Research Article

Why Does Distributed Leadership Foster or Hamper Bootlegging Behavior of Employees: The Role of Exploratory-Exploitative Learning Tension and Paradox Mindset

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Bootlegging innovation, the act of developing an idea by an employee even when it was banned by the leader, is a novel and interesting construct that can bring both positive and negative outcomes to organizations. It is of interest to the organizations, leaders within those organizations, and the employers. Drawing upon paradox theory and organizational learning perspectives, we theorize and test a moderated mediation model to explore the relationship between distributed leadership and bootlegging behavior. We use a three-stage questionnaire method to collect data from 517 employees of information technology enterprises in China. Our results corroborate the following: (a) distributed leadership is positively related to the bootlegging behavior of employees; (b) exploratory-exploitative learning tension mediates the linkage between the distributed leadership and the bootlegging behavior of employees; (c) employee’s paradox mindset moderates the positive relationship between exploratory-exploitative learning tensions and the bootlegging behavior and also moderates the positive direct relationship between the distributed leadership and employee’s bootlegging behavior, so that the relationship is amplified when paradox mindset is strong. We discuss the implications for theory development and practice concerning how distributed leadership can influence personal bootlegging behavior.

1. Introduction

In a dynamic and uncertain surroundings, innovation is recognized as a pivotal factor for competitive advantage and successful organizational performance [1], and a mass of companies have targeted initiatives focusing on the individuals’ knowledge, information, experience, and creativity [2, 3]; however, due to the limitations of resources, potential risks, and other reasons [4], organization leaders cannot support all employees’ innovation activities and often only support the new ideas that they think are the most practical and most likely to be realized [5, 6], and at the same time, they also establish a set of rules to restrict employees’ innovative behavior [7]. If the individual believes that those ideas that are not adopted by the superior may create great value for the enterprise [8], he or she may continue to carry out innovative behavior secretly [9, 10]. This kind of behavior is called bootlegging innovation, which is not uncommon in the workplace [8, 11]. Under the background of innovation orientation, it is supposed that employees’ bootlegging behaviors will be more and more emerging and prominent [8, 9].

According to the existing literature, a limited number of studies focusing on bootlegging behaviors suggest that bootlegging behaviors is beneficial for individuals and organizations because some bootlegging behaviors with altruistic motivation and functional role can stimulate employees’ creativity and organizational innovation performance [12–14]. It is notionally and practically significant to explore the antecedent variables of bootlegging behavior [15], which is a localization for understanding the conceptual logic of bootlegging innovation nowadays. Previous
explorations has shown that an organizational innovation atmosphere can induce employees’ bootlegging innovation behavior [10, 16, 17], as well as organization policy factors in influencing bootlegging innovation. It is suggested that temporal leadership positively affects the bootlegging behavior of employees [15], and paradoxical leadership can accelerate the emergency of bootlegging behavior in Chinese organizational situation [18]. However, a theoretical framework for understanding how leadership can facilitate individuals’ bootlegging behavior has not been thoroughly developed [18].

Distributed leadership has become one of the most influential leadership theories in recent years [19, 20]. While the notion of shared, collaborative, or participative leadership has become increasingly prevalent in recent years, distributed leadership theory has provided a vicissitudinary angle of view on the familiar theme [21]. Distributed leadership theory and recent findings in the organizational researches acknowledge the possibility that distributed leadership can be considered as a paradox, a process in which leadership is retained and dispersed [22]. The distributed leadership pattern pattern advocates and encourages the positive emergence of heterogeneous employees in the organization [23], which provides an organizational climate for employees’ bootlegging innovation. Although the relationship between distributed leadership and employee bootlegging innovation can be found through logical derivation, few studies have explored the influencing mechanism between them. Our framework and study address their call for examination of how distributed leadership facilitates employees’ bootlegging innovation.

Our research jump-starts the conversation on bootlegging innovation behavior at work by examining why distributed leadership can have a significant impact on bootlegging innovation behavior. In addition, some scholars pointed out that bootlegging innovation was gradually understood as a process involving multiple tension problems [24], and they ignored that employees might face a variety of competitive psychological activities in the process of bootlegging innovation [8], which have not attracted enough attention and still lack in-depth investigation, in particular, the learning tension and its mechanism of distributed leadership situation which stimulates employees’ bootlegging innovation. The contradictory and related goals and processes make the research of employees’ bootlegging innovation more challenging. For this reason, we also examine the impact of exploratory-exploitative learning tension between distributed leadership and bootlegging innovation. Drawing from paradox theory, the theory of other orientation, and research on paradox mindset, we further explore the moderating influence of paradox mindset, which refers to “the extent to which one is accepting and energized by tension” [25, 26].

Our research makes important theoretical and practical contributions in three ways. Firstly, existing studies have not paid a comprehensive and systematic attention to the leading factors in the employee bootlegging innovation mechanism. Leadership pattern (e.g., distributed leadership) is significant in the bootlegging behavior literature but has been paid limited attention. In recent years, relevant researchers have constantly called for further investigation into it and suggested exploring the role mechanism of leaders in employees’ bootlegging innovation from the perspective of organizational norms [10]. The results of this study are a direct response to such calls and suggestions. We fertilize the literature on the antecedents of bootlegging behavior by confirming the character of distributed leadership, consequently encouraging a novel theoretical direction for future research (i.e., leadership pattern).

Secondly, from the view of organizational learning theory, this study analyzes the effect of distributed leadership on individuals’ bootlegging behavior by using a new psychological mechanism of conflict. It explains the internal mechanism of the influence of distributed leadership on employees’ bootlegging innovation through the competitive exploratory-exploitative learning tension generated in the context of high innovation demand, which is quite different from previous studies, and can provide an idea for the organizations to expand the theoretical framework of the relationship between leadership pattern and employees’ bootlegging innovation, which helps to understand the formation process of bootlegging innovation systematically.

Finally, based on the paradox theory, we are more concerned about the moderating roles of the paradox mindset in strengthening the positive impacts of the relationship between leadership pattern and bootlegging innovation, identifying the boundary conditions that promote bootlegging innovation from the renewal level, and providing a more integrated understanding of the correlation between distributed leadership and employees’ bootlegging innovation behavior.

2. Conceptual Framework and Research Hypotheses

2.1. Distributed Leadership and Employees’ Bootlegging Behavior. Bootlegging behavior is defined as a course by which individuals work on creativity that have no official support but produce innovations [9, 17]. Leadership is an important environmental factor for employee innovation [27], yet, it is remarkable that the foundation of the creative aspect of dynamic capabilities lies in leadership distributing [28]. Distributed leadership is viewed as the exercise of mutual effect of leaders, followers, and their dynamic situations [29]. According to Cannatelli et al. distributed leadership is prevalently depicted as “postheroic” [30], which forecasts that the leadership function is not just attributes of leaders but rather those of other members who have relevant heterogeneous knowledge [31]. The distributed leadership approach refutes the conventional heroic of leadership that magnifies leadership as a phenomenon [20, 32, 33]. For knowledge-based employees, distributed leadership is considered as a challenge and refutes to conventional heroic approaches of leadership, and this is conducive to enhancing their bootlegging behavior.

First, the bootlegging for employees is somehow derived from the distributed leadership pattern. Against the
backdrop of distributed leadership, heterogeneous employees in an organization emerge endlessly, driven by the encouragement of leaders in such a manner that the subordinates are endowed with more autonomy and flexibility in work [23], so that they can try new solutions. The organizational context gives a higher degree of tolerance for innovation risk, thus setting the stage for a relaxed atmosphere of innovation. Once employees perceive the leaders’ support for innovation, they will have the freedom to give full play to bootlegging. Previous studies reported that bootlegging is more likely to be translated into innovative performance if leaders not only forgive but also reward bootlegging [34]. If an organization is inundated with strong distributed leadership, employees’ desire for studying heterogeneity-related knowledge will be unprecedentedly high, and their enthusiasm for innovation will be stimulated. At this time, the restriction of limited organizational resources will become more prominent. The support of considerable resources is indispensable for innovation, yet the organizational resources are not always sufficient [13], which may lead to the fact that employees may look for more informal channels, i.e., bootlegging behavior, to effectuate their innovative ideas.

Second, distributed leadership stimulates the bootlegging motivation of employees. The study of Burns (2007) revealed that each individual had the motivation to go after uniqueness, because this is a learned desire that drove individuals to participate in innovative activities, and any member could wield influence based on their specific strengths [35]. The employees who have accumulated a mass of heterogeneous knowledge by themselves always keep an eye on the self-learning of new knowledge and skills to improve their business level [36]; if a wet blanket is thrown on an employee’s creativity or it is not understood by his/her leaders, he/she will take delight in continuing to working on it in an informal manner. To top it all, the likelihood is that employees innovate by running counter to the warning line of the organizational rules and workflows [37]. Moreover, the heterogeneous knowledge of employees underpins bootlegging, and those with heterogeneous knowledge have a certain intraorganizational “discourse power” in the context of distributed leadership where the bootlegging behavior will be triggered to some extent.

Third, distributed leadership makes a dent in the concerns of employees about bootlegging. The risk of employees’ bootlegging mainly stems from the punishment of their organizations that bootlegging may bring, which is none other than one of the concerns of employees when distinguishing the bootlegging. Accordingly, the distributed leadership dispels employees’ misgivings about bootlegging to a certain extent, where this model itself is new and is open and inclusive to organizational employees. Distributed leadership has become a popular representation of “post-heroic” leadership [38]. Every individual in the organization with heterogeneous knowledge is considered and given informal leadership responsibilities and thereby is motivated to get hold of and improve heterogeneous knowledge. In view of this, we propose the first hypothesis as follows.

**Hypothesis 1.** Distributed leadership is positively associated with bootlegging behavior of employees.

2.2. The Mediating Role of EELT. The only thing employees can do against the backdrop of distributed leadership is to demonstrate an “informal leadership” when they have a lot of knowledge and learn to support and continuously enrich their heterogeneous knowledge. Under this circumstance, their enthusiasm for learning heterogeneous knowledge will be unprecedented. On the one hand, employees need to have a better understanding of their existing knowledge and keep expanding. And on the other hand, they need to delve into and search for new knowledge. Therefore, exploitative learning and exploratory learning, a pair of competing innovative learning tasks, are formed.

Exploratory-exploitative learning tension is defined as follows: when developing new ideas vs. expanding existing ideas, there are tensions tabulating across time between building upon and undermining the past to invent the future [26]. Such concepts as optimization, selection, production, efficiency, and execution are used in exploratory and exploitative learning, while exploration encompasses search, change, risk-taking, discovery, and flexibility [39]. Generally, a person’s attentional resources are relatively given. If the attentional resources reach either exploitative learning or exploratory learning, the resource scarcity against the other object will be exacerbated. In this case, the aggravated conflict will result in the exploratory-exploitative learning tension, which is the perception of tension due to the relationship between opposing and unifying paradoxical elements that are interrelated and contradictory in terms of learning tension [26, 40, 41].

Specifically, those who perceive the distributed leadership may prospect to acquire more heterogeneous knowledge through considerable exploratory learning. They may also converge to exploitative learning in order to maintain their own heterogeneous knowledge, which will result in exploratory-exploitative learning tension due to psychological conflict. If employees perceive stronger distributed leadership, it is more likely that they need to invest in exploratory learning and intend to rest on exploitative learning and increase the tension. For this reason, this paper predicts that the learning-situated context formed by the distributed leadership pattern is closely related to the exploratory-exploitative learning tension. Therefore, this study proposes the second hypothesis as follows.

**Hypothesis 2.** Distributed leadership is positively related to exploratory-exploitative learning tension.

Bootlegging is an intricate process involving multiple tension issues [24]. Previous studies have demonstrated that the learning tension emerges when exploring new knowledge (exploratory learning), and taking advantage of existing knowledge (exploitative learning) is the most distinct tension for bootlegging [42]. Innovation inevitably sets foot on unknown areas, in view of which innovative ideas that need to be realized through bootlegging are even more advanced
and difficult [43]. It is evident that employees’ bootlegging should be underpinned by a lot of heterogeneous knowledge. In this context, employees who are inclined to bootlegging activities need to understand and expand their existing heterogeneous knowledge and delve into and develop new heterogeneous knowledge.

This situation becomes more apparent in the organizationally distributed leadership. If the exploratory-exploitative learning tension brings about much anxiety and discomfort to individuals, there is no doubt that they will spare no efforts in freeing themselves from the sense of incongruity. The greater the tension, the stronger the individual’s motivation to get rid of the sense of incongruity. In this case, it is more likely that individuals will think about how to deal with the exploratory-exploitative learning tension. A rational analytical processing system [44] is thus initiated. In response to the distributed leadership pattern for exploratory-exploitative learning, the exploratory-exploitative learning tension is more likely to escalate cognitively and rationalize their own choices by analyzing the role of the processing system. Meanwhile, efforts should be made to learn to live in harmony with the exploratory-exploitative learning tension, thereby generating the bootlegging. Therefore, this study proposes the third hypothesis as follows.

**Hypothesis 3.** Exploratory-exploitative learning tension is positively associated with bootlegging behavior of employees.

Social cognitive theory goes to show human psychological functioning in the light of the interaction between behavior, cognition, and situation. The three factors interact as triadic reciprocal causation [45, 46], which decide whether to perform the bootlegging behavior on this basis or not. According to the sense-making theory of innovation, the extent to which an individual chooses bootlegging behavior depends on his/her demand for innovation, perception of opportunities, and the understanding of circumstances. Individuals often come through complex cognitive and meaning-making processes before making decisions [47]. Distributed leadership, as a situational factor of organizational leadership, may be transmitted to employees in the organization through social cognition. Employees are generally encouraged to enrich their knowledge once they perceive the empowerment from their leaders, where maintaining the uniqueness cannot be done without new heterogeneous knowledge. In this way, exploratory learning and exploitative learning are seen as conflict with each other, thus triggering the exploratory-exploitative learning tension. In analyzing the role of processing systems in cognitive escalation, exploratory-exploitative learning tension evidences itself as bootlegging. According to Hypothesis 2 and Hypothesis 3, we propose the following.

**Hypothesis 4.** Exploratory-exploitative learning tension will mediate the relationship between distributed leadership and bootlegging behavior.

2.3. The Moderating Role of PM. In recent years, paradox mindset has provided a new perspective for understanding how employees integrate contradictory requirements in the process of innovation, which helps employees find the connection between the two sides of the contradiction and establish a new thinking structure and ideas. Paradox mindset shapes the way people understand contradictions [48], based on which they can understand those opposing and complex interactions through defining a paradox in a more complete environment. In this sense, it can be depicted as a process by which an individual establishes a new relationship with the situation in which he or she finds himself/herself. Building on the definition given by Miron-Spektor, Ingram, Keller, Smith, and Lewis [26], paradox mindset refers to the extent to which individuals undertake, and are motivated by, those opposing and complex interactions in the organizational life full of contradictory situations. When individuals have formed paradox mindset, they not only recognize the conflicting relationship between opposing task elements, but also are adept in integrating opposing task elements to eliminate the reverse influence of each element, so as to find a solution that synergizes both elements [49]. Those paradoxical demands are embraced by them as a challenging opportunity, which will further help to inspire new understandings. Conversely, those individuals who do not have the paradox mindset will view paradoxical demands as dilemmas that need to be traded off in pursuit of consistency and will be prone to feeling anxious due to the conflict and discomfort that paradox mindset brings [40].

This article argues that employees’ paradox mindset affects the relationship between distributed leadership and bootlegging. Judging from paradox theory, individuals employing the framework of paradox will, compared with other cognitive frameworks, be more likely to identify and accept contradictions and perceive the tension between task elements. This perception further enhances their perception of conflict and enhances the ability to integrate paradoxical elements, thereby expediting individual creativity [50]. Paradox mindset enables individuals to generate new ideas, breaks through the constraints of existing rules, and even runs counter to the warning line of organizational rules and workflows [37]. Employees with a high level of paradox mindset may be more likely than not to comprehend and take the initiative in the organizational context in which formal and informal leadership complement each other under the distributed leadership pattern and even realize the synergies brought about by the pattern. In turn, employees may observe and adapt to the organizational strategy of both this and that. Employees are therefore motivated to exhibit more bootlegging behaviors. Individuals with a high level of paradox mindset may show lower adaptability in distributed leadership situations, which can be considered as a kind of maladjustment. Even in the relaxed atmosphere of distributed leadership, employees whose paradox mindset is not high often generate negative self-evaluation due to their concerns about making mistakes. In turn, they will not have a high degree of acceptance of innovation risk and tend to choose the stability brought by abiding the rules and regulations, as well as workflow, rather than bootlegging.
Second, Smith and Tushman [51] proposed, based on the analysis of individual cognitive differences, that individuals with paradox mindset were adept in discovering differences in situations and finding solutions to reconcile contradictions according to the nonlinear relationship between tasks. This situational perception may prompt individuals to look beyond existing norms to find new combinations of existing knowledge and bring forth meaningful solutions. Broadly speaking, employees often face the exploratory-exploitative conflict in the context of distributed leadership. Innovating while completing the tasks prescribed by the organization will hold the limited time and resources of employees. Those with high level of paradox mindset can pursue both exploratory activities and exploitative activities at the same time and synergize the two through integration [52]. As a result, what they will do is to engage in more bootlegging behaviors [53]. Therefore, we propose the following.

**Hypothesis 5.** Paradox mindset will moderate the relationship between distributed leadership and bootlegging behavior of individuals, such that the relationship is stronger for employees with high (vs. low) paradox mindset.

In accordance with the paradox theory, doers’ paradox mindset triggers transformation from potential tension to the active one [41]. Paradox mindset is defined as the degree to which individuals accept contradictions and are invigorated by the tension between paradoxical elements [26]. The exploratory-exploitative learning tension, derived from the opposition and conflict between the two types of learning, will increase with the stimulation of distributed leadership. The more pronounced the tension, the higher the reliance on cognitive resources; in this case, paradox mindset is more likely to be a key influencing fact. Individuals with paradox mindset will generally use the strategy of "both this and that" to actively deal with tension problems when they experience it [40]. The higher the level of paradox mindset of employees, the more likely they are to constructively manage learning tension. They will learn to live with, actively face, and embrace the learning tension and even gain energy from it [26, 41]. Meanwhile, they will be brave to break through the organizational routines and conventions and be good at flexibly switching between the dual tasks of exploratory learning and exploitative learning to adapt to new situations. This makes for resolving the contradiction between exploratory learning and exploitative learning and better stimulating bootlegging. Employees with low level of paradox mindset tend to be rigid in their thinking, rather than keeping a watchful eye on, and balancing, both exploratory learning and exploitative learning that are mutually conflicted [26]. Lacking the ability to recognize and process the tension of exploratory learning makes them unable to establish distinctions between exploratory learning and exploitative learning and discover new connections within them [51]. In consequence, in their view, the prominent exploratory-exploitative learning tension is seen as the dilemma that can make a dent in one’s zealosity for engaging in bootlegging.

Therefore, this study proposes the sixth hypothesis as follows.

**Hypothesis 6.** Paradox mindset will moderate the relationship between exploratory-exploitative learning tension and bootlegging behavior of knowledge-based employees, such that this relationship is stronger for employees with high (vs. low) paradox mindset.

### 3. Materials and Methods

#### 3.1. Procedures and Participants

Data were collected as a part of a large-scale research project from the information technology companies in China. According to the preliminary depth interview, we realized that the leadership distributing phenomenon was widespread in two companies. Considering that this research involves bootlegging innovation, its object is also limited to knowledge-based enterprises such as high-tech industry. Thus, we acquire data from two high-tech companies.

With the help of the office clerk of human resource, we first casually chose from the employees who were reliable for developing new products, as well as testing and maintaining software programs. Then, we preached the process of our research in frequent meetings. In addition, we used an inductive approach to reduce the ambiguity of scale items. To bring down the impact of common method variance (CMV) [54], we designed an anonymous questionnaire and used a three-wave field survey.

Finally, we received 517 valid questionnaires. In the final sample, 293 (56.7%) participants were male; 167 (32.3%) participants were between 20- and 30-year-old, and 207 (40.0%) participants were between 31- and 40-year-old, with an average age of 30.49 years; 93.4% had completed college study, and 83.4% had at least 1-year occupational history.

#### 3.2. Measures

In this study, the scales we adopted were initially developed in English, and they were validated by previous scholars in the Chinese context. 5-point Likert was adopted for the four variable scales (1 = forcefully disagree, 5 = forcefully agree). Brief measurement items are detailed in Table 1.

**3.2.1. Distributed Leadership.** We measured distributed leadership using the 8-item scale revised by Canterino and colleagues (2020) [55]. A representative item is “I discussed leadership using the 8-item scale revised by Canterino and colleagues (2020) [55]. A representative item is "I discussed leadership with and helped my peers in solving problems." Cronbach’s alpha is 0.906.

**3.2.2. Paradox Mindset.** A 9-item scale was adapted to measure paradox mindset developed by Miron-Spektor and colleagues (2018) [26]. A representative item is “I feel stimulative when I try to address contradictory problems.” Cronbach’s alpha is 0.917.

**3.2.3. Exploratory-Exploitative Learning Tension.** Exploratory-exploitative learning tension was evaluated through a 3-item scale compiled by Miron-Spektor and colleagues (2018) [26]. A sample item is “I need to acquire
3.2.4 Bootlegging Behavior. We assessed bootlegging behavior of knowledge-based employees through a 5-itemscale compiled by Criscuolo et al. [17]. A sample item is “I enjoy piecing up with ideas that are outside the core projects I engage in.” Cronbach’s alpha for the scale is 0.855.

3.2.5 Control Variables. We controlled for the demographic variables which may influence the bootlegging behavior of an employee, such as gender, age, education, and work tenure [18]. Following up with previous research, in addition, we commanded the relationship tenure, which has an influence on the consciousness of the leadership with employees [56]. Considering the relationship between superior and subordinate, gender, age, and education of the immediate supervisor were also commanded in our research [57, 58].

3.3 Analysis Strategy. Considering that the four variables were recount by oneself, we conducted a confirmatory factor analysis (CFA) firstly to examine the common method bias (CMB) [54]. Next, a hierarchical regression model was used to test the hypotheses in SPSS25.0. In addition, we take advantage of the macro PROCESS 3.3 [59] to inspect the mediating role of exploratory-exploitative learning tension, as well as the moderating effect of paradox mindset. Finally, we used the macro PROCESS 3.3 [59] to perform the hypothesis test of our theoretical model in this part and employed an alternative measure of bootlegging innovation to check on the adaptability of theoretical model.

4. Results

4.1 Data Analysis. The hypothesized relationships can be summarized as the proposed model shown in Figure 1. Considering that data come from two incorporations, we firstly employed an independent sample t-test to check on whether the two samples could be merged with each other. The results showed that there is no significant differentiation between the two samples in the aspect of age, gender, and education, which makes clear that it is suitable to merge.

4.2 Validity of the Constructs. In this study, we had a test at the convergent validity of all variables. The composite reliability and average variance extracted metrics of four
variables all exceeded the corresponding threshold values [60], indicating the good internal consistency and validity of the scale.

We also used confirmatory factor analysis (CFA) strategy to test the discriminant validity between DL, PM, EELT, and BB. As shown in Table 2, the four-factor model had a better matching effect, and the indexes were fitting in a desired scope, $\chi^2/df = 1.375$, $CFI = 0.985$, $TLI = 0.984$, and $RMSEA = 0.027$, while the other index models failed to fit the standard range. Therefore, DL, PM, EELT, and BB have good discriminant validity for the constructs.

4.3. Common Method Variance Test. We adopted the Harman single-factor method to test common method and single-respondent biases [54, 61]. The numerical value of the Harman single-factor indicated that the KMO of the exploratory factor analysis was 0.951 with a significant Bartlett spherical test ($p \leq 0.001$). In addition, the results of factor analysis displayed that four factors were extracted, and the cumulative variance interpretation percentage of the first factor was 39.648%, which did not surpass 40%. Furthermore, referring to the proposition of Podsakoff and colleagues (2003) [54], we controlled for an unmeasured latent “method” factor to confirm Harman’s single-factor test; results showed that the model fit did not change significantly ($\Delta CF = 0.004$, $\Delta TLI = 0.001$). Thus, we can conclude that common method bias is unlikely to have shaped our findings.

4.4. Descriptive Statistics and Correlations. Table 3 displays the means of variable, standard deviations of variable, and correlations between variables. As can be seen from Table 3, DL and EELT showed a significantly positive correlation ($r = 0.343$, $p < 0.01$), EELT and BB showed a significantly positive correlation ($r = 0.440$, $p < 0.01$), and DL and BB showed a significant positive correlation ($r = 0.440$, $p < 0.01$), which displayed preliminary support for the hypothesis. According to [60], all the square roots of AVE for the constructs should be bigger than the off-diagonal elements or coefficients in the relative columns; hence, the results in Table 3 proved the satisfactory discriminant validity.

4.5. Hypotheses Testing. Table 4 presents the numerical results of hierarchical regression model. When testing hypotheses, we controlled for individuals’ gender, age, education, work tenure, leader’s gender, leader’s age, leader’s education, and relationship tenure. We determine that DL has a positive direct relation with BB of employees (Model 4: $\beta = 0.460$, $p < 0.01$). In support of Hypothesis 2, EELT is positively associated with BB of employees (Model 5: $\beta = 0.377$, $p < 0.01$). Consistent with Hypothesis 3, DL has a positive impact on EELT (Model 2: $\beta = 0.363$, $p < 0.01$).

Hypothesis 4 suggests that EELT will mediate the influence of DL on BB. As shown in Table 5, the positive effect of DL on BB has been weakened, but it is still significant after adding EELT (Model 6: $\beta = 0.355$, $p < 0.01$). We used PROCESS macro to examine the mediating role of EELT [59]. As shown in Table 5, bootstrapping technique is advised to test the indirect effect [59]. Results from PROCESS showed that the indirect effect of DL on BB through EELT was 0.085 (95% CI [0.053, 0.123], 5000 bootstrap resamples). Thus, Hypothesis 4 was supported.

There are theoretical reasons to expect that PM may exacerbate the DL on BB as stated in Hypothesis 5. As shown in Table 5, the interaction of DL and PM (DL × PM) was positively and significantly associated with EELT ($\beta = 0.207$, $p < 0.01$). On this basis, we next ran a simpler model with PM as moderator only, using Hayes’ (2013) PROCESS v3.3 Model 5. The bootstrap sampling interval estimation method was used for testing, and the repeated sampling times were set at 5000. If the 95% confidence interval did not contain 0, it would indicate that the regulating effect was significant.
The results showed that the 95% confidence interval [0.083, 0.326] did not contain 0 (the regulating effect was significant), which indicated that the moderating effect of paradox mindset existed.

We also employed a simple slope test to help make certain the moderating effect, and the results showed that when PM was low (M-1SD), the regression slope of DL in predicting BB was 0.142 (p < 0.05), with a 95% CI of [0.026, 0.265].
0.259], excluding 0, while when PM was high (M + 1SD), the regression slope of DL in predicting BB was 0.409 (p < 0.01), with a 95% CI of [0.288, 0.531], excluding 0. This forecasts that PM moderates the relationship between DL and BB. Figure 2 shows that when PM is higher, DL has a stronger promoting effect on BB. In conclusion, Hypothesis 5 was supported.

In this study, the moderating effect of PM between EELT and BB was tested. As shown in Table 5, the interaction of PM and EELT (PM × EELT) can significantly predict BB of employees (β = 0.151, p < 0.01). On this basis, we next ran a simpler model with PM as moderator only, using Hayes’ (2013) PROCESS 3.3 Model 14. The results displayed that the 95% confidence interval [0.062, 0.236] did not contain 0 (the regulating effect was significant), which indicated that the first-stage moderating effect of paradox mindset existed. We also conducted a simple slope test to help make certain the moderating effect, and the results showed that when PM was low (M - 1SD), the regression slope of EELT in predicting BB was 0.151 (p < 0.05), with a 95% CI of [0.063, 0.240], excluding 0, while when PM was high (M + 1SD), the regression slope of EELT in predicting BB was 0.346 (p < 0.01), with a 95% CI of [0.235, 0.456], excluding 0. This indicates that PM moderates the relationship between EELT and BB. Figure 3 shows that when PM is higher, DL has a stronger promoting effect on BB. In conclusion, Hypothesis 6 was supported.

4.6. Supplementary Analysis. To further test this second-stage moderated mediation model, we ran a simpler model with PM as second-stage moderator, using Hayes’ (2017) PROCESS 3.3 Model 15. The results are displayed in Table 5, and the indirect effect of DL on BB through EELT was various under different PM conditions. Specifically, the indirect effect was significant when PM is lower (M - 1SD; b = 0.059, 95% CI [0.027, 0.097]). When PM was higher, the indirect effect was significant too (M + 1SD; b = 0.112, 95% CI [0.066, 0.164]). The difference in the conditional indirect effect was significant (b = 0.054, 95% CI [0.006, 0.101]). Subsequently, the second-stage moderating mediation effect of PM was tested.

In addition, in order to increase the reliability of the conclusion, the time of individual bootlegging innovation is used as an alternative measure of bootlegging innovation. The measure of individual bootlegging innovation time is to directly calculate the time that individuals have invested in unofficial innovation projects outside the official plan in the past years [17]. Therefore, the ratio of individual bootlegging innovation time to individual normal working time was used as a substitute variable of bootlegging innovation. In this paper, a single sequential question was used to measure, that is, “what percentage of your total working time did you devote to bootlegging behavior last year?” Options include

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Table 5: Results of mediating effect analysis moderated by PM.
“1 = 0%, 2 = [0, 5%], 3 = [5%, 10%], 4 = [10%, 15%], 5 = [15%, 20%], 6 = more than 20%”. The analysis results show that the regression analysis results do not change significantly after using alternative variables, which proves the robustness of the research conclusions.

5. Discussion

Focusing on bootlegging behavior of knowledge-based employees is important, because bootlegging behavior is a particular organic part of organizational innovation, which widely exists in the workplace. We tested a moderated mediation model to explore how distributed leadership has an influence on bootlegging behavior of knowledge-based employees through the holistic perspective of organizational learning theory and paradox theory. Consistent with our expectations, the empirical results displayed that distributed leadership was positively associated with bootlegging behavior of knowledge-based employees, which was mediated by exploratory-exploitative learning tension. Furthermore, the results also showed that paradox mindset moderated the relationship between distributed leadership and bootlegging behavior, as well as the relationship between exploratory-exploitative learning tension and bootlegging behavior.

5.1. Theoretical Implications. This study affords several significant theoretical contributions. First, the study introduces the distributed leadership as the antecedent variable of bootlegging behavior and proposes its underlying theoretical model. Existing studies did not pay a comprehensive and systematic attention to the leader factors in the employee bootlegging innovation mechanism, which relevant researchers have constantly called for enriching [15]. In addition, some scholars believe that the success of bootlegging innovation lies in organization situation, not the bootlegging behavior itself [11]. Furthermore, some scholars suggest that the role mechanism of leaders on employees’ bootlegging innovation should be discussed from the perspective of organizational norms [10]. We selected distributed leadership as the antecedent variable of bootlegging behavior, which could be considered as a direct response from three aspects: leader factors, organizational leadership situation, and organizational norms. We believe our research offers a beneficial framework that can be applicable for understanding other marginalized groups’ bootlegging behavior.

Second, this study responds to the call of Globocnik and Salomo (2015) [16] to examine new theoretical lenses by which we might conclude the paradoxical nature of bootlegging behavior. There has been controversy about the role of distributed leadership on employee creativity, which is due to the failure to clarify the boundary between bootlegging innovation and in-role innovation [28]. By focusing on the impact of distributed leadership on bootlegging innovation, we respond to the controversy to some extent. Our results not only support the logical reasoning proposed by Globocnik and Salomo [16], but also open a new theoretical lens to go to show the influence of distributed leadership on bootlegging behavior.

Third, this study also has some crucial implications for the organizational learning tension literature. Previous studies believe that distributed leadership can stimulate employees’ exploratory and exploitative behavior [28], and distributed leadership can directly promote individual exploratory learning and exploitative learning (the levels of exploratory activities and exploitative activities are both high) [62]; however, there is still a lack of research on distributed leadership and exploratory-exploitative learning tension. Based on the perspective of organizational learning theory, we discuss the mediating role of exploratory-exploitative learning tension between distributed leadership and employees’ bootlegging innovation. Our results also show that individuals’ conceptions of their exploratory learning and exploitative learning as a kind of tension drive this process. In addition, we consider distributed leadership as a leadership situational factor to stimulate employees to integrate exploratory learning and exploitative learning, which expands the research on the antecedents of exploratory-exploitative learning tension.

Fourth, this study also has implications for the paradox mindset literature. Previous studies have found that individuals can obtain creative value from the paradox framework, and employees with paradox mindset can promote job performance and innovation by using tension [63]; however, there is still a lack of research on the interaction between leadership factors and individual differences from the perspective of paradox. Our research shows that individuals with high paradox mindset are potential to obtain creative value from distributed leadership situations, which is also corresponding with the research results of Berraies et al. [33]; that is to say, employees with high paradox mindset can actively respond to and make use of tension. In addition, we discuss how employees’ paradox mindset, as a boundary condition, affects the effectiveness of distributed leadership and conforms to the call for strengthening the study of paradox from an individual perspective [64]. It may also stimulate future research to examine how cognitive processes that are highlighted in paradox mindset illuminate other organizational phenomena.

5.2. Practical Implications. Our findings also have some useful practical implications for individuals and enterprises. First, we recognize that bootlegging behavior of employee does not occur randomly; as a matter of fact, it can be influenced by the organizational leadership pattern. Under the distributed leadership pattern, managers can facilitate bootlegging by granting work autonomy, and prior research has suggested that this restriction may impede all innovative behaviors [16, 65]. On the one hand, formal leaders should increase resource support for employees’ innovation; they can also take some measures to promote bootlegging innovation behavior among employees. On the other hand, formal leaders with an encouraging attitude toward bootlegging may stimulate this deviance by providing rewards for innovation accomplishments and improving their failure tolerance, so employees have the freedom and resources to come up with new ideas inside and outside of work.
Second, the results suggest that the distributed leadership pattern can foster bootlegging innovation to a certain extent by encouraging heterogeneous knowledge learning. Formal leaders of the organization should encourage employees to strengthen exploratory learning and exploitative learning. In addition, rather than resorting to one or the other extreme, our results suggest that senior leaders should simultaneously aim to promote both high levels of exploratory learning and high levels of exploitative learning.

Third, our findings are particularly helpful for the recruitment and training of employees in innovation organizations. It can be predicted that paradox mindset will become advocated by enterprises [66]. It is easy for employees with high paradox mindset in the organization to perceive the tension between paradoxical elements and they are good at integrating contradictory elements. Therefore, organization managers should pay attention to selecting employees with high paradox mindset and allocate them to jobs with innovative needs, to promote employees to give full play to the creative value of paradox mindset. In addition, organizations should increase training of informal and potential leaders with heterogeneous knowledge and make them aware of the positive shaping effect of their paradoxical mindset for employees’ bootlegging behaviors which can benefit the organization.

5.3. Limitations and Future Research Directions. While our findings have both theoretical and practical implications, we realize that there are still some associated limitations that might be undertaken in the following research. First, the sample relied only on two Chinese large information technology companies. Although data hold all research hypotheses, our findings can only be interpreted within the setting in which they were derived and may not be applicable to organizations in other countries. In the following research, we should add diverse samples from other countries with cultural differences to make the research conclusions universal worldwide.

Second, our study explores the mediating effect of exploratory-exploitative learning tension; it is undeniable that there exist many other possible mechanisms in the relationship between distributed leadership and bootlegging behavior. For example, psychological entitlement plays an important role in the relationship between organizational context and bootlegging behavior of employees [67]. Besides, job autonomy perspective may be a beneficial way to conclude the emergence of employees’ bootlegging [68]. Not only that, we cannot ignore that future research also needs to examine the impact of other boundary conditions, and more deep studies can be done to draw the outline of map for the bootlegging behavior literature.

Finally, considering the concealment and social approval of bootlegging behavior, data in this research are collected from the employees’ self-statement. Although efforts were made to reduce common method biases, risk still exists. Therefore, further research can utilize other more appropriate methods, such as text analysis, quasi-experimental design, and cross-lagged method to examine the dynamic relationship between distributed leadership and bootlegging behavior to obtain more robust conclusions.

6. Conclusion

This study was motivated not only to recognize how organizations experience bootlegging innovation in the evolution of organization development, but also to learn about the paradox mindset that drive to resolve these tensions. Based on the integrated perspective of paradox theory and organizational learning theory, this study generalizes bootlegging behavior as a process including the tension between competing learning needs in the context of distributed leadership. While enriching the mediating conditions of the effect of exploratory-exploitative learning tension on employees’ bootlegging behavior, this study expands the theoretical application of paradox mindset as a moderating variable. Viewed holistically, our study provides ideas for organizations to correctly deal with employee bootlegging behavior, introduces a new research direction into this field, helps to understand the formation process and action mechanism of bootlegging behavior more deeply, and more comprehensively explains the application value of paradox theory in organizations.

Data Availability

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest

The authors declare no conflicts of interest.

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