve that quandary (...) I'm happy to sit in a room and whiteboard this stuff with you." (Knight and Paroutis, 2017: 417). Being exposed to such leadership influences, followers can be expected to adopt a paradox mindset. Consequently, we hypothesize:

H1. Paradoxical leadership is positively related to followers' paradox mindset.

2.5. Hypothesis 2: behavioral influences on paradox mindset development

Besides the cognitive angle, behavioral influences in the form of followers' engagement in paradoxical tasks may serve as a second formative antecedent of followers' paradox mindset development. We suggest that this effect can take two forms: On the one hand, paradox research has demonstrated that individuals who actively engage both poles of a paradoxical tension tend to reap beneficial outcomes such as creativity (Miron-Spektor et al., 2011), learning (Andriopoulos and Lewis, 2009), viability (Levinthal and March 1993), and performance (He and Wong, 2004). For example, Miron-Spektor and Beenen (2015) found that individuals who pursue learning goals and performance goals simultaneously produce innovations which are rated as more novel and useful than those of individuals focusing on one of these goals exclusively. As these positive outcomes reinforce the paradoxical behavior, it makes individuals more comfortable with paradoxical tensions and nurtures their paradox mindset. On the other hand, behaving paradoxically may induce followers to develop a paradox mindset in order to satisfy their motivation to maintain a consistent self-image (Festinger, 1962; Harmon-Jones and Mills, 2019). A long line of research shows that individuals instructed to behave in a certain way will re-construct their attitudes in order to match this behavior (see for an overview Aronson, 1999).

These mechanisms may be illustrated in the context of ambidexterity: Gibson and Birkinshaw (2004) highlight the example of a sales employee who combined her exploitative sales behavior (such as pitching the company's products) with explorative behaviors (such as asking about customer pain points) for future product development. Aligned with our previous arguments, this ambidextrous behavior may shape the sales representative's mindset through favorable outcomes. For example, she might find that her improved understanding of customer problems allows her to connect them more effectively to relevant products. Additionally, as the sales representative engages in this ambidextrous behavior, she might come to think of herself as someone who is comfortable working on seemingly contradictory tasks. For example, when asked about her unusual sales approach by colleagues, she might publicly affirm her new paradox mindset by espousing the potential for synergy between exploratory questions and exploitative sales efficiency. Consequently, we predict:

H2. Followers' engagement in paradoxical tasks is positively related to followers' paradox mindset.

2.6. Hypothesis 3: the interplay of cognitive and behavioral influences on paradox mindset development

We suggest that the behavioral influence and the cognitive influence on paradox mindset development do not operate separately. Research on the development of other mindsets has shown that the effects of cognitive influences are more stable and perseverant if reinforced through behavior (cf. Fazio et al., 1995; Ross et al., 1975). In the context of our study, we thus suggest that leaders may exhibit a cognitive influence on their followers by shaping followers' interpretative context, increasing the salience of paradoxical tensions, and communicating trust in their followers' abilities to manage these tensions. We further argue that this cognitive influence becomes effective as it stimulates paradoxical behavior among followers. In other words, we suggest that paradoxical behavior mediates the relationship between the cognitive influences and the development of a paradox mindset.

In the context of exploration-exploitation tensions, ambidextrous leaders combine two distinct approaches: On the one hand, opening leadership, "increases the variance in follower behaviors (emphasis added) by encouraging them to do things differently and experiment, giving followers' (sic) room for independent thinking and acting, and supporting followers' attempt to challenge the status

quo" (Zacher and Rosing, 2015: 55). On the other hand, closing leadership "leads to follower exploitation activities" (ibid). Thus, ambidextrous leaders can be expected to increase followers' engagement in exploratory and exploitative (i.e., paradoxical) behavior. Rosing et al. (2011) provide the example of a team leader supporting exploratory activities through encouraging error learning and experimentation in their followers. With regards to exploitative activities, the same team leader may establish routines, control, adherence to rules and take corrective action where necessary. As ambidextrous leaders require their followers to engage in both exploratory and exploitative behavior, followers' mindset will typically adapt to this behavior (cf. Aronson et al., 2002; Fazio et al., 1995; Ross et al., 1975). Accordingly, in the previous example from Knight and Paroutis (2017), the degree to which followers translate their leaders' interpretation of "entertainment and media" into ambidextrous behavior would mediate the influence of the leader on their paradox mindset development. Formally, we predict:

H3. The positive effect of paradoxical leadership on followers' paradox mindset is mediated through the followers' engagement in paradoxical tasks.

An overview of our conceptual model is provided in Fig. 1.

3. Data and methods

We opted for a survey study design to test our hypotheses. We employed established survey instruments to collect primary data for all constructs. To evaluate the data, we used maximum-likelihood SEM, because SEM considers the convergent and discriminant validity of psychometric measures and accounts for potential biasing effects of random measurement error (Kline, 2015; Medsker et al., 1994). In the following, we describe in greater detail how we collected and evaluated the data.

3.1. Procedure and sample

We collected primary data from four companies in the service and manufacturing industries. The companies are located in Central Europe and have between 3000 and 10,000 employees. We gained access to the companies through top-level support (e.g., from the Director of HR or the CEO). After each company assured their respective employees that the data would be treated confidentially, a link to the survey was sent to a random subsample of each company's employees. Because we are interested in leader and follower behavior in the past 12 months, we excluded employees who had worked less than 12 months for their current supervisor. After also excluding employees with incomplete survey data, a total of 273 responses were included in the analysis (response rate: 72%). The sample included participants from different work areas (14% worked in Research and Development, 22% in Production, 32% in Marketing and Logistics, and 31% in other areas such as HR, IT, or Controlling). The average firm tenure was 14 years (standard deviation: 11 years).

3.2. Measurement

All constructs employed in our study are based on previously developed and empirically validated scales. The appendix provides a detailed account of our item-based measures and their Cronbach's alphas.

Endogenous variables. We assessed followers' *paradox mindset* based on the corresponding five-point scale developed by Miron-Spektor et al. (2018). These items were anchored in the individual's current assessment of their mindset.

In line with prior research (Leung et al., 2018; Miron-Spektor and Beenen, 2015; Miron-Spektor et al., 2011), we relied on individual ambidexterity as a measure of *individual engagement in paradoxical tasks*. In order to assess this engagement, we built upon the eponymous five-point scales developed by Mom et al. (2009), which separately assess individuals' exploration and exploitation activities. In line with established literature (e.g., Kaupila and Tempelaar, 2016; Mom et al., 2009), we conceptualized individual engagement in paradoxical tasks (i.e., individual ambidexterity) as the product of individual exploration and individual exploitation. To this end, we calculated composite scores for both the exploration scale and the exploitation scale by adding the individual item scores within the respective scale and subsequently dividing the sum by the number of items in that scale (Haefner et al., 2021; Reinholt et al., 2011). Thereafter, we multiplied the composite scores of the exploration scale and the exploitation scale.¹ These items were anchored in ambidextrous behavior in the 12 months prior to the study (cf. Mom et al., 2009; Mom et al., 2015; Palmié et al., 2019).

Exogenous variable. Analogously to our use of individual ambidexterity as the conceptualization for individual engagement in paradoxical tasks, we used ambidextrous leadership to conceptualize *paradoxical leadership*. Specifically, we built upon the eponymous five-point scale developed by Zacher and Rosing (2015) that separately assesses opening leader behaviors, which are associated with explorative and variance-increasing activities, and closing leader behaviors, which are associated with exploitative and variance-decreasing activities. As we did for individual ambidexterity, we calculated composite scores for the opening leader behavior scale and the closing leader behavior scale respectively and subsequently multiplied these two composite scores.² These items were again anchored on leadership behavior in the previous 12 months (cf. Mom et al., 2009; Mom et al., 2015; Palmié et al., 2019).

¹ We also conducted a robustness test that operationalized an individual's ambidexterity as the sum of the composite scores rather than as their product. This robustness test leads to the same findings as our main analysis. More details are reported at the end of the Results section below.

² Analogously to individual ambidexterity, a robustness test (reported at the end of the Results section below) operationalized ambidextrous leadership as the sum of the composite scores rather than as their product. This robustness test leads to the same findings as our main analysis.

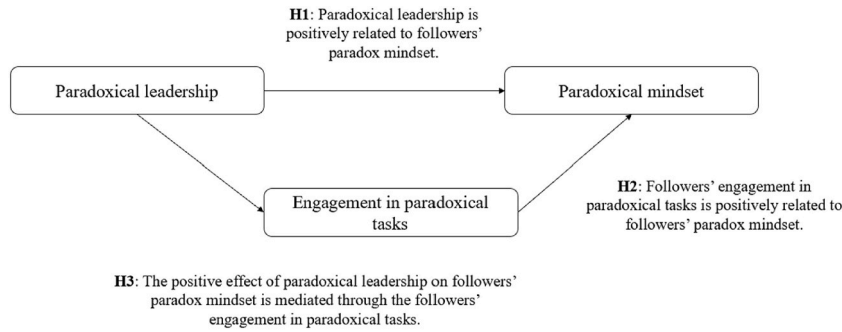


Fig. 1. Conceptual model.

Control variables. In line with extant research on paradoxical cognition (Miron-Spektor et al., 2018), we included *gender*, *education*, and *organizational tenure* as control variables. In addition, we controlled for the *departmental affiliation* of the respondent (Research and Development; Production; Marketing and Logistics; Other). Finally, we included dummy variables for *company affiliation* to rule out the possibility that effects were caused by systematic differences between the four companies in the sample.

4. Results

The two-headed arrows between each pair of variables in Fig. 2 provide the correlations of the variables. Our empirical analysis proceeds according to the two-step approach to SEM outlined in Anderson and Gerbing (1988), which has been recommended by numerous researchers (e.g., Medsker et al., 1994; Palmié et al., 2019; Simsek et al., 2005).

4.1. Phase 1: CFA model results

In the first phase of Anderson and Gerbing's (1988) approach, a confirmatory factor analysis (CFA) model is fit to the observed data to assess the fit of the overall measurement model and to examine the constructs' psychometric properties. Each latent variable in SEM needs to be explicitly assigned a metric or a measurement range. We did so by setting a loading of 1.0 for one indicator per latent variable (Kline, 2015).

According to standards of good empirical practice (e.g., Hu and Bentler, 1999; Kline, 2015; Teo et al., 2003), a CFA model with the latent constructs paradox mindset, individual exploration, individual exploitation, closing leadership behaviors, and opening leadership behaviors fits the data well ($\chi^2 = 1060.52$ with 607 df, $p < 0.001$; comparative fit index (CFI) = 0.89; root mean square error of approximation (RMSEA) = 0.05; standardized root mean square residual (SRMR) = 0.08). This model is represented in Fig. 2. The large and statistically significant factor loadings ($p < 0.001$ in every case) among the indicators and their corresponding latent construct indicate convergent validity (Hair et al., 1995; Simsek et al., 2005). The fact that no correlation between any latent constructs exceeds the recommended threshold of 0.65 indicates discriminant validity and alleviates multicollinearity concerns (Simsek et al., 2005). We further examined the discriminant validity of our constructs by comparing the fit of the above measurement model with the fit of several alternative models in which indicators loaded onto one common latent construct instead of two separate ones (Yuan and Woodman, 2010). χ^2 difference tests indicated that the above measurement model fits the data significantly better than any of these alternative models ($p < 0.001$ in every case).

Having established the validity of our latent constructs with the above measurement model, we estimated another measurement model (our hypothesized measurement model) in which we replaced the latent constructs "individual exploration" and "individual exploitation" with the product of their composite scores to depict individual ambidexterity. We also replaced the latent constructs "closing leadership behaviors" and "opening leadership behaviors" with the product of their composite scores to depict ambidextrous leadership. This hypothesized measurement model, which is represented in Fig. 3, also fits the data well ($\chi^2 = 89.43$ with 43 df, $p < 0.001$; CFI = 0.96; RMSEA = 0.06; SRMR = 0.04). These results suggested that our measurement model was adequate and that we could proceed with the second phase of the two-step approach (Simsek et al., 2005).

4.2. Phase 2: structural model results

In the second phase of Anderson and Gerbing's (1988) approach, structural models are contrasted with one another to obtain the model that best accounts for the observed covariances among the constructs of interest. To this end, we compared our hypothesized model to an alternative structural model in which paradoxical leadership was directly linked to followers' paradox mindsets, but the indirect paths—that is, the paths from (a) paradoxical leadership to engagement in paradoxical tasks and (b) engagement in paradoxical tasks to paradox mindset—were fixed at zero. A χ^2 difference test indicated that the hypothesized measurement model fit the data significantly better than the alternative model ($p < 0.001$). We therefore used the hypothesized model shown in Fig. 4 to test our hypotheses.

Two of our three hypotheses are strongly supported, while one receives mixed support. Hypothesis 1, which posits that

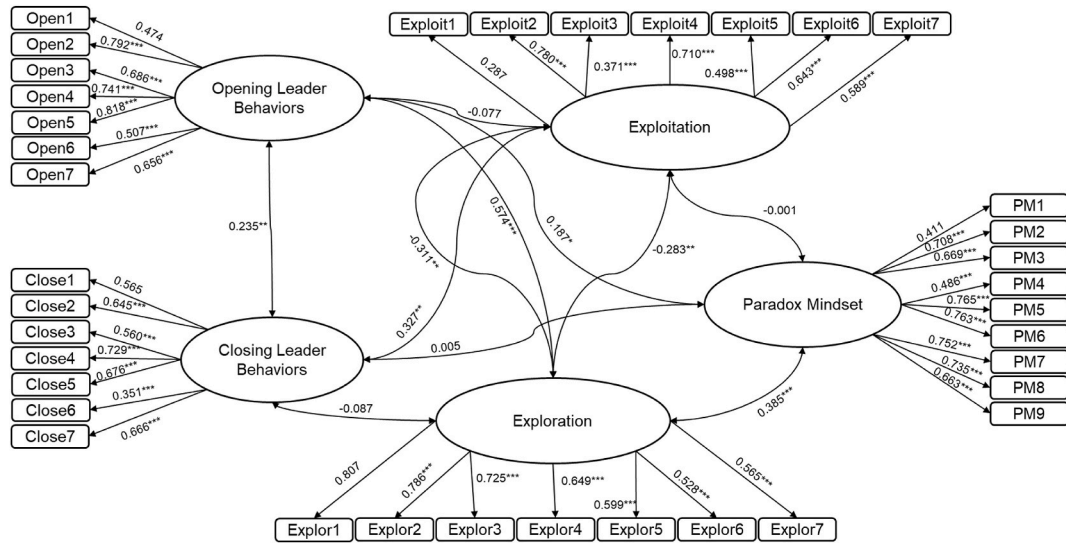


Fig. 2. Measurement model with the individual latent constructs

Notes: a. One indicator per latent factor was assigned a fixed unstandardized loading of 1.0 in order to scale the factor (Kline, 2015). These indicators cannot be tested for statistical significance. All other indicators load significantly onto their factor ($p < 0.001$; see figure).

b. Standardized estimates are reported.

c. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed test).

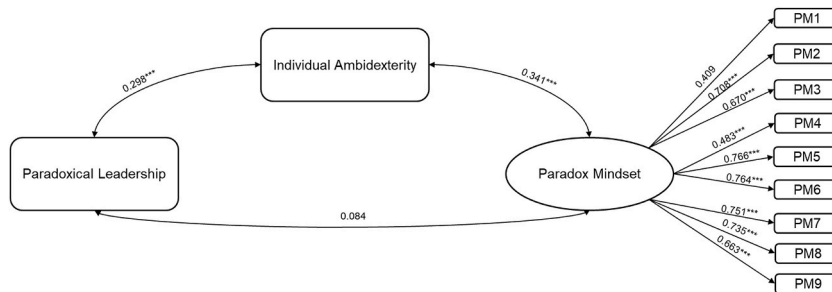


Fig. 3. Measurement model with the hypothesized constructs

Notes: a. One indicator of the latent factor “paradox mindset” was assigned a fixed unstandardized loading of 1.0 in order to scale the factor (Kline, 2015). This indicator cannot be tested for statistical significance. All other indicators load significantly onto the factor ($p < 0.001$; see figure).

b. Standardized estimates are reported.

c. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed test).

experiencing paradoxical leadership is positively related to followers’ paradox mindset, is not supported when the model includes the paths from (a) paradoxical leadership to engagement in paradoxical tasks and (b) engagement in paradoxical tasks to paradox mindset along with the direct path from paradoxical leadership to paradox mindset ($p > 0.10$). Hypothesis 1 is supported ($p < 0.05$) when the model does not include engagement in paradoxical tasks or the aforementioned (a) and (b) paths, and only includes the direct path from paradoxical leadership to paradox mindset. Hypothesis 2, which maintains that engagement in paradoxical tasks is positively related to paradox mindset, is strongly supported at $p < 0.001$.

To examine whether engagement in paradoxical tasks mediates the positive relationship between paradoxical leadership and a paradox mindset (Hypothesis 3), we employed the bootstrapping methodology outlined by Preacher and Hayes (2004) and used in several tier-1 publications (e.g., Grosser et al., 2018; Troester and Van Quaquebeke, 2020). The use of bootstrapping methods to test indirect effects models has been suggested as a preferred alternative to the causal steps approach to mediation analysis (Shrout and Bolger, 2002). Bias-corrected bootstrap results based on 5000 resamples indicate a significant indirect effect of paradoxical leadership on employees’ paradox mindset (0.10; 95% confidence interval (CI) = [0.05; 0.16]; $p < 0.001$) via their engagement in paradoxical tasks. These results provide strong support for Hypothesis 3.

4.3. Alternative specifications and common method variance

We conducted a robustness test that adopted alternative operationalizations of ambidextrous leadership and individual

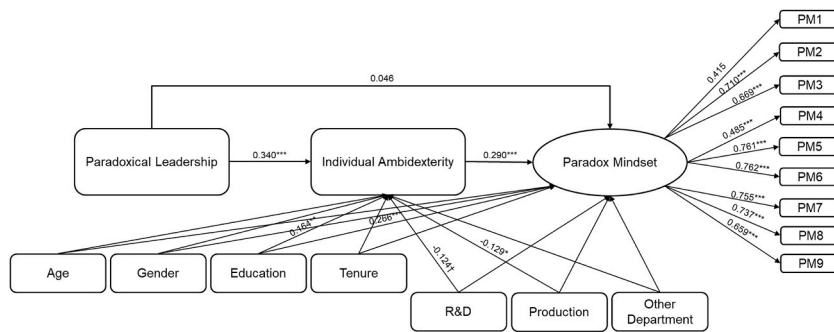


Fig. 4. Structural model

Notes: a. One indicator of the latent factor paradox mindset was assigned a fixed unstandardized loading of 1.0 in order to scale the factor (Kline, 2015). This indicator cannot be tested for statistical significance. All other indicators load significantly onto the factor ($p < 0.001$; see figure).

b. Standardized estimates are reported.

c. $\dagger p < 0.10$; $*p < 0.05$; $**p < 0.01$; $***p < 0.001$ (two-tailed test).

d. Path estimates of control variables with $p > 0.10$ are not reported here for the sake of readability. They are available from the corresponding author.

ambidexterity. The robustness test added the composite scores of the corresponding scales (“opening leader behaviors” and “closing leader behaviors” in the case of ambidextrous leadership; exploration and exploitation in the case of individual ambidexterity) to conceptualize ambidextrous leadership and individual ambidexterity as the sum of opening leader behaviors and closing leader behaviors, on the one hand, and individual exploration and individual exploitation, on the other. This robustness test yields the same findings as our main analysis, providing mixed support for Hypothesis 1 ($p > 0.10$ and $p < 0.01$, respectively) as well as strong support for Hypothesis 2 ($p < 0.001$) and Hypothesis 3 ($p < 0.001$).

Another robustness test regarding the operationalization of paradoxical leadership replaced the ambidextrous leadership scale used in the analysis above with the paradoxical leadership scale of Zhang et al. (2015). This robustness test yields similar findings as our main analysis, also providing support for Hypothesis 2 ($p < 0.01$) and Hypothesis 3 ($p < 0.05$). The only difference is that this robustness test provides no (rather than mixed) support for Hypothesis 1 ($p > 0.10$ with and without the mediator in the model), which, however, has little implications for the full mediation we theorize on. The alternative operationalizations of paradoxical leadership and individual engagement in paradoxical tasks thus largely corroborate the results of our main analysis and indicate that our key finding is not sensitive to the operationalization of cognitive and behavioral influences.

In line with the recommendations of Chang et al. (2010) as well as Podsakoff et al. (2012), we employed multiple procedural and statistical approaches to limit concerns of single-respondent bias and common method variance (CMV) in the design and evaluation stages of our survey. Procedural remedies, such as using established instruments to measure our constructs and using a counter-balanced question order minimized the potential for CMV ex ante. In terms of statistical remedies, we used the CFA marker technique (Williams et al., 2010) to control for measurement error, as recommended by Podsakoff et al. (2012). To this end, we added the variable *collectivism*, which we assessed using the eponymous three-item measure developed by Erez and Earley (1987), as an “ideal marker variable” to our model because its expected correlations with our substantive variables were zero (Williams et al., 2010, p. 478). The model comparisons that are part of Williams et al.’s (2010) approach indicated that our results were unlikely to be biased by single-respondent and common method effects.

Multi-respondent data regarding the ambidexterity behavior of teams and their members further mitigates concerns of single-respondent bias. We collected this multi-respondent data through the employee-based survey utilized in this study and a related survey among team leaders in the same companies. The latter survey asked the leaders to assess the exploration and exploitation behavior of their respective teams, using the corresponding five-item scales of Jansen et al. (2016). We generated a measure of supervisor-rated *team ambidexterity* in analogy to the measure of self-rated employee ambidexterity (as reported above), by calculating composite scores of team exploration and exploitation, respectively, and subsequently multiplying these two composite scores. Doing so enabled us to investigate how supervisors assess the ambidexterity behavior of their teams, while our prior calculations allowed us to investigate how the members of a team assess their own ambidextrous behavior. The average self-assessment of team members’ ambidexterity behavior is significantly correlated with leaders’ assessment of team ambidexterity ($r = 0.42$; $p < 0.01$). It is therefore unlikely that using self-assessments introduces excessive biases.

5. Discussion

The purpose of this study was to gain insights into the role of leadership in developing followers’ paradox mindset. We distinguished between cognitive and behavioral influences on paradox mindset development. While both types of influences stimulate the development of followers’ paradox mindset when considered in isolation, our results indicate that the effect of paradoxical leadership on a followers’ paradox mindset is fully mediated by the followers’ engagement in paradoxical tasks.

5.1. Theory contributions

First, our research strived to provide insights on how paradoxical leadership is associated with followers' paradox mindset. Prior research on how paradox mindset can be developed (as a malleable state) has primarily focused on individual-level and organizational-level antecedents (Zheng et al., 2018). Our study adds to this body of knowledge by examining if, and through which mechanisms, leaders can foster paradox mindset amongst their followers. Our findings corroborate the idea that paradoxical leaders influence their followers' engagement with paradoxical tensions (Knight and Paroutis, 2017; Liu et al., 2020; Smith, 2014). Specifically, they indicate that paradoxical leaders may develop followers' paradox mindset through both cognitive influences and behavioral influences.

Second, we provide insights into how these two influences on paradox mindset interact. Our analysis indicates that the cognitive influence of paradoxical leadership on followers' paradox mindset is fully mediated by the behavioral influence (i.e., followers' engagement in paradoxical tasks). Documenting such an indirect effect of cognitive influence advances prior literature which has mostly focused on the direct cognitive effects of paradoxical leadership (Knight and Paroutis, 2017). Our results suggest that a paradox mindset is typically not learned from observing or listening to a persuasive role model alone. Instead, paradoxical leaders need to encourage and pledge their followers to take on paradoxical tasks — a learning-by-doing on the part of the followers — in order to be effective.

A possible explanation for this indirect effect may be that dealing with paradox is so complex for individuals (e.g., Smith and Tushman, 2005) that the creation of salience and role modeling through a leader is not sufficient for followers to develop a paradox mindset without the actual experience of paradoxical behavior and associated self-reflection. Relatedly, Lüscher and Lewis (2008) demonstrate how employees at Lego had to work through paradoxical tensions in order to develop a paradox mindset. Only by confronting the paradoxical tension through their own behavior and recognizing that no choice may resolve the tension, paradoxical thinking may be engendered (Lewis, 2000). By reflecting on this experience, employees are able to develop a paradox mindset because their reflection not only questions their current understanding of their job, but their very way of thinking (Argyris, 1993); i.e. their mindset.

Third, our findings extend prior research on the role and nature of paradox mindset which has mostly analyzed the linear sequence of tensions in the environment, their cognitive representation in a paradox mindset, and the corresponding individual behavior (cf. Miron-Spektor et al., 2018). Complementing these insights, our data suggest that followers also need to take on paradoxical tasks in order to develop a paradox mindset. Accordingly, paradox mindset might be characterized as “enactive cognition”. In contrast to the traditional, sequential view outlined above, the perspective of enactive cognition highlights the active role of behavior in cognitive sense-making as well as the impact of behavioral affordances on cognitive representation (Varela et al., 1991). If further developed, an enactive perspective on paradoxical thinking might advance theory by illustrating how behavioral changes may drive changes in paradox mindset. Future research could analyze the impact of the behavioral changes instigated by the COVID-19 pandemic (cf. Pradies et al., 2021) and ask, for instance: Did the behavioral engagement of communion-agency paradoxes through work-from-home policies help develop more paradox mindsets among the workforce?

Fourth, our study provides additional implications for emerging research on paradoxical leadership. Prior studies have provided important evidence regarding paradoxical leadership's effects on followers' individual outcomes, such as adaptivity (Zhang et al., 2015), as well as organizational outcomes, such as profitability and reputation (Zhang and Han, 2019). Recently, researchers have started to explore the underlying mechanisms behind these effects, such as followers' creativity (Shao et al., 2019). Our research complements this understanding about the mechanisms through which paradoxical leadership impacts an organization and its individuals. Specifically, we suggest that paradoxical leaders can shape followers' paradox mindset (Miron-Spektor et al., 2018). Extending prior research on paradoxical leadership (Knight and Paroutis, 2017; Shao et al., 2019; Smith, 2014; Zacher and Rosing, 2015; Zhang et al., 2015), we introduce the distinction between cognitive and behavioral influences on followers' mindset into the paradox literature. We find that leaders can leverage both cognitive and behavioral avenues of mindset development, which may allow them to contribute to the successful management of paradoxical tensions in organizations.

Our findings further suggest that paradoxical leadership's effectiveness depends on how leaders induce follower behaviors. Accordingly, we might expect that paradoxical leaders who engage in empowering leadership (Cheong et al., 2019) have a greater effect on follower paradox mindset. Conversely, contextual factors which inhibit employee-level paradoxical behaviors (such as centralization) might dampen the effect of paradoxical leaders (Boemelburg et al., 2022). Overall, a more interactive perspective on paradoxical leadership might include a more serious treatment of the follower perspective and position followers as active co-creators, who need to engage in paradoxical behaviors and proactively reflect on those, rather than passively reacting to a paradoxical role model (Uhl-Bien et al., 2014). Related to this, our study also speaks to Shao et al.'s (2019) finding that paradoxical leadership's effects on followers' creativity depends on the task characteristic “workload pressure” and the follower trait “integrative complexity”. These insights appear well aligned with our finding that paradoxical leaders are only effectively shaping their followers' paradox mindset if the followers engage in paradoxical tasks.

Finally, our results suggest that paradoxical cognition is not only an antecedent of paradoxical behavior (Keller et al., 2017; Miron-Spektor et al., 2018; Smith and Tushman, 2005), but may also be an outcome of it, because engagement in paradoxical tasks results in a stronger paradox mindset. This might, in turn, result in employees being more open to managing paradox in the future. While the notion of such self-reinforcing cycles is not new to the paradox literature, research on the individual level has so far implied a rather linear sequence of causality (Keller et al., 2017). Although our data do not allow us to capture longitudinal effects empirically, our insights may serve to close the loop regarding the mutual relationship between paradoxical behavior and paradox mindset as we suggest this relationship may be reciprocal instead of linear. We thus contribute to the development of a more process-oriented perspective on paradox and paradox management (Schad et al., 2016).

Our insights in this regard are well aligned with recent conceptual ideas regarding learning spirals that explain the development of paradoxical capabilities. [Raisch et al. \(2018\)](#) suggested a dialectical understanding of paradox management: In this Hegelian reading, a paradoxical tension between thesis (e.g., exploration) and antithesis (e.g., exploitation) produces a temporary synthesis (e.g., ambidexterity), only to be challenged again by a new antithesis (e.g., social orientation versus ambidextrous profit orientation). Their analysis indicates a learning spiral of paradox management in which each new synthesis of paradoxical tensions builds on the prior syntheses that have been achieved. Thus, they suggest that as organizations engage in paradoxical management, some form of generalizable learning takes place. However, the extant literature provides few systematic insights into the mechanisms behind this learning. In line with a micro-foundations perspective on paradox management ([Felin et al., 2015](#); [Palmié et al., 2023](#); [Smith and Tushman, 2005](#)), the relationship between individuals' paradoxical behavior and paradox mindset would be a reasonable candidate for explaining this organizational-level learning spiral. Furthermore, our research hints at the possibility that paradoxical leadership may serve as a catalyst in this regard.

5.2. Practical contributions

For practitioners, our study highlights how leaders can influence followers' paradox mindset through cognitive and behavioral angles. As pointed out above, this mindset can increasingly be considered an important micro-foundation of the organizational ability to flourish under paradoxical tensions ([Miron-Spektor et al., 2018](#); [Smith and Tushman, 2005](#)). While prior research has offered guidelines for how paradoxical frames can be employed to increase paradoxical thinking in employees (e.g., [Miron-Spektor et al., 2011](#)), they were limited to providing cues in the very moment leaders expect followers to think paradoxically. In contrast, influencing followers' paradox mindset would allow leaders to have a more sustainable influence on followers' proclivity to think paradoxically. As prior research has emphasized the crucial role of the front-line, for example in setting paradoxical charters ([Zimmermann et al., 2015](#)) and in developing the context to manage paradoxes ([Zimmermann et al., 2018](#)), having a more enduring effect on followers' mindsets has the potential to be very effective for managing paradoxes in organizations.

Actionable suggestions for developing a paradox mindset and, thus, paradoxical thinking in employees include leaders modelling paradoxical behavior and adapting feedback as well as the introduction of reward structures within an organization. In addition, the malleability of a paradox mindset may serve as an inspiration to include specific mindset interventions - based on the principles outlined in this paper - in corporate training materials. Furthermore, our results suggest that investing in paradoxical behavior not only offers its own benefits, but also contributes to the subsequent building of individual-level paradoxical capabilities in the form of a paradox mindset. This might affect cost-benefit analyses for corporate-development programs.

5.3. Limitations and future research

Like all empirical research, our study is not without limitations. In terms of the sample, our study only included employees from four companies. While our theoretical arguments were not specific to these four firms and we controlled for company affiliation, the replication of our study in a larger number of firms in diverse cultural contexts would enhance confidence in our findings' generalizability. In addition, while questions regarding the leadership and behavior variables referred to the last 12 months, all data were gathered at a single point in time. Although we consider the theoretical rationale for the direction of causality in our model to be convincing, we encourage future research to adopt an experimental setup with an explicitly designed intervention aimed at increasing paradox mindset.

Furthermore, our empirical setup is limited to one specific paradoxical tension: exploration-exploitation. While this approach is in line with prior contributions to paradox theory (e.g., [Smith, 2014](#)), it appears meaningful for future research to study whether the relationships are similarly strong for other types of tensions. Individuals who engage in exploration and exploitation behaviors are actively re-constructing their individual knowledge base and challenging their routines (cf. [Levinthal & March 1993](#)). They might therefore be particularly receptive to also re-construct their meta-cognitive paradox mindset. In contrast, for example, belonging tensions between competition and cooperation tend to require more team-based paradox management approaches and it could be interesting to examine if these joint behaviors also contribute to an individual-level mindset development or the evolution of a higher-level paradoxical context (e.g., [Gibson and Birkinshaw, 2004](#)). Furthermore, recent research points at the importance of the interaction of multiple paradoxical tensions ([Ambos et al., 2020](#)). Given that paradox mindset is conceptualized to be an overarching construct spanning different tensions ([Miron-Spektor et al., 2018](#)), future research could investigate if, how, and under what conditions paradox mindsets may emerge from cross-tension learning.

Finally, our research builds on the widely shared assumption that paradox mindset is beneficial to organizations. However, research has begun to investigate potential downsides of paradox mindset such as increased proclivity to commit resources in escalation-of-commitment paradigms ([Sleesman, 2019](#)). Employees with a paradox mindset could fuel downward escalations, when paradoxical approaches are extended to situations which do not really require them (see also [Mom et al., 2015](#)). It would be interesting to see future research explore how the relationship between paradoxical leadership and paradox mindset may develop differently, depending on the predominance of positive versus negative outcomes of paradoxical behavior.

Concluding, we hope that our research provides a first step towards a more in-depth understanding of the dynamics between paradoxical leadership and paradox mindset. We hope that our findings will be instructive for additional research delving deeper into this novel area of study.

Author statement

Raphael Boemelburg: Conceptualization; Methodology; Investigation; Data Curation; Formal Analysis; Writing – Original Draft; Writing – Review & Editing; Visualization; Project administration, Alexander Zimmermann: Conceptualization; Writing – Original Draft; Writing – Review & Editing, Maximilian Palmie: Conceptualization; Formal Analysis; Writing – Original Draft; Writing – Review & Editing; Visualization; Funding acquisition.

Declaration of competing interest

None.

Data availability

The data that has been used is confidential.

APPENDIX. DETAILED ACCOUNT OF THE STUDY'S ITEM-BASED MEASURES

Opening Leader Behaviors (Cronbach's alpha = 0.85; Zacher and Rosing, 2015). To what degree did your direct supervisor display the following behaviors in the past 12 months? My supervisor ... (OPEN1) ... allows different ways of accomplishing a task. (OPEN2) ... encourages experimentation with different ideas. (OPEN3) ... motives to take risks. (OPEN4) ... gives possibilities for independent thinking and acting. (OPEN5) ... gives room for own ideas. (OPEN6) ... allows errors. (OPEN7) ... encourages error learning.

Closing Leader Behaviors (Cronbach's alpha = 0.80; Zacher and Rosing, 2015). To what degree did your direct supervisor display the following behaviors in the past 12 months? My supervisor ... (CLOSE1) ... monitors and controls goal attainment. (CLOSE2) ... establishes routines. (CLOSE3) ... takes corrective action. (CLOSE4) ... controls adherence to rules. (CLOSE5) ... pays attention to uniform task accomplishment. (CLOSE6) ... sanctions errors. (CLOSE7) ... sticks to plans.

Exploitation (Cronbach's alpha = 0.74; Mom et al., 2009). To what extent did you engage in the following work-related activities in the past 12 months? (EXPLOIT1) Activities of which a lot of experience has been accumulated by yourself. (EXPLOIT2) Activities which you can carry out as if it were routine. (EXPLOIT3) Activities which serve existing (internal) customers with existing services/products. (EXPLOIT4) Activities of which it is clear to you how to conduct them. (EXPLOIT5) Activities primarily focused on achieving short-term goals. (EXPLOIT6) Activities which you can properly conduct by using your present knowledge. (EXPLOIT7) Activities which clearly fit into existing company policy.

Exploration (Cronbach's alpha = 0.86; Mom et al., 2009). To what extent did you engage in the following work-related activities in the past 12 months? (EXPLORE1) Searching for new possibilities with respect to products/services, processes, or markets. (EXPLORE2) Evaluating diverse options with respect to products/services, processes, or markets. (EXPLORE3) Focusing on strong renewal of products/services or processes. (EXPLORE 4) Activities of which the associated yields or costs are currently unclear. (EXPLORE5) Activities requiring quite some adaptability of you. (EXPLORE6) Activities requiring you to learn new skills or knowledge. (EXPLORE7). Activities that are not (yet) clearly existing company policy.

Paradox Mindset (Cronbach's alpha = 0.88; Miron-Spektor et al., 2018). To what extent do the following statements describe you and your attitudes? (PM1) When I consider conflicting perspectives, I gain a better understanding of an issue. (PM2) I am comfortable dealing with conflicting demands at the same time. (PM3) Accepting contradictions is essential for my success. (PM4) Tension between ideas energizes me. (PM5) I enjoy it when I manage to pursue contradicting goals. (PM6) I often experience myself as simultaneously embracing conflicting demands. (PM7) I am comfortable working on tasks that contradict each other. (PM8) I feel uplifted when I realize two opposites can be true. (PM9) I feel energized when I manage to address contradictory issues.

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