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# Journal

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## **Paradoxical Leadership and Innovation in Work Teams: The Multilevel Mediating Role of Ambidexterity and Leader Vision as a Boundary Condition**

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## Paradoxical Leadership and Innovation in Work Teams: The Multilevel Mediating Role of Ambidexterity and Leader Vision as a Boundary Condition

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3 **PARADOXICAL LEADERSHIP AND INNOVATION IN WORK TEAMS:**  
4 **THE MULTILEVEL MEDIATING ROLE OF AMBIDEXTERITY**  
5 **AND LEADER VISION AS A BOUNDARY CONDITION**  
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9 **ABSTRACT**

10 In light of ever-increasing demands for innovation in work teams, we recommend  
11 paradoxical leadership to manage team and individual innovation. Integrating the paradox  
12 perspective and ambidexterity theory, we propose a multilevel model of how and when team  
13 leaders' paradoxical leadership enhances team and individual innovative outcomes. We  
14 conducted two multi-wave, multisource field studies and one online survey study with a cross-  
15 lagged panel design. Our findings show that paradoxical leadership has a positive indirect  
16 effect on team members' individual innovation through individual ambidexterity and a positive  
17 indirect relationship with team innovation through team ambidexterity. Our results further  
18 show that leader vision strengthens the effects of paradoxical leadership on team and individual  
19 ambidexterity and innovative outcomes. We discuss the theoretical and practical implications  
20 of these findings.  
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24 **Keywords:** Innovation; ambidexterity; paradoxical leadership; leader vision; work teams  
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28 *Innovation has nothing to do with how many R&D dollars you have ... It's about the*  
29 *people you have, how you're led, and how much you get it.*

30 —Steve Jobs<sup>1</sup>  
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32 Innovation—the introduction and application of new ideas, processes, products,  
33 services, or procedures (West & Farr, 1990)—has become crucial for the competitiveness and  
34 survival of organizations more than ever before (Anderson, Potočnik, & Zhou, 2014; Kahn,  
35 2018). The rising uncertainty and complexity of today's business environment require  
36 individuals and teams throughout the organization to innovate increasingly (Ilgen, Hollenbeck,  
37 Johnson, & Jundt, 2005; van Knippenberg, 2017). Thus, the question of how to promote team  
38 and individual innovation has occupied scholars and practitioners alike. Researchers pursuing  
39 this line of inquiry have identified leadership as one of the most influential factors (Hughes, Lee,  
40 Tian, Newman, & Legood, 2018; Hunter & Cushenbery, 2011; Mumford, Scott, Gaddis, &  
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55 <sup>1</sup> The full quote is available at: [https://www.brainyquote.com/quotes/steve\\_jobs\\_416937](https://www.brainyquote.com/quotes/steve_jobs_416937)  
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3 Strange, 2002). As Anderson et al. (2014) has noted, “effective leadership for innovation is  
4 paramount” (p. 1321).  
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8         Despite these valuable insights, our understanding of the relation between leadership and  
9 innovation remains far from complete. It has been increasingly recognized that innovation  
10 inherently involves paradoxical tensions. For instance, innovation requires both the extensive  
11 development of original ideas and the realization of such ideas within constraints (e.g., Hunter,  
12 Cushenbery, & Jayne, 2017); both out-of-the-box thinking and convergent thinking (e.g., Miron-  
13 Spektor & Erez, 2017); both flexibility and discipline (e.g., Andriopoulos & Lewis, 2009); and  
14 both knowledge generation and knowledge integration (e.g., Gebert, Boerner, & Kearney, 2010).  
15 These competing demands imply that “leading for innovation” involves unique challenges and  
16 considerations (Miron-Spektor, Erez, & Naveh, 2011; Rosing, Frese, & Bausch, 2011).  
17 Unfortunately, very few studies on leadership and innovation have considered the paradoxical  
18 tensions in the innovation process (Thayer, Petruzzelli, & McClurg, 2018; Zacher & Rosing,  
19 2015).  
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35         In the present research, we draw upon the paradox perspective and suggest the role of  
36 paradoxical leadership in promoting innovation in work teams. The paradox perspective (Lewis,  
37 2000; Smith & Lewis, 2011) outlines the features of organizational paradoxes (that is,  
38 contradictory yet interrelated elements) and notes that leaders who accept and transcend  
39 paradoxes will harness new potential. Paradoxical leadership refers to leaders’ “seemingly  
40 competing, yet interrelated, behaviors to meet structural and follower demands simultaneously  
41 and over time” (Zhang, Waldman, Han, & Li, 2015: 538). Specifically, paradoxical leadership  
42 entails taking a dynamic “*both/and*” approach to address underlying tensions in work teams  
43 concerning *control versus flexibility* and *collective versus individual* (Smith, Lewis, & Tushman,  
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3 2016; Waldman & Bowen, 2016)—for example, by treating followers equally and consistently  
4 while also considering individual needs and occasionally making exceptions. Building on the  
5 paradox perspective, we argue that paradoxical leadership could facilitate complementary  
6 processes to reconcile the competing elements inherent in innovation, thereby promoting  
7 innovative outcomes.  
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14 We further integrate ambidexterity theory (Bledow, Frese, Anderson, Erez, & Farr,  
15 2009; see also Anderson et al., 2014) with the paradox perspective to illustrate the mechanisms  
16 by which paradoxical leadership affects innovative outcomes in work teams. Ambidexterity  
17 theory offers a valid account of innovation based on recognizing its paradoxical demands. The  
18 theory suggests that, to manage underlying tensions in the innovation process, a critical role of  
19 leadership is to stimulate both explorative and exploitative activities and facilitate their effective  
20 integration, namely ambidexterity). As Anderson et al. (2014) have suggested, ambidexterity  
21 theory holds high potential for understanding the mechanisms of “leadership effects in  
22 innovation.”  
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35 To fully understand leading for innovation in work teams, we develop a two-level model  
36 of how paradoxical leadership affects innovative outcomes at both individual and team levels. In  
37 work teams, leaders naturally influence innovative performance through multilevel processes:  
38 on the one hand, they interact with members on a dyadic basis, expecting members to meet the  
39 demands of innovation, and acting as role models for how to do so; on the other hand, they create  
40 a motivational climate to foster collective innovative outcomes for the whole team (Bass &  
41 Stogdill, 1990; Hunter & Cushenbery, 2011; Rosing et al., 2011). Ambidexterity theory also  
42 holds that developing ambidexterity promotes innovation at both individual and team levels  
43 (Bledow et al., 2009; Rosing et al., 2011). Accordingly, we propose individual and team  
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3 ambidexterity as the mediating mechanisms linking paradoxical leadership to individual and  
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5 team innovation, respectively.  
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8         Though this possibility is not explicitly discussed in the literature, leaders adopting  
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10 paradoxical leadership may send seemingly contradictory signals to team members. We posit  
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12 that a critical condition of our theorizing is that whether members can sense the rationale  
13  
14 underlying paradoxical leadership behaviors. Research on paradox suggests that a clear guiding  
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16 vision is crucial to helping people understand and manage paradoxes at work (e.g., Lewis,  
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18 2000; Lewis, Andriopoulos, & Smith, 2014). Leader vision captures the extent to which leaders  
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20 communicate a clear future direction for members of a team. A clear vision enables members to  
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22 “see the big picture” and guides them toward a visionary direction despite uncertainties and  
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24 apparent contradictions (Lewis et al., 2014; Venus, Johnson, Zhang, Wang, & Lanaj, 2019).  
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26 Hence, we posit that leader vision will ensure that members can make sense of paradoxical  
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28 leadership and strengthen its positive influence on ambidexterity and innovation in work teams.  
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33         We conducted two multi-wave, multisource field studies and an online survey study with  
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35 a cross-lagged panel design to test our theoretical model (Figure 1). We confined our theorizing  
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37 to organizational teams whose main tasks concern providing innovative solutions. Innovation, in  
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39 the form of new products, services, technologies, and procedures, is not only vital for the team as  
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41 a whole but also a major performance criterion for individual team members in such contexts  
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43 (e.g., Gebert et al., 2010; Rosing et al., 2011; West, 2002).  
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49         Our research makes significant contributions to the literature on leadership and  
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51 innovation. We put forth a paradox perspective to study innovation in team contexts, introducing  
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53 paradoxical leadership to innovation management. To provide a richer understanding of leading  
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3 for innovation in modern work teams, we explore the mechanisms through which paradoxical  
4 leadership promotes both individual and team innovation, and further extend our theorizing  
5 regarding when it works. Considering the pervasive role of leadership in influencing innovative  
6 outcomes (e.g., Hunter & Cushenbery, 2011), this research expands our understanding of how to  
7 enhance workplace innovation through leadership practices (Anderson et al., 2014; Hughes et al.,  
8 2018).

9  
10 Our work also contributes to the literature on paradox and ambidexterity. It presents a  
11 comprehensive test of ambidexterity theory in the context of work teams tasked with innovative  
12 solutions. We investigate the theoretical notions of ambidexterity for both teams and individuals,  
13 unpacking the multilevel processes of how leadership behaviors promote innovation. Our work  
14 also reveals that paradoxical leadership could promote team and individual ambidexterity,  
15 particularly when the leader communicates a clear, consistent vision. By doing so, this research  
16 expands the scope of ambidexterity theory by revealing “what” leadership behaviors promote  
17 ambidexterity in teams and “when” (Colquitt & Zapata-Phelan, 2007).

### 18 **THEORY AND HYPOTHESES**

19 In this section, we first review the paradoxical nature of innovation at both individual and  
20 team levels and introduce the role of paradoxical leadership through the paradox perspective. We  
21 then integrate the paradox perspective with ambidexterity theory as our theoretical framework,  
22 and explain how individual and team ambidexterity bridge the effects of paradoxical leadership  
23 on individual and team innovation, respectively. Lastly, we extend our theoretical framework  
24 and explain how leader vision serves as a boundary condition for the proposed effects.

#### 25 **Leading for Innovation in Work Teams: Looking Through the Paradox Perspective**

26 In work teams whose main tasks concern providing innovative solutions, both members’  
27 individual innovation and team innovation as a whole are essential indicators of performance  
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3 (Bono & Judge, 2003; Wallace, Butts, Johnson, Stevens, & Smith, 2016). Innovation often  
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5 originates from individuals. Following prior work (Harari, Reaves, & Viswesvaran, 2016; Scott  
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7 & Bruce, 1994), we define *individual innovation* as the extent to which an individual employee  
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9 generates and implements useful new ideas at work. Team members try out novel ideas  
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11 individually for some tasks and collaborate to innovate as a team for others (West, 2002; Perry-  
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13 Smith & Mannucci, 2017). We define *team innovation* as the extent to which a team, as a whole,  
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15 develops useful new ideas and converts them into outputs (Drach-Zahavy & Somech, 2001).  
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17 Team innovation takes diverse forms in the workplace, such as delivering new services,  
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19 generating novel products or product functions, and developing new technologies (Lahiri, 2010;  
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21 Schippers, West, & Dawson, 2015).  
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26           Essentially, innovation consists of two distinct components: idea generation and idea  
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28 implementation. Idea generation requires thinking outside the box and a constant search for  
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30 new possibilities; in contrast, idea implementation requires outcome- and efficiency-oriented  
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32 idea realization (Rosing et al., 2011; West & Farr, 1990). Thus, innovation involves inherently  
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34 paradoxical demands (Bledow et al., 2009; Thayer et al., 2018). As innovation scholars have  
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36 cautioned, the same conditions facilitating the creation of novel ideas often impede their  
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38 application, and vice versa (e.g., Hargadon & Douglas, 2001; Miron, Erez, & Naveh, 2004). In  
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40 teams charged with innovative tasks, the same set of members must provide innovative  
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42 solutions within constraints such as tight deadlines and limited resources (Acar, Tarakci, & van  
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44 Knippenberg; 2019). As such, the generation and implementation of ideas often proceed hand  
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46 in hand throughout the innovation process in an interwoven, ever-changing manner (King,  
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48 1992; Thayer et al., 2018; Van de Ven, 1986), making paradoxical demands inevitable (Miron-  
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3 Spekter et al., 2011). Thus, we draw on the paradox perspective to identify leadership  
4 behaviors and mechanisms predicting innovation in work teams.  
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8 Given an increasing recognition that organizational members encounter challenges from  
9 various paradoxes constantly nowadays (e.g., Eisenhardt, Furr, & Bingham, 2010), the paradox  
10 perspective holds that the key to sustained effectiveness is embracing rather than choosing  
11 between the two poles of these paradoxes (Lewis, 2000; Smith & Lewis, 2011). Accordingly, a  
12 vital role of leadership is “to support opposing forces and harness the constant tensions” (Smith  
13 & Lewis, 2011: 386). The paradox literature has consistently delineated two common paradoxes  
14 for leaders managing work teams: maintaining control versus ensuring flexibility, that is, the  
15 organizing paradox, and emphasizing the collective (team) versus stressing the individual, that is,  
16 the belonging paradox (Lewis, 2000; Quinn & Rohrbaugh, 1983; Smith & Lewis, 2011). These  
17 two paradoxes are interrelated, substantial issues for leaders in teamwork.  
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31 Zhang et al. (2015) derived the concept of paradoxical leadership describing leader  
32 behaviors addressing these paradoxes. Paradoxical leadership consists of five behavioral  
33 dimensions, each representing a pair of “both/and” leadership behaviors: (a) enforcing work  
34 requirements while allowing flexibility; (b) maintaining decision control while allowing  
35 autonomy; (c) treating members equitably while considering individuality; (d) ensuring self as  
36 the source of leadership while sharing the locus of influence with members; and (e) maintaining  
37 both hierarchical distance and interpersonal closeness with members. The first two dimensions  
38 correspond to *the paradox of control versus flexibility—the organizing paradox*—while the latter  
39 three pertain to *the paradox of the collective versus the individual—the belonging paradox*.  
40 Following the literature, we refer to those who are high in paradoxical leadership as *paradoxical*  
41 *leaders* (e.g., Shao, Nijstad, & Täuber, 2019; Zhang et al., 2015).  
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3 Paradoxical leadership entails taking a “both/and” approach to competing demands at  
4 work, in contrast to an “either/or” approach (the traditional contingency approach of adopting  
5 different leader behaviors depending on the situation; Waldman & Bowen, 2016). Paradoxical  
6 leaders may integrate or iterate both sides of these “both/and” leadership behaviors dynamically  
7 over time (Smith et al., 2016; Zhang et al., 2015). For instance, a paradoxical leader may assign  
8 tasks according to members’ interests while concurrently ensuring collaboration based on  
9 complementarities among their skill sets. Likewise, when facing uncertainties regarding the  
10 expected outputs of new projects, a paradoxical leader may first set challenging goals to press  
11 members to perform beyond expectations and then provide them additional support or even  
12 loosen goal requirements if necessary. In this vein, paradoxical leaders may exhibit these  
13 “both/and” behaviors in addressing organizing and belonging paradoxes in simultaneous, serial,  
14 or iterative patterns (Waldman & Bowen, 2016; Zhang & Han, 2019). The more frequently  
15 leaders *integrate* these contradictory yet interrelated leadership behaviors, the higher their level  
16 of paradoxical leadership (Smith & Lewis, 2011; Waldman & Bowen, 2016).  
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35 Building on the paradox perspective, we expect paradoxical leadership to promote  
36 innovative outcomes in work teams. In managing the organizing paradox, paradoxical leaders  
37 grant team members the flexibility to stimulate divergent insights while also maintaining control  
38 to ensure high-quality outputs; in addressing the belonging paradox, they allow for members’  
39 individuality to express their original ideas while also ensuring a sense of collectivism to foster  
40 effective collaboration (Zhang et al., 2015; Waldman & Bowen, 2016). These behaviors could  
41 facilitate complementary processes to reconcile competing demands in the innovation process.  
42 However, while the paradox perspective implies the beneficial effect of paradoxical leadership  
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3 on innovation, it does not explicate the underlying mechanisms. We further integrate the paradox  
4 perspective with ambidexterity theory to explain the mechanisms.  
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### 7 **The Multilevel Mediating Role of Ambidexterity**

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9 Ambidexterity theory (Bledow et al., 2009) shares theoretical roots with the paradox  
10 perspective as they both highlight that, to facilitate innovative outcomes, it is essential to  
11 manage the paradoxical demands resulting from the dual requirements of idea generation and  
12 idea implementation. Adding specificities to the paradox perspective, ambidexterity theory holds  
13 that ambidexterity is a primary underlying process to enhance innovation (Bledow et al., 2009;  
14 Bledow, Frese, & Mueller, 2011). It further underlines the important role of leadership in  
15 promoting ambidexterity for teams and individuals. In particular, it suggests that leaders who  
16 integrate seemingly competing but in practice complementary leadership behaviors (such as  
17 paradoxical leadership) could fine-tune divergent activities to facilitate the ambidextrous  
18 process to enhance innovation (Bledow et al., 2011; Rosing et al., 2011).  
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32 Ambidexterity literally means “using both hands equally well.” In organizational  
33 research, it connotes managing *both* exploration *and* exploitation successfully (Gibson &  
34 Birkinshaw, 2004; O’Reilly & Tushman, 2004). Originally proposed by March (1991) as two  
35 key forms of organizational learning, *exploration* denotes activities of discovering,  
36 experimenting, increasing variance, and searching for alternatives, while *exploitation* pertains  
37 to activities of refining, executing, reducing variance, and recombining existing knowledge and  
38 abilities (Benner & Tushman, 2003; Kostopoulos & Bozionelos, 2011). Scholars have recently  
39 recognized that individuals and teams are increasingly facing demands to pursue both  
40 exploration and exploitation, for example, searching for new possibilities for products,  
41 services, or markets while serving existing customers with existing services/products (e.g.,  
42 Jansen, Kostopoulos, Mihalache, & Papalexandris, 2016; Tempelaar & Rosenkranz, 2019).  
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3 This involves the paradoxical tension between capitalizing on existing capabilities and  
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5 developing new ones (Lewis, 2000, Smith & Lewis, 2011).  
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8         Employing a “both/and” logic, ambidexterity theory holds that the successful  
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10 integration of exploration and exploitation develops ambidexterity and yields synergies to  
11  
12 benefit innovation (Bledow et al., 2009). Exploration leads to alternative ideas and methods  
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14 that might be exploited and refined later, and exploitation ensures the availability of  
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16 transferable knowledge and practical know-how as essential resources for further explorative  
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18 activities (Bledow et al., 2011; Rosing et al., 2011). As such, explorative and exploitative  
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20 activities are not contradictory but functionally *interdependent* (Bledow et al., 2009), *non-*  
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22 *substitutable* (Gibson & Birkinshaw, 2004), and *synergistic* (Smith & Lewis, 2011) in their  
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24 effects on innovation.  
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28         Notably, while the notion of ambidexterity originates from the organizational level,  
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30 ambidexterity theory expands its tenets to the individual and team levels (Bledow et al., 2009;  
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32 Rosing et al., 2011). Following the literature (Kauppila & Tempelaar, 2016; Mom, van den  
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34 Bosch, & Volberda, 2009), we define *individual ambidexterity* as the extent to which  
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36 individual employees value and pursue *both* exploitative *and* explorative activities in their  
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38 work roles. Highly ambidextrous employees integrate outcome- and efficiency-oriented efforts  
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40 with their endeavors to develop new capabilities (Birkinshaw & Gibson, 2004). For instance,  
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42 an information technology consultant shows high ambidexterity when not only exploiting  
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44 acquired skills to solve immediate problems for clients (exploitation) but also exploring  
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46 advanced artificial intelligence techniques to tackle emerging needs (exploration). In contrast,  
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48 employees with low ambidexterity are prone to be deficient in either exploration or  
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50 exploitation, or even both (Good & Michel, 2013). We then define *team ambidexterity* as the  
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3 extent to which teams as a whole emphasize and engage in *both* exploration *and* exploitation  
4 over time (Jørgensen & Becker, 2017; Nemanich & Vera, 2009). For example, marketing  
5 service teams realize high team ambidexterity when continually refining their existing  
6 capabilities to produce regular marketing solutions (exploitation) for clients and, meanwhile,  
7 following updated technologies and seeking new possibilities to address clients' dynamic  
8 needs (exploration).  
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12 ***Paradoxical leadership and individual/team ambidexterity.*** Paradoxical leadership is  
13 characterized as integrating seemingly contradictory yet interrelated leadership behaviors to  
14 address paradoxes of organizing and belonging dynamically (Waldman & Bowen, 2016).  
15 Building on the paradox perspective, Zhang et al. (2015) theorized two main pathways by which  
16 paradoxical leaders influence work outcomes: (a) through passing on role expectations to  
17 members and offering them role models of how to address competing work demands at the  
18 individual level; and (b) through creating a simultaneously autonomous and structured work  
19 atmosphere at the collective (team) level. We argue that paradoxical leadership contributes to  
20 individual and team ambidexterity based on these two theoretical routes respectively.  
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24 We first expect paradoxical leadership to facilitate team members' individual  
25 ambidexterity through delivering divergent role expectations for them. Because leaders are  
26 significant figures for employees at work, their role expectations are a powerful force to engage  
27 employees in corresponding work activities (Kahn, 1990; 1992). In addressing the organizing  
28 and belonging paradoxes, paradoxical leaders deliver seemingly competing role expectations to  
29 team members. On the one hand, they expect members to be flexible and make unique  
30 contributions; on the other hand, they anticipate members to be subject to overall control and  
31 follow collective rules and standards (Lewis, 2000; Zhang et al., 2015). Members then tend to  
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3 internalize their responsibilities and behavioral protocols accordingly. As expected to keep  
4 flexibility and provide original inputs, members are directed to search for alternatives to expand  
5 new possibilities; meanwhile, as presumed to adhere to collectivity and overall control, they tend  
6 to feel obligated to refine and exploit existing solutions to ensure efficiency. Thus, rather than a  
7 singular focus on either exploration or exploitation stemming from personal preferences,  
8 members working with paradoxical leaders are more likely to attend to both.  
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11 Further, we argue that paradoxical leaders could serve as role models for members to  
12 address the tensions involved in exploration and exploitation and find synergistic possibilities.  
13 When interacting with paradoxical leaders, members have opportunities to observe how they  
14 embrace their salient competing demands (namely, organizing and belonging paradoxes) and  
15 learn from their mastery in managing these tensions (Miron-Spektor, Ingram, Keller, Smith, &  
16 Lewis, 2018; Zhang et al., 2015). In the process of learning from role models, actors not only  
17 emulate the role models' behaviors but may also internalize the models' values and attitudes and  
18 transfer what they have acquired into related aspects (Bandura, 1977; 1986). Through such  
19 modeling and learning, team members are prone to absorb paradoxical leaders' mindset and  
20 problem-solving approach and apply what they have grasped into their own situations.  
21 Consequently, members are more likely to confront their tensions between exploration and  
22 exploitation proactively, become comfortable with doing so, and adopt a "both/and" approach to  
23 harvest potential synergies.  
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26 Hence, with the role expectations and role modeling provided by paradoxical leaders,  
27 team members tend to have a greater propensity to embrace the tensions behind the divergent  
28 demands of exploration and exploitation, find synergistic possibilities, and flexibly maneuver  
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3 between them, thereby realizing higher individual ambidexterity (Smith & Lewis, 2011;  
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5 Tempelaar & Rosenkranz, 2019). Thus, we hypothesize that:  
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8 *Hypothesis 1: Team leaders' paradoxical leadership has a positive relationship to team*  
9 *members' individual ambidexterity.*  
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11 We further argue that paradoxical leadership, through addressing organizing and  
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13 belonging paradoxes, may nurture a simultaneously autonomous and structured work  
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15 atmosphere to enhance team ambidexterity. On the one hand, paradoxical leadership could  
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17 cultivate an open atmosphere to promote team exploration. Paradoxical leaders tend to grant  
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19 members autonomy and flexibility in teamwork processes so that members can realize their  
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21 potential to the full (Waldman & Bowen, 2016). Paradoxical leaders also recognize members'  
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23 uniqueness and show respect for their individual specialties (Zhang et al., 2015), thus developing  
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25 a shared perception that their original inputs are welcomed and needed. As such, paradoxical  
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27 leadership may encourage all team members to challenge established schemas and develop  
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29 alternatives beyond their comfort zone (Gebert et al., 2010; Srivastava, Bartol & Locke, 2006),  
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31 thereby promoting team exploration.  
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36 On the other hand, paradoxical leadership could facilitate an organized team atmosphere  
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38 that favors team exploitation. Paradoxical leaders emphasize establishing high work  
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40 requirements and maintaining ultimate control to clarify standards and expectations for the whole  
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42 team (Smith et al., 2016; Zhang et al., 2015). They also maintain structural distance to establish  
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44 role relationships and treat members equitably to ensure team cooperation and cohesion (Shao et  
45  
46 al., 2019). Taken together, these leadership behaviors enable the team to fully utilize and  
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48 integrate members' existing knowledge and abilities for various tasks, thereby benefiting team  
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50 exploitation (Gebert et al., 2010; Keller, 2006).  
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3           Importantly, paradoxical leaders' "both/and" leadership behaviors in addressing  
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5 organizing and belonging paradoxes *interdependently* nurture a simultaneously autonomous and  
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7 structured work atmosphere that facilitates both team exploration and team exploitation. Suppose  
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9 leaders focus only on fulfilling team members' needs for flexibility and individuality but neglect  
10  
11 the organizational demands of control and collectivity. In that case, they may unintentionally  
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13 allow too much divergence in the teamwork and harm collaboration among members. This will  
14  
15 inevitably jeopardize exploitation and eventually damage the team's capability for further  
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17 exploration (Zimmermann, Raisch, & Cardinal, 2018). Conversely, if leaders only emphasize  
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19 control and collectivity, overlooking team members' individual interests, members may become  
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21 overly strict "order-keepers" and unwilling to explore, eventually running out of ideas to exploit.  
22  
23 Thus, paradoxical leadership behaviors jointly nurture the ambidexterity of a team. This rationale  
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25 is similar to Parker's (2014) suggestion that leaders combine control- and flexibility-oriented  
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27 practices to promote ambidexterity. In sum, we posit that:

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33           *Hypothesis 2: Team leaders' paradoxical leadership has a positive relationship to team*  
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35           *ambidexterity.*

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37           ***The mediating role of individual and team ambidexterity.*** Ambidexterity theory  
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39 suggests that individuals with higher levels of ambidexterity tend to generate and also implement  
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41 new ideas more often, resulting in greater individual innovation (Bledow et al., 2009).  
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43 Employees high in individual ambidexterity follow a "both/and" mode to integrate and  
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45 alternate between explorative and exploitative activities at work (Mom, Chang, Cholakova, &  
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47 Jansen, 2019). Explorative activities (such as searching for alternatives) stimulate the focal actor  
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49 to generate creative ideas and to apply those ideas into outputs in novel, effective ways.  
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51 Alternatively, exploitative activities (such as honing efficiency) provide a practical basis for  
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53 implementing ideas as well as releasing individual resources (such as time, energy, and attention)  
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3 to be used in developing new ideas (Crossan, Lane, & White, 1999; Good & Michel, 2013). In  
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5 this respect, such exploitative and explorative efforts function complementarily for better  
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7 individual innovative outcomes. Recent empirical evidence has provided initial support for the  
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9 ambidexterity–innovation relationship at the individual level (e.g., Kobarg, Wollersheim, Welpe,  
10  
11 & Spörrle, 2017; Miron-Spektor et al., 2018). For example, Kobarg et al. (2017) found that  
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13 ambidexterity in junior scholars positively relates to their research performance, such as the  
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15 development and realization of useful new ideas in the form of research articles.  
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19 As we articulated before, paradoxical leaders facilitate team members' individual  
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21 ambidexterity by passing on divergent role expectations and modeling how to deal with them,  
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23 and the heightened individual ambidexterity can enhance new idea creation and implementation.  
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25 Combining these arguments, we suggest that paradoxical leadership spurs individual members to  
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27 achieve greater ambidexterity, thus improving their innovation at work. In sum, we propose that:  
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31 *Hypothesis 3: Team leaders' paradoxical leadership has a positive relationship to team*  
32 *members' individual innovation through individual ambidexterity.*  
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34 Similarly, we expect team ambidexterity, through integrating explorative and exploitative  
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36 activities at the team level, to enhance team innovation. For idea generation, team exploration  
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38 works as the “engine,” so to speak, and team exploitation serves as a supporting system to that  
39  
40 engine. Specifically, a team's explorative activities produce alternative perspectives to fuel the  
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42 generation of creative ideas. Meanwhile, a team's exploitative activities could enhance efficiency  
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44 and in turn release cognitive resources for coming up with novel ideas (Bledow et al., 2009).  
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46 These roles of explorative and exploitative activities are inverted in idea implementation.  
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48 Namely, a team's exploitative activities facilitate refining capabilities for converting new ideas  
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50 into outputs. Additionally, alternative perspectives introduced by explorative activities help  
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3 upgrade existing knowledge and capabilities to benefit the implementation of creative ideas as  
4 well (Bledow et al., 2011; Rosing et al., 2011).  
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8 In this way, team exploitative and explorative activities iterate between one another,  
9  
10 jointly contributing to team innovation. Taking these arguments together with Hypothesis 2, we  
11 suggest that, for teams as a whole, paradoxical leadership helps build a simultaneously  
12 autonomous and structured work atmosphere to promote team ambidexterity, and this heightened  
13 team ambidexterity facilitates both the generation and application of novel ideas, ultimately  
14 increasing team innovation. Hence, we hypothesize that:  
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21 *Hypothesis 4: Team leaders' paradoxical leadership has a positive relationship to team*  
22 *innovation through team ambidexterity.*  
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### 25 **The Moderating Role of Leader Vision**

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27 Thus far, we have postulated multilevel mechanisms to account for the effects of  
28 paradoxical leadership on individual and team innovation. Yet, we implicitly assume that team  
29 members sense the rationale underlying paradoxical leadership's seemingly complex behavioral  
30 pattern. This may not always be the case. To hone our theorizing, we posit leader vision as a  
31 boundary condition of the proposed relationships. The paradox literature suggests that leaders  
32 should consistently transmit a clear vision so that members can see a holistic picture behind  
33 competing demands (e.g., Lewis, 2000; Lewis et al., 2014). When there is no such vision, the  
34 competing demands might aggravate into chaos.  
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45 Following prior work (Griffin, Parker, & Mason, 2010; Stam, Lord, van Knippenberg, &  
46 Wisse, 2014), we define *leader vision* as the extent to which team members perceive a clear,  
47 overarching direction for the team communicated by their leader. A vision denotes superordinate  
48 goals rather than common goals. It is typically oriented to the long term and depicts a big picture  
49 of the future (Austin & Vancouver, 1996; Berson, Halevy, Shamir, & Erez, 2015; Carton &  
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3 Lucas, 2018). Clear leader vision offers a compelling sense of direction even in situations  
4 characterized by change and uncertainty (Nanus, 1992; Stam et al., 2014). Prior research has  
5 investigated different facets of leader vision, including the extent to which leaders promote a  
6 shared vision among team members (e.g., Carton, Murphy, & Clark, 2014) and the extent to  
7 which leader vision is consistent with the larger organization's vision (e.g., Lewis & Clark,  
8 2020). We focus on *the clarity of leader vision*, as perceived by team members, to tackle the  
9 theoretical tenet of the paradox literature: a clear and consistent vision provides a vital direction  
10 for followers to navigate competing work demands (Lewis et al., 2014; Pearce, Wassenaar,  
11 Berson, & Tuval-Mashiach, 2019).

12  
13 We first posit that leader vision strengthens the impact of paradoxical leadership on  
14 members' individual ambidexterity and innovation. Research shows that people have a general  
15 preference for consistency and predictability (e.g., Cialdini, Trost, & Newsom, 1995; Heider,  
16 1958). They often feel anxious and distressed when presented with contradictory information  
17 (Lüscher & Lewis, 2008; Vince & Broussine, 1996). When confronted by paradoxical  
18 leadership, team members may struggle to interpret the complex behaviors. With a clear vision  
19 as the underlying rationale, however, members would find these behaviors easier to understand  
20 and follow. Thus, it is easier for them to legitimize, accept, and integrate the divergent role  
21 expectations from paradoxical leaders and to engage in their expected activities related to  
22 exploration and exploitation. Further, members are more likely to model themselves on and thus  
23 learn from paradoxical leaders when they can see a clear direction provided (Shamir, House, &  
24 Arthur, 1993; Zhang et al. 2015). Consequentially, members are better able to find ways to  
25 maneuver flexibly between explorative and exploitative activities, thereby realizing higher  
26 individual ambidexterity and enhancing their innovation at work.

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3           Conversely, without a clear vision, a sense of vagueness may prevent members from  
4 understanding the behaviors of paradoxical leaders or modeling their actions on their leaders.  
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6 Delivering paradoxical expectations without first ensuring a clear view of the road ahead might  
7  
8 leave team members unable to interpret the rationale behind paradoxical leadership behaviors  
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10 (Pearce et al., 2019). Members are then less likely to accept the tensions between exploration and  
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12 exploitation and less able to find synergistic possibilities under paradoxical leaders. In sum, we  
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14 propose that a strong leader vision will enable team members to enhance their individual  
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16 ambidexterity and innovation at work under paradoxical leadership. We hypothesize that:  
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21           *Hypothesis 5a: Leader vision moderates the positive relationship between paradoxical*  
22 *leadership and team members' individual ambidexterity, such that the relationship is*  
23 *stronger under strong (versus weak) leader vision.*  
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27           *Hypothesis 5b: Leader vision moderates the positive relationship between paradoxical*  
28 *leadership and team members' individual innovation through individual ambidexterity,*  
29 *such that the indirect relationship is stronger under strong (versus weak) leader vision.*  
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31           We further predict that leader vision will reinforce the relationship between paradoxical  
32 leadership and the whole team's ambidexterity and innovation. While paradoxical leadership  
33 embraces the potential to build a simultaneously open and organized team environment, it may  
34 sometimes inadvertently cause divergence and ambiguity. A clear, consistent leader vision  
35 tends to overcome this possibility by offering a forward-looking anchor to guide the team  
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37 (Mumford et al., 2002; Venus, Stam, & van Knippenberg, 2019). It enables members under  
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39 paradoxical leaders to feel more at ease working in a both autonomous and structured  
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41 atmosphere given a strong sense of direction. Consequently, these members are better able to  
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43 collaborate actively to develop team ambidexterity.  
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51           In contrast, without a strong vision, leaders may fail to harness the positive influence of  
52 paradoxical leadership. If leaders dynamically alternate between providing flexibility and  
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3 emphasizing control without communicating the underlying rationale, this apparent lack of  
4 consistency may create uncertainty for the team or even result in unexpected chaos (Lewis et al.,  
5 2014). Even worse, the whole team may lose sight of where it is going and feel uncomfortable in a  
6 team environment that is both autonomous and structured under paradoxical leaders, and  
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emphasizing control without communicating the underlying rationale, this apparent lack of consistency may create uncertainty for the team or even result in unexpected chaos (Lewis et al., 2014). Even worse, the whole team may lose sight of where it is going and feel uncomfortable in a team environment that is both autonomous and structured under paradoxical leaders, and consequentially fail to capitalize on the benefits of paradoxical leadership for team ambidexterity and innovation. In sum, we propose that:

*Hypothesis 6a: Leader vision moderates the positive relationship between paradoxical leadership and team ambidexterity, such that the relationship is stronger under strong (versus weak) leader vision.*

*Hypothesis 6b: Leader vision moderates the positive relationship between paradoxical leadership and team innovation through team ambidexterity, such that the indirect relationship is stronger under strong (versus weak) leader vision.*

## OVERVIEW OF STUDIES

To test our hypothesized model, we conducted two field studies with work teams whose main tasks were providing innovative solutions. We then supplemented these with a survey study among working adults recruited online. Study 1 preliminarily tested the effects of paradoxical leadership on team and individual ambidexterity and innovation. Study 2 investigated the full model, examining the contingency effect of leader vision. We further utilized a survey study with cross-lagged panel design (Study 3) to disentangle the causal directions of paradoxical leadership, individual ambidexterity, and individual innovation.

## FIELD STUDY 1

### Sample and Procedure

We invited seven companies in northern China to participate in Study 1. All of these companies operated in highly volatile industries, including Internet technology, telecommunications, and medical technology. Before data collection, we asked HR managers in the sampled companies to identify teams whose major tasks were to develop innovative

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3 solutions, including product and service innovation, technology innovation, and process  
4 innovation. The HR managers mainly selected research and development teams (which design  
5 and develop new products or services) and technical teams (which build new, practical  
6 technological solutions for clients). For example, the sampled information technology (IT)  
7 service teams worked on designing, delivering, operating, and maintaining IT services for  
8 different types of customers, offering novel solutions to solve emerging problems effectively and  
9 efficiently. Each sampled work team consisted of one formal leader and its members. They had  
10 specialized knowledge in their products, services, and markets. The HR managers provided us  
11 with lists of team leaders and members, based on which we coded and matched questionnaires.  
12 The HR managers and staff then helped us distribute envelopes containing questionnaires during  
13 work breaks. Each sealed envelope had a removable name tag on the cover. We asked  
14 respondents to return their completed questionnaires in the sealed envelopes after tearing off the  
15 name tag. On the cover page of the questionnaire, we promised that all answers would be  
16 confidential, voluntary, and used only for academic research purposes.

17  
18 We collected data from multiple sources, both team members and team leaders, and at  
19 three time points, at intervals of two weeks, to reduce potential biases induced by common  
20 methods (Podsakoff, MacKenzie, & Podsakoff, 2012). At Time 1, team members rated their  
21 leaders' paradoxical leadership and reported demographic information. After two weeks, at Time  
22 2, each member reported their own individual exploration and exploitation and assessed team  
23 exploration and exploitation using the reference-shift consensus model of team constructs (Chan,  
24 1998). We also used different scales to capture exploration and exploitation at the team and  
25 individual levels. In doing so, we aimed to minimize the likelihood of measurement  
26 contamination and common method bias (Chan, 2019; Podsakoff et al., 2012). At Time 3, after  
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3 another two weeks, leaders rated team innovation and members' individual innovation. These  
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5 leaders generally played leading, organizing, coordinating, monitoring, and evaluating roles in  
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7 their teams. We ensured with HR managers that these leaders were well placed to assess team  
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9 and individual innovative outcomes before data collection.  
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12 The sample comprised 130 leaders and 760 members. At Time 1, 597 members  
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14 responded to the survey, resulting in a response rate of 78.55%. At Time 2, we obtained data  
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16 from 575 members out of the 597 Time 1 responders (response rate = 96.31%). At Time 3, 105  
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18 leaders returned their questionnaires (response rate = 80.77%). By including matched data only,  
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20 we obtained a final sample of 562 members from 105 teams. The total average team response  
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22 rate was 76.11% and the response rates of all teams were greater than 60%, above the threshold  
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24 recommended by Timmerman (2005). Among the responding team members, 58.01% were men;  
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26 their average age was 27.69 (*s.d.* = 3.75); average organizational tenure was 2.74 years (*s.d.* =  
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28 2.64); and 78.65% had a bachelor's degree or above. Among team leaders, 69.52% were men;  
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30 their mean age was 34.07 (*s.d.* = 5.49); average organizational tenure was 5.61 years (*s.d.* =  
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32 3.58); and 90.48% had a bachelor's degree or above.  
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### 38 **Measures**

39 We translated and back-translated measures from English into Chinese following the  
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41 cross-cultural translation procedure recommended by Brislin (1980).  
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44 ***Paradoxical leadership.*** Members evaluated the extent to which their team leaders had  
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46 exhibited paradoxical leadership in the previous six months. The time scale of six months was  
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48 long enough to present rich information on leaders' behavioral patterns (Shoda, Mischel, &  
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50 Wright, 1994). We adopted the 22-item scale from Zhang et al. (2015), which captures the five  
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52 behavioral dimensions corresponding to managing organizing and belonging paradoxes. The  
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54 items were rated on a five-point Likert-type scale (0 = *not at all*; 4 = *a lot*). A sample item is  
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3 “maintained overall control but gives subordinates appropriate autonomy.” This type of “dual-  
4 sided” measures embraces both sides of competing elements, capturing the core of paradoxical  
5 leadership.<sup>2</sup> Higher scores for each item indicated that both sides of the behavior were observed  
6 to a larger extent, while lower scores indicated that at least one side of the behavior was observed  
7 to a lesser extent (Miron-Spektor et al., 2018; Zhang & Han, 2019).

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15 Cronbach’s alpha of the paradoxical leadership scale in this study was 0.94; the  
16 reliabilities of its five dimensions ranged from 0.82 to 0.90. Confirmatory factor analyses (CFAs)  
17 first revealed that a five-factor model with the five dimensions of items as separate factors fit the  
18 data well ( $\chi^2(199) = 871.55$ ; CFI = 0.90; RMSEA = 0.08; SRMR = 0.05). We then tested the  
19 second-order model in which the five dimensions loaded on one higher-order latent factor of  
20 paradoxical leadership. The model showed a good fit with the data well ( $\chi^2(204) = 892.07$ ; CFI =  
21 0.90; RMSEA = 0.08; SRMR = 0.05), supporting the higher-order underlying construct (Gerbing  
22 & Anderson, 1984; Judge, Erez, Bono, & Thoresen, 2002). Given these findings, we then  
23 averaged scores across dimensions to form an overall measure of paradoxical leadership for  
24 further analyses (Anderson & Gerbing, 1988).

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38 ***Individual ambidexterity.*** To measure individual ambidexterity, we first asked each team  
39 member to rate their own exploration and exploitation at work. We used the 11-item measure

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44 <sup>2</sup> Dual-sided measures have been gradually adopted in paradox research (e.g., Miron-Spektor et al., 2018; Zhang &  
45 Han, 2019). To further investigate whether the dual-sided measures we adopted capture the theoretical core of  
46 paradoxical leadership, we conducted additional analyses with an independent sample (N = 106; see also Zhang et  
47 al., 2015, subsample 2 of sample 3). In this sample, employees rated their direct supervisors with the dual-sided  
48 measures of paradoxical leadership and two sets of one-directional items separated from the paradoxical leadership  
49 items according to their respective meanings (either focusing on flexibility and individuality or on control and  
50 collectivity). We conducted polynomial regression with response surface analysis. Here we use X and Y to refer to  
51 the scores of two sets of one-directional leadership behaviors. The results showed that the response surface is curved  
52 downward along the line of  $Y = -X$ , that is, the more X and Y differ in any direction, the level of paradoxical  
53 leadership decreases (Edward, 2002; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010). Moreover, the ridge of  
54 the surface is not flat along the line of  $Y = X$  and shows that paradoxical leadership is high only when X and Y are  
55 congruent at high levels. In sum, these results show that *only* high levels in both sides of the behaviors indicate  
56 highly paradoxical leadership while lower levels in either side indicate less paradoxical leadership. The results  
57 provide support for the theoretical essence of paradoxical leadership.



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3 from Mom, Van Den Bosch, and Volberda (2007), which has been further validated by several  
4 other studies (e.g., Kauppila & Tempelaar, 2016; Mom et al., 2019). The scale stem was “In the  
5 last six months, to what extent did you, *as an individual*, engage in work-related activities that  
6 can be characterized as follows...” A sample item for exploration is “evaluated diverse options  
7 with respect to products/services, processes, or markets.” A sample item for exploitation is  
8 “performed activities which were clear to you how to conduct.” Items were measured on a six-  
9 point Likert-type scale (1 = *to a very small extent*; 6 = *to a very large extent*). Cronbach’s alpha  
10 for both scales was 0.88.  
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21 We operationalized individual ambidexterity by multiplying individual exploration and  
22 individual exploitation based on the tenet of ambidexterity theory—that is, exploration and  
23 exploitation are non-substitutable, interdependent, and synergistic rather than additive to promote  
24 innovation (Bledow et al., 2009; 2011). This operationalization is in line with previous studies  
25 (e.g., Gibson & Birkinshaw, 2004; Mom et al., 2009). We also replaced this multiplicative  
26 model with the additive model of exploration and exploitation and obtained consistent results.  
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35 ***Team ambidexterity.*** We asked members to assess the extent to which their teams as a  
36 whole had engaged in explorative and exploitative learning activities in the previous six months  
37 on two five-item scales developed by Kostopoulos and Bozionelos (2011). These scales of team  
38 exploration and exploitation have been well validated in other studies (e.g., Jansen et al., 2016;  
39 Liu & Leitner, 2012). A sample item for team exploration is “In our team, team members  
40 evaluated diverse options regarding the course of our team projects.” A sample item for team  
41 exploitation is “The members of our team recombined existing knowledge for accomplishing  
42 work.” Items were measured on a six-point Likert-type scale (1 = *strongly disagree*; 6 = *strongly*  
43 *agree*). The Cronbach’s alpha of these two scales was 0.92 and 0.86, respectively.  
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3 Similar to individual ambidexterity, we used the product term of team exploration and  
4 team exploitation to form an overall measure of team ambidexterity that would better capture the  
5 theoretical essence of ambidexterity following prior studies (e.g., Nemanich & Vera, 2009). The  
6 results using an additive model of team exploration and team exploitation were similar to those  
7 obtained using the multiplicative model.  
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15 **Individual innovation.** We asked leaders to assess all team members' individual innovation  
16 in the previous six months using the four-item scale from Welbourne, Johnson, and Erez (1998).  
17 The items are "came up with new ideas," "worked to implement new ideas," "found improved  
18 ways to do work," and "created better processes and routines." Items were measured on a six-  
19 point Likert-type scale (1 = *never*; 6 = *very often*). Cronbach's alpha was 0.84.  
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27 **Team innovation.** Leaders rated the innovation of the whole team in the previous six  
28 months on the four-item measure from De Dreu and West (2001), which has been widely used in  
29 other similar research settings (e.g., Chen, Farh, Campbell-Bush, Wu, & Wu, 2013; Chi, Huang  
30 & Lin, 2009; De Dreu, 2006). We asked team leaders to indicate their agreement with statements  
31 regarding their team on a six-point scale (1 = *strongly disagree*; 6 = *strongly agree*). A sample  
32 item is "Team members often produced new services, methods, or procedures." Cronbach's alpha  
33 was 0.72.  
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43 **Control variables.** We included employee age and education as control variables at the  
44 individual level, because more educated employees are more likely to be more capable of  
45 generating and implementing new ideas (Chen et al., 2013; Scott & Bruce, 1994) and elder  
46 employees may have stronger inertia and make less effort to be innovative (Janssen, 2000; Scott,  
47 & Bruce, 1994). At the team level, we included team size and team member mean tenure as  
48 control variables, given their importance in studying team innovation as indicated by the  
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3 literature (for a review, see Hülshager, Anderson, & Salgado, 2009). We conducted all the  
4 analyses with and without these control variables for a robustness check and obtained consistent  
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6 results.  
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### 9 10 **Confirmatory Factor Analyses**

11 To ensure a comprehensive test of the multilevel data structure, we conducted multilevel  
12 CFAs following procedures recommended by Dyer, Hanges, and Hall (2005). We first  
13 performed individual-level CFAs on team exploration, team exploitation, individual exploration,  
14 and individual exploitation, given that they were all measured by team members at the same  
15 time. The CFA results showed a good fit with the hypothesized four-factor structure ( $\chi^2 (183) =$   
16  $755.25$ ; CFI = 0.91; RMSEA = 0.08; SRMR = 0.05). All indicators were significantly loaded on  
17 their respective factors. The alternative models were: (a) a two-factor model combining items of  
18 team exploration and exploitation and combining items of individual exploration and  
19 exploitation; (b) another two-factor model combining items of team and individual exploration  
20 into one factor and items of team and individual exploitation into another; and (c) a one-factor  
21 model combining all items. All of these alternative models fit the data significantly worse than  
22 the original hypothesized model ( $\Delta\chi^2 (5) = 1606.61, p < 0.01$ ;  $\Delta\chi^2 (5) = 1496.09, p < 0.01$ ;  $\Delta\chi^2$   
23  $(6) = 2390.08, p < 0.01$ ).  
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41 These CFA results at the individual level demonstrate the discriminant validity of the  
42 core constructs, providing a sufficient basis for examining the multilevel structure of the data  
43 (Dyer et al., 2005). We then constructed within- and between-team CFA models comprising  
44 these four factors. To avoid model non-convergence, which is prone to arise in multilevel CFAs,  
45 we used item parceling to reduce the number of observed indicators (Nasser & Wisenbaker,  
46 2003). The multilevel CFA of the model with three parceled indicators for each construct  
47 showed acceptable fit at both the individual and team levels of analysis ( $\chi^2 (96) = 166.48$ ; CFI =  
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3 0.98; RMSEA = 0.04; SRMR<sub>between</sub> = 0.07; SRMR<sub>within</sub> = 0.04). Thus, we concluded that the  
4  
5 factor structure of the measures was consistent at both levels.  
6

### 7 **Data Aggregation, Levels of Analysis, and Analytic Strategy**

8  
9 Intra-class correlations, ICC1 and ICC2, for all constructs theorized at the team level  
10  
11 were acceptable—paradoxical leadership: ICC1= 0.43 and ICC2 = 0.80 ( $F = 5.12, p < 0.01$ );  
12  
13 team exploration: ICC1 = 0.29 and ICC2 = 0.68 ( $F = 3.17, p < 0.01$ ); team exploitation: ICC1 =  
14  
15 0.33 and ICC2 = 0.73 ( $F = 3.67, p < 0.01$ ). The median values of within-group inter-rater  
16  
17 reliabilities ( $R_{wg}$ ) across teams were 0.98, 0.96, and 0.96, respectively. Based on these results, we  
18  
19 aggregated these three variables to the team level (Bliese, 2000).  
20  
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22

23  
24 Given the nested nature of our model, we conducted multilevel path analyses to test our  
25  
26 hypotheses using Mplus 8 (Muthén & Muthén, 2017), following prior work (Edwards &  
27  
28 Lambert, 2007; Gong, Kim, Lee & Zhu, 2013). We tested the significance of the proposed  
29  
30 indirect effects using the Monte Carlo method of parametric bootstrapping to compute their  
31  
32 confidence intervals (Preacher, Zyphur, & Zhang, 2010).  
33  
34

### 35 **Results and Discussion**

36  
37 Table 1 presents the means, standard deviations, and bivariate correlations of the  
38  
39 variables. The correlation results provided preliminary support for the hypothesized  
40  
41 relationships.  
42

43 -----Insert Table 1 about here-----  
44

45  
46 We conducted multilevel path analysis by specifying a model that examined the team-  
47  
48 level relationship of PLB–team ambidexterity–team innovation and the cross-level effect of  
49  
50 PLB–individual ambidexterity–individual innovation (Edwards & Lambert, 2007). Table 2  
51  
52 shows the path analysis results. Paradoxical leadership was positively related to team  
53  
54 ambidexterity ( $\gamma = 2.03, SE = 0.57, p < 0.01$ ), supporting Hypothesis 1. The relationship between  
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3 paradoxical leadership and individual ambidexterity was positive and significant ( $\gamma = 1.44$ ,  $SE =$   
4  
5  $0.45$ ,  $p < 0.01$ ), supporting Hypothesis 2.  
6

7  
8 As Table 2 shows, individual ambidexterity was positively and significantly related to  
9  
10 individual innovation ( $\gamma = 0.08$ ,  $SE = 0.02$ ,  $p < 0.01$ ). Parametric bootstrapping results showed  
11  
12 that paradoxical leadership had a significant indirect effect on individual innovation through  
13  
14 individual ambidexterity (*indirect effect* = 0.11, 95% CI = [0.04, 0.21]). Therefore, Hypothesis 3  
15  
16 was supported. Team ambidexterity was positively related to team innovation ( $\gamma = 0.05$ ,  $SE =$   
17  
18  $0.01$ ,  $p < 0.01$ ). Bootstrapping results showed that paradoxical leadership had a significant  
19  
20 positive indirect effect on team innovation via team ambidexterity (*indirect effect* = 0.11, 95% CI  
21  
22 = [0.05, 0.16]). Thus, Hypothesis 4 was also supported. In sum, the results of Study 1 provided  
23  
24 support for the proposed mediating effects of paradoxical leadership on innovative outcomes at  
25  
26 both the individual and team levels through individual and team ambidexterity.  
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30  
31 -----Insert Table 2 about here-----  
32

## 33 **FIELD STUDY 2**

34  
35 In Study 2, we replicated the results of Study 1 and further investigated leader vision as  
36  
37 a critical boundary condition of paradoxical leadership's effects. Additionally, we controlled for  
38  
39 two other theoretically relevant leadership behaviors: transformational leadership and supportive  
40  
41 leadership behavior to exclude possible alternative explanations.  
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43

### 44 **Sample and Procedures**

45  
46 Study 2 data involved five companies in northern China from the information technology  
47  
48 and services, software technology and services, media technology, and medical technology  
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50 industries, all of which involve complex business environments and high innovation  
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52 requirements. These companies all differ from those sampled in Study 1. We used the same  
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54 sampling and survey methodology as in Study 1. At Time 1, we distributed questionnaires to 820  
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3 team members, and 726 questionnaires were returned (88.54% response rate). At Time 2, 634 of  
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5 the 726 Time 1 responders returned their questionnaires (87.33% response rate). At Time 3, 94 of  
6  
7 120 leaders returned their questionnaires (78.33% response rate). We included matched data only  
8  
9 and the final dataset comprised 607 team members working under 93 leaders. The total average  
10  
11 team response rate was 74.60%, and the response rates of all teams were above the threshold of  
12  
13 60% (Timmerman, 2005). Team members' average age was 28.52 (*s.d.* = 4.27), 41.35% were  
14  
15 women, and 70.84% had received a bachelor's degree or above. Team leaders' average age was  
16  
17 35.09 (*s.d.* = 4.79), 48.39% were women, and 90.32% had a bachelor's degree or above.  
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21

## 22 **Measures**

23 We used the same measures of paradoxical leadership and individual and team  
24  
25 ambidexterity and innovation as in Study 1.  
26

27  
28 **Leader vision.** We assessed leader vision with three items adapted from Griffin et al.  
29  
30 (2010). Respondents evaluated the extent to which their team leader "creates an exciting and  
31  
32 attractive image of where the team is going," "conveys a clear understanding of where the team  
33  
34 is heading in the future," and "expresses a clear direction for the future of the team," on a six-  
35  
36 point Likert-type scale (1 = *to a very small extent*; 6 = *to a very large extent*). Cronbach's alpha  
37  
38 for this scale was 0.91.  
39  
40

41  
42 **Controls.** In addition to the control variables in Study 1, we controlled for  
43  
44 transformational leadership, using a seven-item scale adopted from Carless, Wearing, and Mann  
45  
46 (2000), and controlled for supportive leadership behavior, using a six-item measure from  
47  
48 Carmeli, Gelbard, and Gefen (2010). Prior studies have shown that these two types of leadership  
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50 are associated with team ambidexterity and team innovation (Eisenbeiss, van Knippenberg, &  
51  
52 Boerner, 2008; Jansen et al., 2016; Krause, 2004; Nemanich & Vera, 2009). Cronbach's alpha for  
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54 these two scales was 0.80 and 0.88, respectively. The model results were virtually the same with  
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3 and without these control variables. In line with contemporary recommendations, we kept these  
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5 theoretically relevant control variables in the analyses to increase the rigor and precision of our  
6  
7 results (Bernerth & Aguinis, 2016).  
8  
9

### 10 **Confirmatory Factor Analyses**

11 We conducted multilevel CFAs to examine the multilevel structure of the data regarding  
12  
13 member-reported measures of paradoxical leadership, transformational leadership, supportive  
14  
15 leadership, leader vision, team exploration, team exploitation, individual exploration, and  
16  
17 individual exploitation. The individual-level CFA results showed good fit for the hypothesized  
18  
19 eight-factor structure ( $\chi^2 (791) = 1789.46$ ; CFI = 0.93; RMSEA = 0.05; SRMR = 0.05). All  
20  
21 indicators were significantly loaded onto their respective factors. We also tested alternative  
22  
23 factor models and found that they all fit the data significantly worse than the original  
24  
25 hypothesized model (further details are available on request).  
26  
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29

30 Given these CFA results, we then constructed within- and between-team CFA models  
31  
32 comprising these eight factors (Dyer et al., 2005). To ensure model convergence, the five  
33  
34 paradoxical leadership subscales were modeled as five indicators of the latent construct, and the  
35  
36 seven other latent variables—transformational leadership, supportive leadership behavior, leader  
37  
38 vision, team exploration, team exploitation, individual exploration, and individual exploitation—  
39  
40 were each parceled into two indicators. The resulting multilevel CFA model demonstrated an  
41  
42 acceptable fit ( $\chi^2 (248) = 440.09$ ; CFI = 0.97; RMSEA = 0.04; SRMR<sub>between</sub> = 0.09; SRMR<sub>within</sub>  
43  
44 = 0.04). In sum, these results provide evidence supporting the factor structure at both the  
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46 individual and team levels of analysis.  
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### 51 **Data Aggregation, Levels of Analysis, and Analytic Strategy**

52 As in Study 1, we first calculated the intra-class correlations of the team-level measures.  
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54 ICC1 and ICC2 of the constructs were all acceptable—paradoxical leadership: ICC1 = 0.20 and  
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3 ICC2 = 0.63 ( $F = 2.67, p < 0.01$ ); transformational leadership: ICC1 = 0.17 and ICC2 = 0.57 ( $F$   
4 = 2.33,  $p < 0.01$ ); supportive leadership: ICC1 = 0.15 and ICC2 = 0.54 ( $F = 2.16, p < 0.01$ );  
5  
6 leader vision: ICC1 = 0.21 and ICC2 = 0.63 ( $F = 2.72, p < 0.01$ ); team exploration: ICC1 = 0.26  
7  
8 and ICC2 = 0.69 ( $F = 3.27, p < 0.01$ ); and team exploitation: ICC1 = 0.19 and ICC2 = 0.60 ( $F =$   
9  
10 2.50,  $p < 0.01$ ). The median value of  $R_{wgs}$  was 0.98 for paradoxical leadership, 0.86 for leader  
11  
12 vision, 0.93 for transformational leadership, 0.92 for supportive leadership behavior, 0.92 for  
13  
14 team exploration, and 0.93 for team exploitation. Therefore, aggregation of these focal variables  
15  
16 to team level was appropriate (Bliese, 2000).  
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21 We then conducted multilevel path analyses by specifying a model that was the same as  
22  
23 our overall theoretical model and included all the control variables in multiple steps. We used the  
24  
25 same analytic strategy as in Study 1 to analyze our data.  
26  
27

## 28 **Results and Discussion**

29  
30 Table 3 shows the means, standard deviations, and bivariate correlations among the  
31  
32 studied variables.  
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35 -----Insert Table 3 about here-----  
36

37 Table 4 shows the results of the multilevel path analysis. The cross-level direct effect of  
38  
39 paradoxical leadership on team members' individual ambidexterity was positive and significant  
40  
41 ( $\gamma = 1.50, SE = 0.59, p < 0.05$ ), supporting Hypothesis 1. Paradoxical leadership was positively  
42  
43 related to team ambidexterity ( $\gamma = 1.20, SE = 0.54, p < 0.05$ ), supporting Hypothesis 2. Further,  
44  
45 individual ambidexterity had a significant positive relationship with individual innovation ( $\gamma =$   
46  
47 0.18,  $SE = 0.05, p < 0.01$ ) and the results of parametric bootstrapping showed that paradoxical  
48  
49 leadership had a significant indirect effect on individual innovation through individual  
50  
51 ambidexterity (*indirect effect* = 0.27, 95% CI = [0.07, 0.49]). Thus, Hypothesis 3 was supported.  
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53  
54 Team ambidexterity was also positively related to team innovation ( $\gamma = 0.06, SE = 0.02, p < 0.05$ )  
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3 and the results of parametric bootstrapping showed that paradoxical leadership positively and  
4 indirectly affected team innovation via team ambidexterity (*indirect effect* = 0.07, 95% CI =  
5 [0.005, 0.16]), supporting Hypothesis 4.  
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10 -----Insert Table 4 about here-----  
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12 Hypotheses 5–6 pertain to the moderating effects of leader vision. The results  
13 demonstrated that leader vision significantly moderated the effect of paradoxical leadership on  
14 individual ambidexterity ( $\gamma = 0.67$ ,  $SE = 0.27$ ,  $p < 0.05$ ) and team ambidexterity ( $\gamma = 0.72$ ,  $SE =$   
15  $0.20$ ,  $p < 0.01$ ). As shown in Figures 2 and 3, the results support Hypotheses 5a and 6a.  
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19 We then tested our proposed moderated mediation relationships. The results showed that  
20 paradoxical leadership had a stronger indirect effect on individual innovation through individual  
21 ambidexterity under strong leader vision (*indirect effect* under strong leader vision = 0.36,  $p <$   
22  $0.01$ ; *indirect effect* under weak leader vision = 0.19,  $p < 0.05$ ; *difference* = 0.17, 95% CI =  
23 [0.03, 0.30]). Similarly, paradoxical leadership had a stronger indirect effect on team innovation  
24 through team ambidexterity under strong leader vision (*indirect effect* under strong leader vision  
25 = 0.10,  $p < 0.05$ ; *indirect effect* under weak leader vision = 0.04, *n.s.*; *difference* = 0.06, 95% CI  
26 = [0.02, 0.18]). Hence, Hypotheses 5b and 6b were supported.  
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40 -----Insert Figure 2 and 3 about here-----  
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42 In summary, Study 2 provides further evidence for the positive effect of paradoxical  
43 leadership on innovation through ambidexterity at both individual and team levels after  
44 controlling for transformational leadership and supportive leadership behavior. Additionally, the  
45 results show that leader vision strengthens the positive effects of paradoxical leadership on  
46 ambidexterity and innovation for both individuals and teams.  
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### STUDY 3: CROSS-LAGGED STUDY VALIDATING CAUSALITY

The results of the above two field studies support our proposed model. However, they do not validate the causal direction of our theorizing. It is possible that highly innovative employees view themselves as putting more effort into exploration and exploitation (Yuan & Woodman, 2010); in other words, employees may assess their engagement in explorative and exploitative work activities based on their own innovative performance. This suggests the possibility of reverse causation between individual ambidexterity and innovation, which may present an alternative explanation for our results. We therefore conducted an online survey study using a cross-lagged panel design to strengthen the causal direction of paradoxical leadership–individual ambidexterity–individual innovation. The cross-lagged panel model is a rigorous design to test the causal ordering of variables using survey data (Kenny, 1975; Finkel, 1995; Maxwell & Cole 2007; Selig & Little, 2012), and is especially useful for studying phenomena that are difficult to manipulate in laboratory studies (MacKinnon, Fairchild, & Fritz, 2007).

#### Sample and Procedures

We recruited a Western sample via Prolific Academic, an online platform designed to recruit participants specifically for academic research that has been shown to provide data of equivalent quality to many work settings (Miron-Spektor et al., 2018; Wu, Parker, Wu, & Lee, 2018). We stipulated that all participants should be full-time employees and working in an organizational team. We also required that their work activities be related to developing new ideas and applying them to work processes, methods, products, or services.

We collected the data at three time points at two week intervals. The temporal separation was sufficiently long that the prior responses were less likely to be salient and available in participants' short-term memory (Dormann & Griffin, 2015; Miller & Desimone, 1994), but short enough to minimize contaminating factors (Ostroff, Kinicki, & Clark, 2002) and reduce

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3 attrition rates (Olsen, 2005). In each of the time periods, participants rated leaders' paradoxical  
4 leadership (Paradoxical Leadership T1–T3), individual exploration (Exploration T1–T3),  
5 individual exploitation (Exploitation T1–T3), and individual innovation (Innovation T1–T3).  
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10 Additionally, at time 1, participants reported their demographic characteristics and leader vision.

11  
12 A total of 442 participants joined this study and completed the T1 survey, 357  
13  
14 participants completed the T2 survey (80.77% response rate), and 312 participants completed the  
15  
16 T3 survey (87.39% response rate).<sup>3</sup> We include cases with complete data only in the final  
17  
18 sample. Among the 312 participants, 47.44% were female and 90.06% had received a college-  
19  
20 level education or above; they had an average age of 31.98 years (*s.d.* = 9.20), an average  
21  
22 organizational tenure of 5.22 years (*s.d.* = 5.22), and worked with their team leaders for 3.66  
23  
24 years on average (*s.d.* = 3.93).  
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27

## 28 **Measures**

29  
30 We used the same measures as in Studies 1 and 2, except that the time scale of the  
31  
32 repeated measures was “the last two weeks” across three waves in this study. We asked  
33  
34 participants to refer to their respective team leaders when rating paradoxical leadership and  
35  
36 leader vision.  
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39  
40 Unlike in Studies 1 and 2, the participants rated their own innovation at work. Research has  
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42 documented considerable convergent validity among self- and supervisor ratings of individual  
43  
44 innovation (e.g., Harari et al., 2016; Janssen, 2000), and self-rated innovative performance has  
45  
46 also often been adopted in the innovation literature (e.g., Chen, Li, & Leung, 2016; Shalley,  
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48 Gilson & Blum., 2009). Furthermore, self-reported innovation has complementary merits over  
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53 <sup>3</sup> To examine the effects of subject attrition, we used t-tests to see whether those who stopped participating after the  
54 first survey differed from the final sample in the second and third surveys, and whether those who quit after the  
55 second survey differed from the final sample in the third survey, with respect to the control, independent, and  
56 mediating variables. We did 9 such comparisons, applied a Bonferroni correction method, and found no significant  
57 differences.  
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3 rating by others: it may be more accurate as employees are more likely to be aware of the  
4 subtleties involved in their own innovative behavior (Chen et al., 2016; Ng & Feldman, 2012).

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6  
7 We included participants' age and education as control variables. The results were  
8 virtually the same for analyses with and without these control variables.  
9

### 10 11 12 **Confirmatory Factor Analyses and Analytic Strategy**

13  
14 Given that we measured paradoxical leadership and individual exploration, exploitation,  
15 and innovation three times, we first tested whether these measures had measurement invariance  
16 across time (Finkel, 1995; Vandenberg & Lance, 2000). To ensure the degree of freedom of our  
17 statistical model, we parceled the five dimensions of paradoxical leadership into five indicators,  
18 and exploration, exploitation, and innovation each into two indicators. We tested configural and  
19 metric invariance (Little, Preacher, Selig, & Card, 2007). The configural invariance model that  
20 specified the same factor structure over time fit the data well ( $\chi^2(114) = 269.81$ , CFI = 0.972,  
21 RMSEA = 0.066; SRMR = 0.032). Besides, the metric invariance model that fixed the  
22 corresponding factor loadings of the same variables as equal across the three time points also fit  
23 the data well ( $\chi^2(128) = 316.45$ , CFI = 0.966, RMSEA = 0.069; SRMR = 0.048). The difference  
24 of fit indices between the configural and metric invariance models ( $\Delta\text{CFI} = 0.006$ ,  $\Delta\text{RMSEA} = -$   
25  $0.003$ ,  $\Delta\text{SRMR} = -0.016$ ) shows measurement invariance according to Chen (2007) ( $|\Delta\text{CFI}| \leq$   
26  $0.010$  or  $|\Delta\text{RMSEA}| \leq 0.015$  or  $|\Delta\text{SRMR}| \leq 0.030$ ). Based on these criteria, we accepted the  
27 metric invariance model of our measures (Chen, 2007; Widaman, Ferrer & Conger, 2010).  
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46 Figure 4 shows the tested cross-lagged mediation model. This model includes parameter  
47 estimates of (a) the stabilities of focal variables over time; (b) the cross-lagged effects between  
48 paradoxical leadership and individual ambidexterity, and between individual ambidexterity and  
49 individual innovation; (c) the direct cross-lagged effect of paradoxical leadership T1 on  
50 individual innovation T3; (d) variable correlations at Time 1; and (e) disturbance term  
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3 correlations at Time 2 and 3; (f) the effects of control variables on dependent variables. We  
4  
5 tested this model using Mplus 8 (Muthén & Muthén, 2017).  
6

## 7 8 **Results and Discussion**

9 Table 5 presents the means, standard deviations, and correlations for all of the variables.

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11 -----Insert Table 5 about here-----  
12  
13

14 Figure 4 shows the path analysis results of the cross-lagged model. Standardized  
15 coefficients are reported. Participants' perception of paradoxical leadership T1 was positively  
16 related to their individual ambidexterity T2 ( $\gamma = 0.15$ ,  $SE = 0.05$ ,  $p < 0.01$ ), and individual  
17 ambidexterity T2 was positively related to their individual innovation T3 ( $\gamma = 0.17$ ,  $SE = 0.06$ ,  $p$   
18  $< 0.01$ ). The indirect effect of paradoxical leadership T1 on innovation T3 through individual  
19 ambidexterity T2 was 0.06, with a 95% CI of [0.02, 0.13]. These results further supported our  
20 proposed relationships. Additionally, the results also showed a bidirectional effect between  
21 individual ambidexterity and innovation, e.g., individual innovation T2 also has a lagged effect  
22 on individual ambidexterity T3 ( $\gamma = 0.23$ ,  $SE = 0.06$ ,  $p < 0.01$ ).  
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35 -----Insert Figure 4 about here-----  
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37 We further tested the proposed moderating effect of leader vision with this survey data.  
38 The moderation of leader vision on the paradoxical leadership T1–individual ambidexterity T2  
39 relationship was positive and significant ( $\gamma = 0.86$ ,  $SE = 0.30$ ,  $p < 0.01$ ; see Figure 5). The  
40 moderated mediation analysis showed that paradoxical leadership had a stronger lagged effect  
41 on individual innovation through individual ambidexterity under the strong leader vision condition  
42 (*indirect effect* under stronger leader vision = 0.08,  $p < 0.05$ ; *indirect effect* under weaker leader  
43 vision = 0.02, *n.s.*; *difference* = 0.06, 95% CI of [0.02, 0.14]). In sum, these results consistently  
44 support leader vision as a boundary condition of paradoxical leadership's effect on individual  
45 ambidexterity and innovation at work.  
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-----Insert Figure 5 about here-----

## GENERAL DISCUSSION

Integrating the paradox perspective and ambidexterity theory as our theoretical framework, we proposed and tested a multilevel model to determine how paradoxical leadership affects individual and team innovation. Our empirical results show that paradoxical leadership positively affects team members' individual innovation through individual ambidexterity and has a positive relationship to team innovation via team ambidexterity. The results further demonstrate that leader vision strengthens these effects.

### Theoretical Implications

Our findings contribute to the literature on innovation, ambidexterity, and leadership in several important ways. First, looking at innovation via the paradox perspective, we have revealed paradoxical leadership as a driving force to help individuals and teams address the paradoxical demands involved in the innovation process. Emerging research has recognized the paradoxical features of innovation (e.g., Thayer et al., 2018), suggesting that leaders should implement opposing action strategies and practices to foster innovation, especially in teams and individuals tasked with providing innovative solutions (e.g., Gebert et al., 2010; Rosing et al., 2011). However, our understanding of how leaders tackle the inherent paradoxical tensions to foster effective innovation is still quite limited. A major omission of prior frameworks and studies is that they mainly center either on idea generation or on idea implementation (Anderson et al., 2014). By integrating the paradox perspective and ambidexterity theory, we disentangled the mechanisms by which paradoxical leaders foster individual and team innovation—that is, through promoting ambidexterity in both individual employees and whole teams.

Second, our research extends ambidexterity theory. Although ambidexterity theory suggests the importance of leaders and leadership in influencing ambidexterity and, in turn,

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3 innovation (e.g., Bledow et al., 2009; Rosing et al., 2011), it reveals very little about *what*  
4 leadership behaviors. The present research enriches our understanding by showing what  
5 specific leader behaviors can promote ambidexterity and when. Specifically, it discloses that  
6 team leaders can promote the ambidexterity of individual followers and their teams by taking a  
7 “both/and” behavioral approach to the competing demands for control versus flexibility and the  
8 collective versus the individual. Such a leadership approach enhances ambidexterity (and, in  
9 turn, innovation) depending on the extent to which the leader communicates a strong vision.  
10 Taken together, our findings advance ambidexterity theory by demonstrating what leadership  
11 behaviors promote innovation through enhancing ambidexterity at both individual and team  
12 levels and when they do so (Colquitt & Zapata-Phelan, 2007).  
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26 Third, this research contributes to understanding leadership in work teams operating in  
27 complex and volatile environments. Team leadership research has underlined the functional  
28 leadership perspective (Hackman & Wageman, 2005; Zaccaro, Rittman, & Mark, 2001), which  
29 posits that leaders should act in ways that provide their teams what they need for successful  
30 actions—highlighting the importance of matching leader behaviors to team contexts and  
31 performance requirements. Related to this stream, scholars increasingly attend to leadership  
32 approaches to workplace paradoxes, which are particularly prevalent in the present era of rising  
33 uncertainties and complexity (e.g., Denison, Hooijberg & Quinn, 1995; Kaiser, Lindberg &  
34 Craig, 2007; Zacher & Rosing, 2015). Throughout this line of inquiry, a seeming consensus is  
35 that leaders should act paradoxically and flexibly to address complex and competing work  
36 demands. Paradoxical leadership, with its theoretical roots in the paradox perspective and  
37 systematically developed measures, displays the behavioral manifestations of team leaders in  
38 managing tensions and shows a good fit with the contemporary complex team contexts  
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3 (Barkema, Chen, George, Luo, & Tsui, 2015; Schad, Lewis, Raisch, & Smith, 2016). The  
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5 findings of this research regarding the moderating effect of leader vision further add to our  
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7 knowledge about an important boundary condition for paradoxical leadership's effectiveness in  
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9 promoting innovation in such work teams.  
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### 11 **Limitations and Future Research Directions**

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14 We first acknowledge the limitations in the measurement and design of our studies. In our  
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16 field studies, we asked team leaders to rate team innovation rather than measuring it objectively  
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18 (e.g., by observing the number of patents acquired) because the work teams we sampled came  
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20 from a range of different industrial and functional backgrounds and did not have uniform  
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22 innovation solutions or quantified records. Additionally, in our cross-lagged survey study, we used  
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24 participants' subjective measures of individual innovation due to the constraints imposed by the online  
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26 sample. Though subjective rating has its merits in representing the real-world innovation situations  
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28 that objective data or external observers cannot capture (Anderson et al., 2014), we could not rule  
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30 out the possibility of social desirability biases. In any event, future research could consider (a)  
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32 incorporating objective or multiple measures of team innovation with certain types of teams,  
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34 such as new product development teams, to increase the rigor and robustness of the findings, or  
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36 (b) using different data sources to capture team innovation and team members' individual  
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38 innovation when they are considered together. Further, given the limited sample size of teams in  
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40 our field studies ( $N = 105$  in Study 1 and  $N = 93$  in Study 2), we had to test the structural model  
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42 and measurement model separately following Anderson and Gerbing's (1988) two-step  
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44 approach. Future work could adopt the more rigorous multilevel SEM approach recommended  
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46 by Preacher et al. (2010) if possible. Moreover, while the "dual-sided" measures of paradoxical  
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48 leadership have their theoretical merits (that is, they are parsimonious measures that are tightly  
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50 aligned with the theoretical root of the paradox perspective), other operationalizations may work  
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3 as well (e.g., a multiplicative approach; Zacher & Rosing, 2015). We suggest future research to  
4 consider alternative operationalizations of paradoxical leadership according to research questions  
5 and theoretical underpinnings.  
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10         Second, while we applied the notion of ambidexterity to work team contexts, our model  
11 is primarily applicable to teams tasked with innovative solutions. Not all organizational teams  
12 are necessarily ambidextrous, for example, functional teams with relatively simple and routine  
13 tasks. On this point, a compelling question arises: Can ambidexterity sometimes yield  
14 undesirable consequences? Future research could consider and identify whether and when  
15 ambidexterity is beneficial (or undesirable) for teams and individuals. Additionally, we believe  
16 that the nature and manifestations of ambidexterity in teams and individuals merit further  
17 investigation. Ambidexterity can take different forms (e.g., Bledow et al., 2009). For instance, in  
18 a team responsible for developing new products, some members may concentrate more on  
19 coming up with novel ideas while others focus on scrutinizing the feasibility and application of  
20 ideas. The same activities can also be carried out by an individual switching back and forth  
21 between engaging in unconstrained idea generation and practical implementation. The respective  
22 measures of team ambidexterity and individual ambidexterity we adopted in our studies could  
23 not capture all the differences underlying these two types of ambidexterity. Qualitative  
24 approaches would greatly enrich our understanding in this area by disentangling the  
25 characteristics and processes of team and individual ambidexterity. Moreover, since we used the  
26 cross-lagged panel design to test the causality of only part of our model, future work could  
27 further validate the causal direction for the team-level theorizing. A quasi-experimental design  
28 would be a powerful method for strengthening the causal inferences.  
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3 Third, we did not investigate the relationship between individual and team innovation in  
4 the context of paradoxical leadership though we included both of them as our focal dependent  
5 variables. Theoretically, team innovation differs from individual innovation and the summation  
6 of team members' individual innovation—they could be correlated but are indeed two different  
7 phenomena (e.g., Anderson et al., 2014). Like the relationship between team members'  
8 individual performance and team performance, individual innovation could contribute to the  
9 team's overall innovation. It is also possible that the most innovative member may determine the  
10 innovation volume of the team. However, previous research has indicated that the team  
11 innovation–individual innovation relationship may be more complicated than expected. For  
12 example, employees with more innovative behavior are more likely to have conflicts with their  
13 coworkers and poorer coworker relations (e.g., Janssen, 2003), and when innovative behaviors  
14 result in group conflict, this can cause lower levels of group cohesion and group potency  
15 (Janssen, Van de Vliert, & West, 2004), which may consequentially reduce team innovation.  
16 Thus, we encourage researchers to unpack the complex relationship between team innovation  
17 and team members' individual innovation in future research of “leading for innovation”.

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19 Fourth, though we derived multiple theoretical rationales for the effect of paradoxical  
20 leadership on team and individual ambidexterity, we acknowledge that we did not explicitly test  
21 them. We encourage future research to examine alternative, more specific underlying  
22 mechanisms of paradoxical leadership's effects in work teams, such as how the role modeling  
23 effect works to influence team members and the type of work atmosphere that paradoxical  
24 leadership develops. Additionally, paradoxical leaders combine seemingly competing behaviors  
25 to manage paradoxical work demands, but the extent to which they do so based on situational  
26 requirements is not well understood. As Rosing et al. (2011: 972) suggested, “Leaders need to  
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3 have the knowledge or intuition of when and how to act and—even more importantly—they need  
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5 to flexibly switch between behaviors according to situational requirements.” Researchers could  
6  
7 further investigate how leaders exhibit paradoxical leadership behaviors dynamically over time.  
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10         Lastly, our research only focuses on the extent to which leaders communicate a clear  
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12 vision as a boundary condition. It is worth noting that the clarity of the communication of leader  
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14 vision does not necessarily indicate whether followers internalize and identify with the vision, or  
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16 collectively share it. Future research could explore other facets of vision as contextual factors,  
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18 such as the degree to which team members share the same vision or the extent to which the  
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20 vision communicated by a leader is consistent with organizational vision. Moreover, paradoxical  
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22 leaders may enhance individual and team innovation particularly under complex and uncertain  
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24 conditions, such as in situations of high task complexity and role ambiguity. Prior research has  
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26 also shown the importance of team composition in predicting innovation (e.g., Miron-Spektor et  
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28 al., 2011). We suspect that team cognitive composition may interact with leader behaviors to affect team  
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30 innovation. We urge future research to investigate these conditions and advance the theoretical  
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32 development of leading for innovation (Colquitt & Zapata-Phelan, 2007).  
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### 38 **Practical Implications**

39         Our research offers several practical insights for practitioners. First, based on our  
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41 findings, we advise managers—especially those leading work teams to deliver innovative  
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43 solutions—to employ a paradox perspective and consider using paradoxical leadership  
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45 principles and behaviors to foster ambidexterity and innovation. If organizations provide  
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47 paradoxical leadership training to team leaders, it could help them to master a “both/and”  
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49 approach to resolving common paradoxes: e.g., to ensure flexibility while enforcing clear work  
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51 requirements and to hold personal control of outputs while granting team members autonomy in  
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53 the process.  
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3 Prior research has indicated that a cognitive prerequisite for paradoxical leadership is  
4 paradoxical mindset—that is, an individual’s cognitive orientation to accept and be energized by  
5 tensions (Miron-Spektor et al., 2018; Zhang et al., 2015). In his influential book concerning  
6 paradoxical mindset, Martin (2009) gives vivid examples of leaders capable of such a mindset,  
7 such as Jack Welch, Larry Bossidy, and Michael Dell. Just as Paul Polman, the former CEO of  
8 Unilever, stated, “The difference between average and outstanding firms is an ‘AND Mentality.’  
9 We must find and create tensions—force people into different space for thinking.” Leaders high  
10 in paradoxical mindset can simultaneously hold two contradictory ideas in mind (such as  
11 retaining control and granting autonomy), and combine and integrate both into higher-order  
12 planning. To achieve sustained success in today’s volatile environments, we recommend that  
13 leaders think paradoxically and act integratively (Bledow et al., 2009; Peng & Nisbett, 1999).  
14 Providing training on such cognitive mindsets therefore becomes imperative.  
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31 Furthermore, to maximize the effectiveness of paradoxical leadership, team leaders  
32 should create and convey a clear, forward-looking vision to their team. Recent research shows  
33 that team leaders and middle managers play important roles in conveying and cultivating vision  
34 and direction for employees and that their vision communication can have a significant influence  
35 on the effectiveness of their leadership (e.g., Dionne, Yammarino, Atwater, & Spangler, 2004;  
36 Lewis & Clark, 2020; Wellman, 2017). Our findings indicate that communicating a clear,  
37 guiding vision to members and empowering them to “see the big picture” could be necessary for  
38 paradox management in work teams. Without a clear vision, a team may lose sight of where it is  
39 going and, hence, be unable to interpret and understand the rationale behind paradoxical  
40 leadership. Organizations can encourage and guide team leaders to develop visions for teams in  
41 line with organizational visions.  
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3 Finally, our findings empirically support the notion that ambidexterity enhances  
4 innovation at both individual and team levels. These findings can benefit companies that are built  
5 on innovative products and services (such as high-tech enterprises and young startups), which may  
6 have a particularly strong need for ambidextrous work teams. In reality, not all teams are capable of  
7 delivering high-quality innovative outcomes as requested. Some focus too much on introducing new  
8 ideas and fail to move forward and realize these ideas' potential, while others fail because they move  
9 to implementation too quickly. We suggest that, to innovate successfully, teams and individuals  
10 should place equal emphasis on both explorative and exploitative activities. Also, organizations  
11 should provide an enabling context to encourage both explorative and exploitative efforts of teams and  
12 individuals, such as human resources management practices (e.g., training) to increase  
13 paradoxical leadership and effective leader vision communication or a culture that emphasizes  
14 paradoxical thinking and dynamic adaptability to nurture (or at least not to inhibit)  
15 ambidexterity.  
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Table 1 Study 1: Means, Standard Deviations, and Correlations

Variable	Mean	Individual level SD	Team level SD	1	2	3	4	5	6	7
<i>Individual level</i>										
1. Age	27.69	3.75		--						
2. Education	3.86	0.57		0.28**	--					
3. Individual exploration	4.49	0.80		0.01	-0.04	(0.88)				
4. Individual exploitation	4.56	0.71		0.10*	-0.07	0.44**	(0.88)			
5. Individual ambidexterity	20.76	5.74		0.06	-0.07	0.86**	0.83**	--		
6. Individual innovation	4.31	0.77		0.14**	-0.02	0.26**	0.18**	0.26**	(0.84)	
<i>Team level</i>										
1. Team size	6.86		4.07	--						
2. Mean team tenure	1.92		1.07	0.16	--					
3. Paradoxical leadership	2.68		0.46	0.22*	0.11	(0.94)				
4. Team exploration	4.50		0.56	0.07	-0.08	0.38**	(0.92)			
5. Team exploitation	4.59		0.52	0.07	0.05	0.35**	0.72**	(0.86)		
6. Team ambidexterity	20.93		4.53	0.07	-0.02	0.38**	0.93**	0.91**	--	
7. Team innovation	4.75		0.56	-0.06	0.17	0.27**	0.38**	0.48**	0.47**	(0.72)

Note:  $n = 562$  for individual-level variables.  $N = 105$  for team-level variables. Cronbach's alphas are reported in the parentheses on the diagonal. Paradoxical leadership was measured on a 5-point Likert scale (ranging from 0 to 4); individual exploration, individual exploitation, individual innovation, team exploration, team exploitation, and team innovation were measured on 6-point Likert scales (ranging from 1 to 6); individual ambidexterity was calculated by multiplying individual exploration and individual exploitation (ranging from 1 to 36); team ambidexterity was calculated by multiplying team exploration and team exploitation (ranging from 1 to 36).  
 \* $p < .05$ ; \*\* $p < .01$ .

**Table 2 Study 1: Simultaneous Multilevel Path Model Tests and Results**

Variables	Team ambidexterity		Team innovation		Individual ambidexterity		Individual innovation	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Intercepts	21.16**	0.35	3.60**	0.27	20.76**	0.33	2.64**	0.34
<i>Team level</i>								
Team size	-0.05	0.40	-0.09	0.06	0.89*	0.38	-0.04	0.05
Mean team tenure	-0.30	0.34	0.10	0.05	0.63	0.38	0.02	0.05
Paradoxical leadership	2.03**	0.57	0.07	0.05	1.44**	0.45	0.04	0.05
Team ambidexterity			0.05**	0.01				
<i>Individual level</i>								
Age					0.13	0.20	0.09	0.05
Education					0.21	0.22	-0.01	0.04
Individual ambidexterity							0.08**	0.02

Note:  $n = 562$  for individual-level variables.  $N = 105$  for team-level variables.

All independent variables were standardized before entering the path model. SE refers to standard errors.

\* $p < .05$ ; \*\* $p < .01$ .

**Table 3 Study 2: Means, Standard Deviations, and Correlations**

Variable	Mean	Individual level SD	Team level SD	1	2	3	4	5	6	7	8	9	10
<i>Individual level</i>													
1. Age	28.52	4.27		--									
2. Education	3.79	0.61		0.15**	--								
3. Individual exploration	3.88	1.06		-0.02	0.08	(0.88)							
4. Individual exploitation	4.40	0.85		0.05	0.03	0.43**	(0.86)						
5. Individual ambidexterity	17.44	6.67		0.02	0.06	0.90**	0.75**	--					
6. Individual innovation	3.97	0.91		0.04	-0.01	0.30**	0.22**	0.32**	(0.86)				
<i>Team level</i>													
1. Team size	8.66		4.00	--									
2. Mean team tenure	2.13		0.97	0.04	--								
3. Transformational leadership	3.70		0.43	0.07	-0.08	(0.80)							
4. Supportive leadership	3.89		0.42	0.11	-0.07	0.74**	(0.88)						
5. Paradoxical leadership	2.64		0.33	0.08	-0.03	0.63**	0.58**	(0.92)					
6. Leader vision	4.19		0.69	0.20	-0.02	0.59**	0.65**	0.45**	(0.91)				
7. Team exploration	4.32		0.57	0.00	-0.08	0.44**	0.55**	0.47**	0.48**	(0.90)			
8. Team exploitation	4.48		0.46	-0.05	-0.16	0.41**	0.56**	0.41**	0.30**	0.61**	(0.84)		
9. Team ambidexterity	19.53		4.14	-0.02	-0.12	0.48**	0.61**	0.50**	0.45**	0.92**	0.86**	--	
10. Team innovation	4.42		0.86	0.13	-0.17	0.24*	0.21*	0.27**	0.19	0.35**	0.30**	0.37**	(0.86)

Note: *n* = 607 for individual-level variables. *N* = 93 for team-level variables.

Cronbach's alphas are reported in the parentheses on the diagonal.

Paradoxical leadership was measured on a 5-point Likert scale (0-4); individual exploration, individual exploitation, individual innovation, team exploration, team exploitation, and team innovation were measured on 6-point Likert scales (1-6); individual ambidexterity was calculated by multiplying individual exploration and individual exploitation (ranging from 1-36); team ambidexterity was calculated by multiplying team exploration and team exploitation (ranging from 1-36).

\**p* < .05; \*\**p* < .01.



**Table 4 Study 2: Simultaneous Multilevel Path Model Tests and Results**

Variables	Team ambidexterity		Team innovation		Individual ambidexterity		Individual innovation	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Intercepts	19.17**	0.33	3.30**	.43	17.12**	0.37	.50	.77
<i>Team level</i>								
Team size	-0.42	0.30	0.11	0.07	0.15	0.38	-0.15	0.15
Mean team tenure	-0.50	0.26	-0.14	0.08	-0.72*	0.29	0.11	0.09
Supportive leadership	1.75**	0.37	-0.11	0.14	-0.25	0.49	0.23**	0.08
Transformational leadership	-0.34	0.47	0.06	0.17	-1.10*	0.56	0.11	0.10
Paradoxical leadership	1.20*	0.54	0.14	0.10	1.50*	0.59	-0.15	0.10
Leader vision	0.61	0.34	0.04	0.10	1.49**	0.38	-0.26**	0.10
Paradoxical leadership × Leader vision	0.72**	0.20	0.10*	0.04	0.67*	0.27	-0.03	0.05
Team ambidexterity			0.06*	0.02				
<i>Individual level</i>								
Age					0.25	0.28	0.00	0.03
Education					0.58*	0.25	0.02	0.03
Individual ambidexterity							0.18**	0.05

Note:  $n = 607$  for individual-level variables.  $N = 93$  for team-level variables.

All independent variables were standardized before entering the path model. SE refers to standard errors.

\*  $p < .05$ ; \*\*  $p < .01$ .

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**Table 5 Study 3: Means, Standard Deviations, and Correlations**

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.Age	31.98	9.20	--																	
2.Education	3.82	.92	.14*	--																
3.Leader vision	3.57	.89	-.15**	-.07	(.87)															
4.Paradoxical leadership T1	2.48	.58	-.09	.04	.59**	(.91)														
5.Individual exploration T1	3.94	.99	-.09	.11*	.41**	.37**	(.83)													
6.Individual exploitation T1	4.26	.81	.03	.02	.27**	.33**	.43**	(.80)												
7.Individual ambidexterity T1	17.15	6.18	-.04	.08	.42**	.42**	.89**	.77**	--											
8.Individual innovation T1	4.21	1.08	-.10	.14*	.25**	.27**	.61**	.46**	.63**	(.89)										
9.Paradoxical leadership T2	2.43	.67	-.08	.03	.44**	.67**	.37**	.29**	.38**	.28**	(.94)									
10.Individual exploration T2	3.54	1.12	-.10	.11	.28**	.33**	.52**	.23**	.46**	.45**	.47**	(.86)								
11.Individual exploitation T2	4.13	.98	.00	.05	.14*	.26**	.33**	.50**	.46**	.35**	.50**	.41**	(.86)							
12.Individual ambidexterity T2	15.08	6.53	-.05	.08	.28**	.37**	.50**	.39**	.53**	.48**	.57**	.89**	.73**	--						
13.Individual innovation T2	3.70	1.19	-.05	.14*	.18**	.24**	.43**	.30**	.43**	.57**	.37**	.59**	.46**	.63**	(.90)					
14.Paradoxical leadership T3	2.44	.69	-.08	.07	.45**	.65**	.35**	.24**	.36**	.27**	.72**	.43**	.38**	.47**	.35**	(.94)				
15.Individual exploration T3	3.53	1.16	-.08	.14*	.34**	.37**	.57**	.27**	.51**	.49**	.41**	.66**	.32**	.62**	.57**	.50**	(.88)			
16.Individual exploitation T3	4.07	1.01	-.09	.10	.22**	.30**	.35**	.47**	.45**	.36**	.42**	.30**	.56**	.45**	.37**	.51**	.50**	(.88)		
17.Individual ambidexterity T3	14.96	6.71	-.09	.11	.35**	.41**	.56**	.41**	.58**	.50**	.47**	.60**	.46**	.64**	.57**	.56**	.92**	.75**	--	
18.Individual innovation T3	3.64	1.29	-.08	.17**	.21**	.28**	.47**	.26**	.44**	.55**	.37**	.55**	.34**	.53**	.68**	.44**	.74**	.51**	.74**	(.92)

Note: n = 312.

Cronbach's alphas are reported in the parentheses on the diagonal.

Paradoxical leadership across time waves were measured on 5-point Likert scales (0-4); individual exploration, individual exploitation, and individual innovation across time waves were measured on 6-point Likert scales (1-6); individual ambidexterity across time waves was calculated by multiplying individual exploration and individual exploitation (ranging from 1-36).

\**p* < .05; \*\**p* < .01.

Figure 1 Theoretical Model

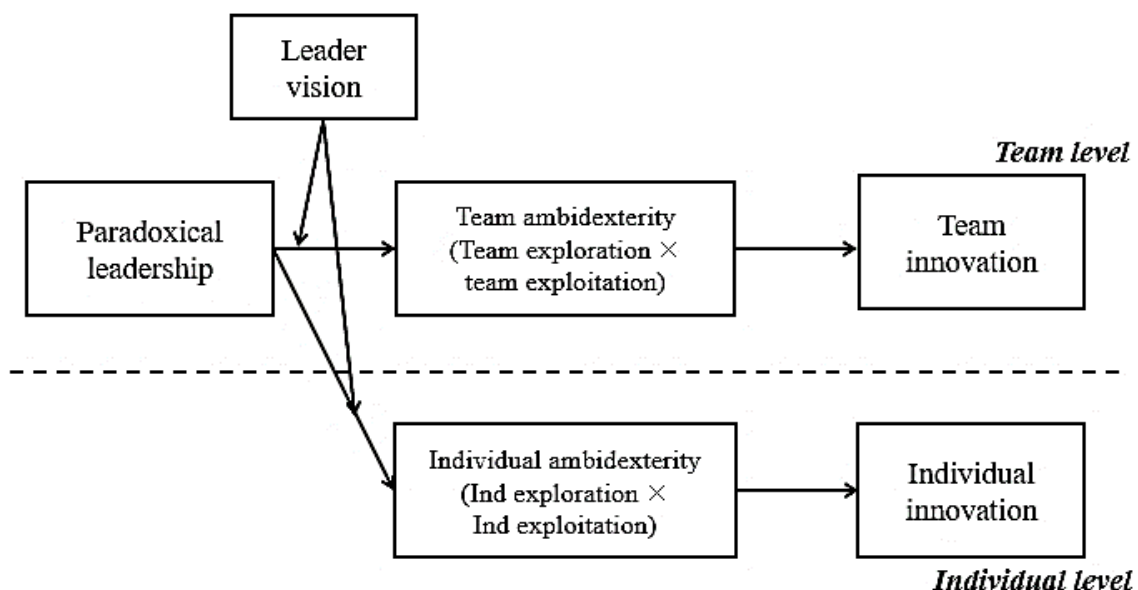
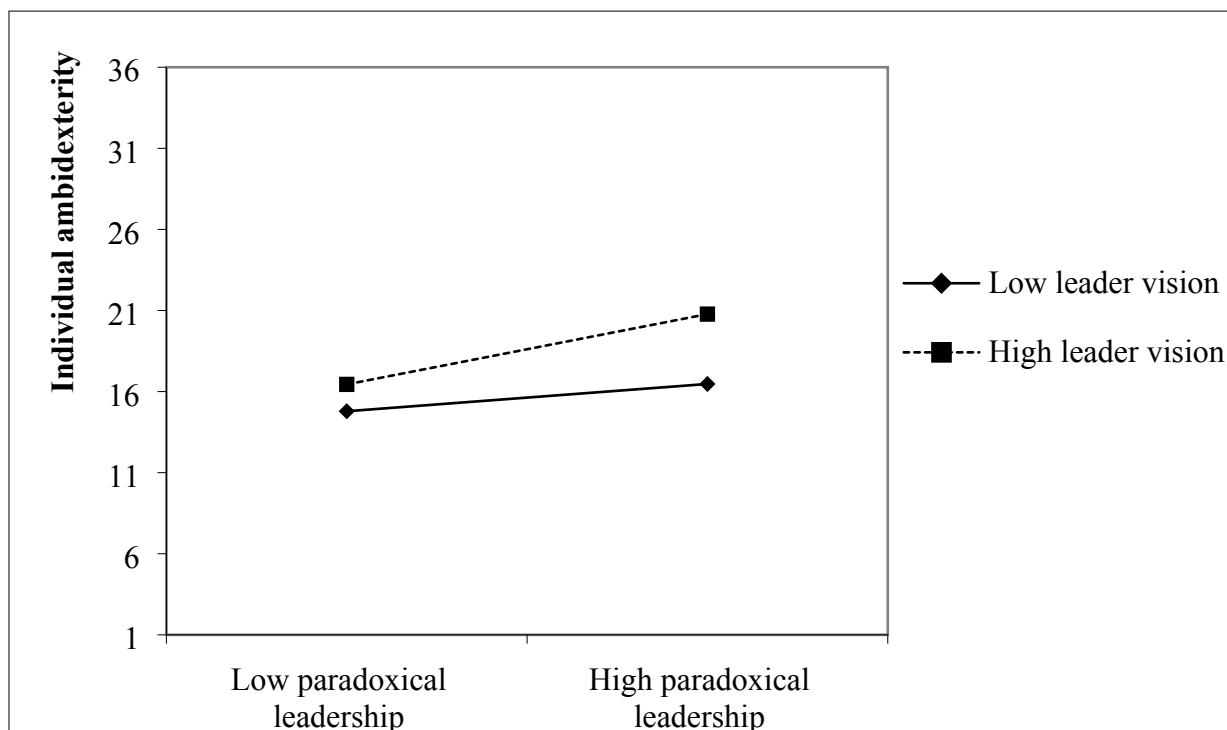
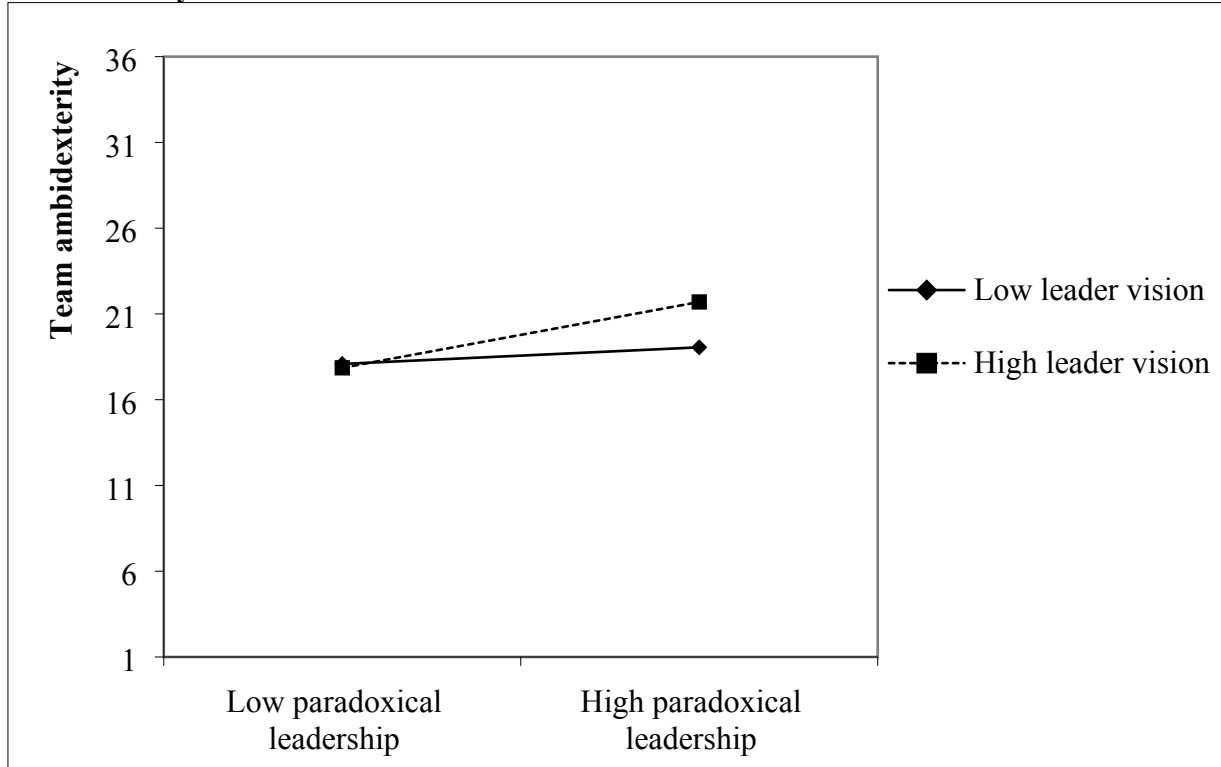


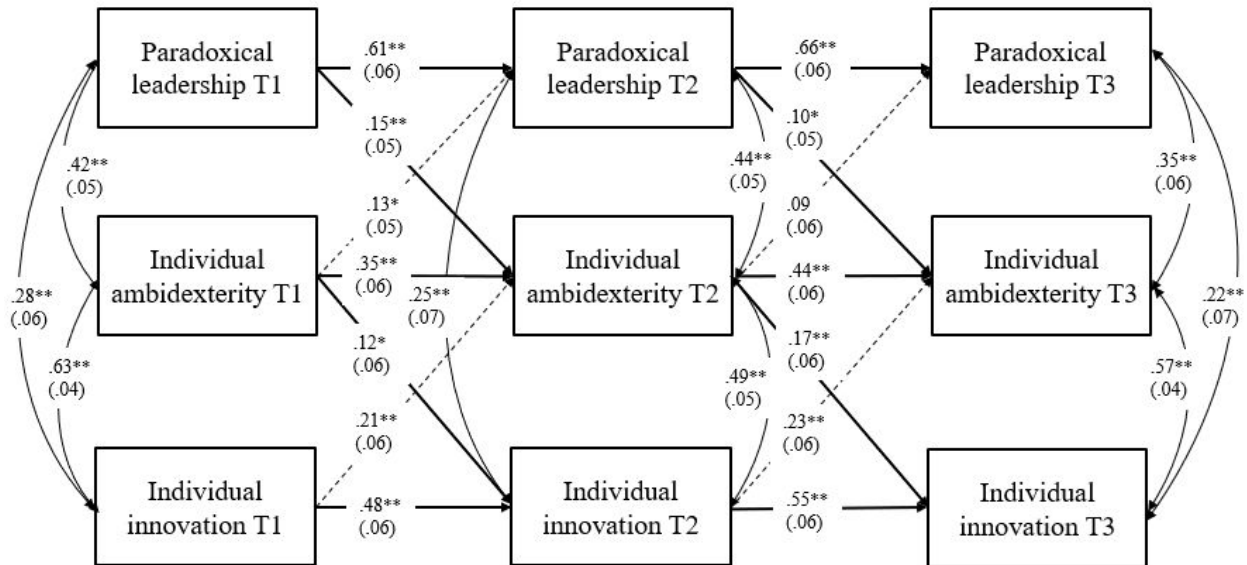
Figure 2 Study 2: Leader Vision Moderates the Effect of Paradoxical Leadership on Individual Ambidexterity



**Figure 3 Study 2: Leader Vision Moderates the Effect of Paradoxical Leadership on Team Ambidexterity**



**Figure 4 Study 3: Results of the Cross-lagged Model**

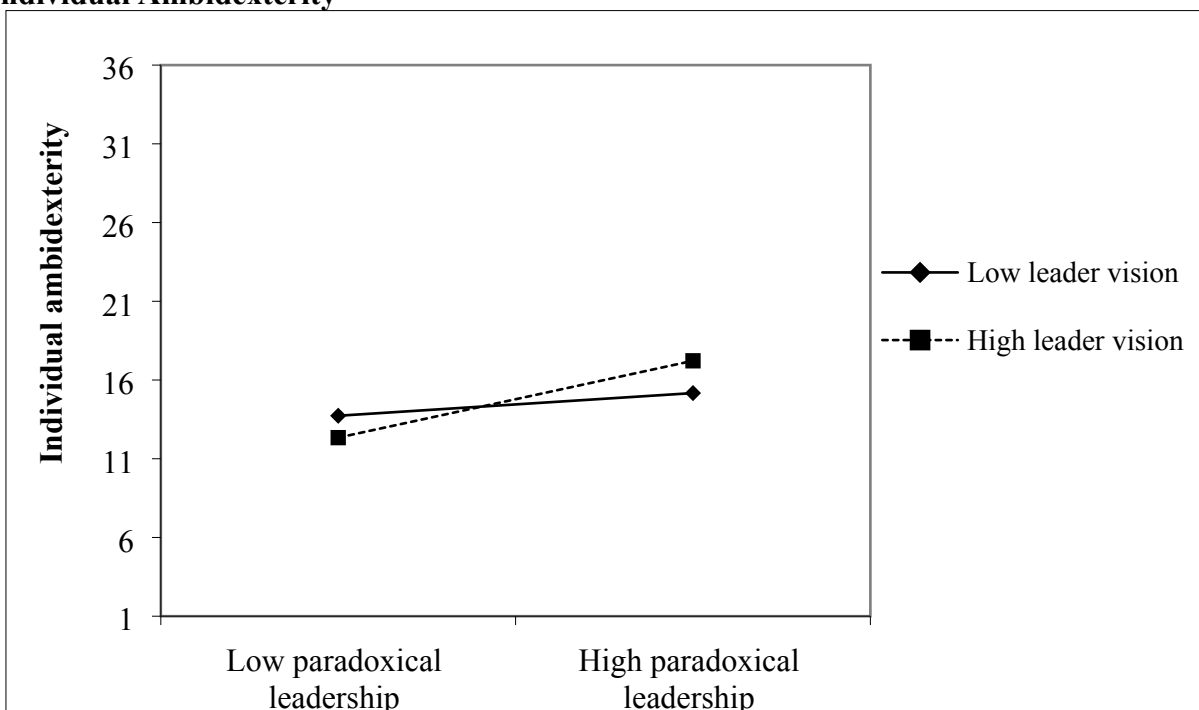


<sup>a</sup> n = 312. Values shown are standardized coefficients with standard errors in parentheses.

Dashed lines represent reverse causality paths. The estimates of the effects of control variables and the direct effect of paradoxical leadership T1 on individual innovation T3 were not presented for parsimony.

\*  $p < .05$ ; \*\*  $p < .01$ .

**Figure 5 Study 3: Leader Vision Moderates the Effect of Paradoxical Leadership on Individual Ambidexterity**



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