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ORIGINAL RESEARCH

Impact of Entrepreneurial Leadership on Innovative Work Behavior: Examining Mediation and Moderation Mechanisms

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Purpose: Based on social cognitive theory, the present study aimed to explore the impact of entrepreneurial leadership on employees' innovative work behavior through the moderating path of entrepreneurial self-efficacy in technology-based SMEs. The study also explains the mechanism through which a firm's innovative environment mediates the relationship between entrepreneurial leadership and employees' innovative work behavior.

Methods: To pursue the objectives, this study has used data from a sample of 350 supervisor–subordinate dyads working in cross sectional small and medium enterprises (SMEs) operating in the Jiangsu province of China. Based on social cognitive theory and specific continuum of self-efficacy theory, a conceptual model was developed and the hypotheses were tested with the help of SPSS 20.

Findings: Empirical findings recommend a significant positive effect of entrepreneurial leadership on employees' innovative work behavior. The study suggested that firm's innovative environment mediates the relationship between entrepreneurial leadership and the employees' innovative behavior. The results also confirmed that entrepreneurial self-efficacy exerts a positive moderating effect on the association of entrepreneurial leadership and employees' innovative behavior.

Conclusion: Findings of the present research work have several implications for the management and policymakers of high-tech SMEs who want to augment their employees' innovative behavior in order to compete in a highly competitive and challenging business environment. To the best of authors' knowledge, this work is the first attempt that presents an empirically supported comprehensive model for the development of employees' innovative behavior within entrepreneurial-based high-tech SMEs. It contributes to literature by examining the mediation and moderation process for the development of employees' innovative behavior.

Keywords: entrepreneurial leadership, entrepreneurial self-efficacy, firm's innovative environment, innovative work behavior

Introduction

In transitioning economies, like China, the competitive business environment has made it challenging for the entrepreneurial-based high-tech small and medium enterprises (SMEs) to survive and grow. In such a turbulent environment, organizations that want to be successful, have to rethink about their priorities to align their business models with technological changes.[1–3] In this scenario, innovation has been acknowledged as an influential impelling cause for the survival, success and competitiveness of high-tech organizations.[4–9] However, it has become challenging

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for business leaders to encourage their members to leave the traditional way of thinking and task performance, and to devote their energy to creating innovative ideas.[10] Innovation comes out when the employees working at all levels of organizational hierarchical structure show innovative work behavior, and devote their efforts to developing, promoting and implementing new ideas in the workplace.[11–15] A large number of research studies have been devoted to explore the antecedents of employees' innovative work behavior, and in this context the characteristics of the business leaders are deemed to be more essential in influencing the employees' work behavior and performance.[16–18] Numerous studies have suggested that leadership plays a critical role in shaping and promoting innovative work behaviors in all kind of industrial settings.[19–21] Precisely, Tung,[22] Gumusluoğlu, Ilsev,[23] Rousseau, Aubé, Tremblay[24] proposed that employee innovative behavior is not produced automatically, but the leaders shape such behaviors by supporting and encouraging them during the creative process.

Even though a large number of studies have explored the critical role of leadership in driving innovation, there is a limited understanding for different leadership styles that effectively augment employees' creativity and innovative behavior at work.[25,26] Further, the studies on leadership are inconclusive as some of them stated a strong positive relationship between different leadership styles and employees' innovative behavior,[16,27,28] while other suggested weak or insignificant association between these two variables.[29–32] Basu and Green[33] and Bono and Judge[34] proclaimed that there is an adverse association between different leadership styles and employees' innovative behavior. In such a vague scenario, scholars as well as practitioners demand conclusive judgments on the expediency of different leadership styles to enable employees' participation in the challenging practices of an innovation process. Scholars have questioned the practicability of leadership styles in augmenting innovation, and it is mostly because of the general leadership styles (eg, transformational/transactional) are not particularly designed to facilitate and promote employees' innovative work behavior.[35] Furthermore, these leadership styles do not determine the distinct characteristics and behaviors that leaders should adopt to direct the innovation process through new ideas generation, and implementation within the organization.[36,37] The leaders should develop new leadership capabilities in order to stimulate innovative behaviors and lead the innovation process in their organizations.[38–40]

In the last two decades entrepreneurial leadership (EL), along with other leadership styles, has become a hot topic for discussion and has gained wide scholarly attention in the entrepreneurship and leadership domain.[41–51] However, focusing on organizational context, further studies of EL in a wide range of entrepreneurial and SME contexts (size, stage of development, sector) is needed.[52] Studies by Renko, El Tarabishy, et al[25] and Gupta et al[41] offered a comprehensive EL construct, arguing that this leadership influences and directs the synergetic performance of group members toward accomplishing those organizational goals that relate to recognizing and exploiting contingencies, which ultimately influence the success of EL. Drawing from the notion of "cast enactment" in EL theory proposed by Gupta et al[41] large numbers of the studies[53–57] have suggested EL as the most influential factor for innovative behavior, and highlighted its importance in stimulating and fostering innovation in highly dynamic and competitive business environments. So, it is critical to understand the mechanisms through which EL influences employees' innovative work behavior, and stimulates innovation performance of the organization.[58–60] Based on social cognitive theory (SCT), the present study will help us to understand the mechanism through which EL influences employees' innovative work behavior. This theory established the existence of a mutual relationship among individual characteristics, behavioral factors, and environmental factors.[61] As per SCT, individuals having a high self-efficacy level are found to perform more risky and challenging tasks in comparison with individuals having low self-efficacy, who perceive the challenging tasks as uncertain and dangerous.[62] The previous studies of Karwowski et al[63] and Tierney and Farmer[64] have confirmed that employees' self-efficacy, especially entrepreneurial self-efficacy (ESE), augments the innovative behavior and creative performance of employees[64–68] and also enhances their creativity.[69]

Until now, most of the studies on ESE have focused on examining the direct impact of ESE on different entrepreneurial outcomes, for instance: entrepreneurial intentions;[70] opportunity recognition;[71] and firm innovative performance.[72] The theory of ESE[73] suggested that one can examine the mediating or moderating role of ESE between the association of antecedents and entrepreneurial outcomes. When we study the literature on leadership, we come to know that leadership behaviors occur in the context of organization and analyzing a bivariate relationship that would be incomplete without considering the organizational context in which organizational innovation takes place.[74] Therefore it is necessary to identify

and examine factors that may interact with leadership behaviors in affecting organizational innovation.[75,76] Drawing from the previous literature,[77,78] we proposed that ESE strengthens the positive impact of EL on employees' innovative work behavior. As the previous studies have not shown interest in investigating the moderating role of ESE,[77] this work will be insightful to examine the effects of EL toward employees' innovative behavior through the moderating path of ESE, and ultimately will extend the existing body of knowledge. Drawing from the research studies conducted by Kang et al[58] and Jaiswal and Dhar,[77] we also proposed that a firm's innovative environment can mediate the relationship of EL and employees' innovative behavior.

The rest of the paper is organized in the following sections. In the first section, we have reviewed the literature in the context of EL, ESE, a firm's environment and employees' innovation behavior, and thereafter hypotheses of study are proposed. In the second part, the study has detailed research methodology and empirical findings. In the third part of the study, we have discussed the research findings in the light of its theoretical and practical implications, and end the paper with its limitations, future endeavors and conclusion.

Theoretical Background

Entrepreneurial Leadership and Innovative Work Behavior

In a highly dynamic and competitive business environment, leaders play a critical role for the survival, success and growth of their business by directing the innovation process.[79–81] The literature on EL has acknowledged that the entrepreneurial leaders not only create new ideas themselves but also facilitate and encourage their employees to show their potentials in solving complex issues and performing challenging task through innovative means.[45,55,57,82] With their distinct characteristics, the leaders also develop employees' commitment and persistence to encourage their coworkers to generate new ideas and gain their support to realize them.[83–86] At an organizational level, directing the innovation process is a challenging task for business leaders as they have to facilitate perpetual new idea generation and exploitation. To lead the innovation process, a leader has to create a promising environment in which all the employees can be encouraged to participate in innovative practices and to engage in the generation and exploitation of new ideas.[77]

Literature proclaimed that EL is a strong influential factor to stimulate and improve employees' innovative work behavior in a competitive business environment.[55,82] In a challenging business environment, an entrepreneurial leader can effectively direct the innovation process by facilitating their members in generating and realizing new ideas.[87] Characteristics of the entrepreneurial leader also effectively improve the impact of other leadership styles on the innovation process of their businesses.[53,60] The EL theory proposed that based on their functional abilities, entrepreneurial leaders not only enable but also stimulate their group members to discard their conventional way of performing the task and direct their energy toward execution of innovative and entrepreneurial actions.[41] The entrepreneurial leaders also redesign their members' perceptions of their competencies by involving them in developing new and innovative ideas, and building their confidence to implement these ideas.[88,89] The functional competencies of entrepreneurial leaders also empower them to intentionally inspire and regulate their members toward innovation.[25,90] The leaders of high-tech entrepreneurial-based organizations realize their vision through identifying and stimulating the potential competencies of their group members, enabling them to generate new ideas, and reshaping their behavior, thoughts, and attitudes of implementing new ideas.[36,52,58,91–94] Entrepreneurial leaders also create a promising environment and encouraging culture in which all of the group members consider innovation as one of their priority tasks and show their persistence in the face of challenges inherited in the innovation process.[36,82,95] Most of the previous research has investigated the outcomes of EL in large firms and their findings may not be applicable to the highly challenging, complex and uncertain context of high-tech SMEs.[52] For that reason, the present study has tested the following hypothesis to examine the impact of EL on employees' innovative behavior in high-tech SMEs.

H-1: Entrepreneurial leadership has a positive impact on employees' innovation work behavior.

The Mediation Effect of the Firm's Innovative Environment

Entrepreneurial Leadership and the Firm's Innovative Environment

The firm's environment refers to a shared perception of employees about different kinds of behaviors and actions that are supposed to be rewarded in a particular organization.[96] The leaders of any organization play a critical role in forming and shaping the firm's environment that leads to desirable behaviors and actions.[97] An innovative environment can be defined as "the shared perceptions of employees concerning

the practices, procedures, and behaviors that promote the generation, introduction, and the realization of new ideas."[98]

The functional competencies of entrepreneurial leaders empower them to inspire and intentionally stimulate their employees to act in an innovative way,[99–101] which also influences them to be more receptive to that innovative environment generated by their leaders.[102] Entrepreneurial leaders build confidence in their followers by allowing them to suggest new and innovative business ideas without any hesitation or fear.[103–105] For instance, Kang et al[58] reasoned that there is a significant association between EL behavior and a firm's innovative environment – that has a contextual impact on employees' behavior in workplaces, supports the innovative struggles of employees, and stops them from being reactive.[106] Thus, entrepreneurial leaders create such a promising innovative environment, which not only enables but also encourages their followers to be innovative, and find new and creative solutions to the problems encountered in the workplace.[107,108]

A Firm's Innovative Environment and Innovative Work Behavior

Literature states that there are many contextual factors that also contribute to the individual's innovative behavior.[109] For example, it has acknowledged that most of the employees shape or regulate their behavioral patterns by observing their immediate supervisors and coworkers, and following the behavioral norms of the firm.[110,111] That is to say, when the overall organizational environment will helpful to augment employees' innovative behavior, employees of that organization will normally attempt to follow these embedded norms and will act innovatively[112,113] by watching their coworkers and leaders' innovative behavior.[114,115] Once a particular environment is sustained in the firm, it becomes a guiding principle for an innovative work process that not only guides but also leads to more innovative behavior.[115,116] In summary, the leaders who recognize an innovative firm's environment are found to be more empowered, and they exploit their intellectual assets to succeed in a dynamic and challenging business environment, and thus exhibit innovative behavior.[15,117] Taken together with all of the arguments, we have proposed the second hypothesis as follows:

H-2: A firm's innovative environment mediates the relationship between EL and employees' innovative work behavior.

Entrepreneurial Self-Efficacy and Innovative Work Behavior

Until now ESE has gained a lot of scholarly attention in entrepreneurship literature because of its important entrepreneurial outcomes.[70,118–122] Authors such as Markman et al [123] and Schmitt et al [124] have determined that ESE is one of the distinct features that has a direct influence on entrepreneurial pursuits, new venture performance, and personal success. Therefore, it is important for the scholars to devote more attention to explore and examine such influential factors. In examining the different mechanisms through which EL impact on employees' innovative behavior, various researchers, for instance, Huang et al[89], Baron and Tang[125], and Huang and Chen[126] have emphasized that the relationship between EL and innovative behavior may moderate by many contextual factors. Even though EL is being acknowledged as a foundation for innovation, it is not sufficient by itself.[127] It generates only a potential for the novel and creative ideas[82] that must be acted upon later. Previous literature suggests that individuals' perceived belief of self-efficacy is a strong influential force for implementation of their intentions.[128] Self-efficacy refers to the degree an individual believes that he/she can efficiently perform tasks and actions to accomplish desired goals.[128] According to Miao et al[129] contingent to the belief of their self-efficacy, individuals with similar skills may perform poorly, adequately, or extraordinarily. Individuals with high self-efficacy for a specific task are more likely to pursue and then persist in that task than those individuals with low self-efficacy beliefs.[130] Entrepreneurship literature defines the ESE as the strength of an individual's beliefs that he/she is proficient in effectively performing the different entrepreneurial tasks.[131,132] The literature of ESE has so far mostly focused on examining the direct impacts of ESE on different entrepreneurial outcomes, for instance: entrepreneurial intentions;[121,122,133,134] opportunity recognition;[124,135,136] and firm performance.[129,131,137] Drawing from the theory of ESE, Boyd and Vozikis[73] proposed that one can examine the mediating or moderating role of ESE between the relationship of antecedents and entrepreneurial outcomes. The empirical study of Hmieleski and Corbett[118] suggested that the relationship between an entrepreneur's interpersonal behavior and venture performance is positively moderated by a high the level of ESE. Findings of Tang[138] advocate that a high level of ESE strengthens the positive relationship between environmental munificence and opportunity alertness. It also acknowledges that the entrepreneurs having strong ESE are likely to be more alert in recognition of market disequilibria, and to exploit the opportunities appropriately.[139] In previous

studies, almost all of the research scholars have investigated the direct or mediating effect of ESE on employees' creativity or innovative behavior and have not shown their interest in examining the moderation path for this variable. As suggested by Bandura,[140] the self-efficacy theory falls between two continuum (ie, general to specific). In general, the generalized self-efficacy remains stable, but it is acknowledged that when it moves toward specificity, it becomes sensitive toward personal and contextual factors.[140] Following Bandura's two continuum concept, the creative/ESE falls within the continuum of specificity.[72,141] Thus, the creative/ESE is conditional to the personal and contextual factors[142–144] and may fall within the high and low continuum, which may moderate the mechanisms adopted to augment innovative behavior among the employees.[77,127,139,145,146] Therefore, drawing from specific continuum of self-efficacy theory, it is suggested that ESE could play a moderating role in association between EL and employees' innovative behavior.

H-3: Entrepreneurial self-efficacy moderates the positive impact of EL on employees' innovation work behavior.

The theoretical framework (Figure 1) depicts all the hypothetical relationships among different variables of the study that were developed after an in-depth study of the relevant literature.

Methodology

Sample Design and the Data Collection

The present study is based on the data collected from 350 supervisor–subordinate dyads working in cross-sectional technology-based SMEs operating in the Jiangsu province of China. Data was collected with the help of the master student enrolled in the department of management sciences of Jiangsu University, China. The Chinese students distibuted 500 questionnaires to supervisor–subordinate dyads of 50 high-tech SMEs operating across the major cities of Jiangsu province. The students met with supervisors and subordinates at different times, and offered them a cover letter indicating the voluntary of participation and confidentiality of their responses. We also made sure that we had randomly selected one subordinate for each supervisor. Data was collected from only those dyads who were directly involved in the idea generation, promotion, and implementation stages in their respective innovative jobs. The sample frame of the study consists of manufacturing, processing, designing, engineering, marketing, and product development departments as researchers have suggested that employees' innovative work behavior is pertinent to these departments.[147–149] Data was collected over the two periods of time so as to minimize the effects of common method bias.[150,151] Both of the surveys were properly coded so that they could be matched and supervisor–subordinate dyads could be formed. After removing uncompleted surveys, our final sample comprises a total of 350 supervisor–subordinate dyads out of 500 surveys (70% response rate) and such a high response rate is common in self-administered surveys conducted in Asian contexts.[152] The survey involved 47 supervisors who responded to the questionnaire on innovative work behavior of 350 subordinates, as the average span of control of each supervisor was approximately seven to eight subordinates. The demographics of the respondents stated that, out of the total participants, 270 (77.14%) were males and rest 80 (22.86%) were females. The average age of the respondents was 35.7 years with an SD of 7.45 years, while their average tenure with in the particular organization was 5.15 years with an SD of 3.45 years.

Measurement Scales

Entrepreneurial leadership: To measure the perceptions of subordinates toward EL practices of their immediate leaders, we have used an eight-item ENTRELEAD questionnaire which was developed by Renko et al.[25] The Cronbach's alpha for this measurement scale was 0.89, which indicates a high degree of internal consistency.

Innovative environment: To measure a firm's innovative environment, we have utilized a three-item scale that was developed by Patterson et al[153] and Scott and Bruce.[154] Survey participants were asked to select a number from 1 through 5 that best describes their firm's innovative environment (alpha 5 0.68).

Entrepreneurial self-efficacy: The perception of employees' ESE was measured using an eleven-item ESE scale that was developed by Chen et al[70] and also used previously in other studies.[155]

Innovative work behavior: Employees' innovative work behavior was measured by a ten-item measurement scale that was adopted from the study of De Jong and Den Hartog.[83] The leaders were asked to rate the frequency with which their subordinates displayed different behaviors on a five-point scale ranging from 1 ("never") to 5 ("always").

Control variables: Empirical research on employees' performance has specified that employees' age, gender, education, and tenure in a particular organization may influence their performance,[75] and for that reason, we have considered

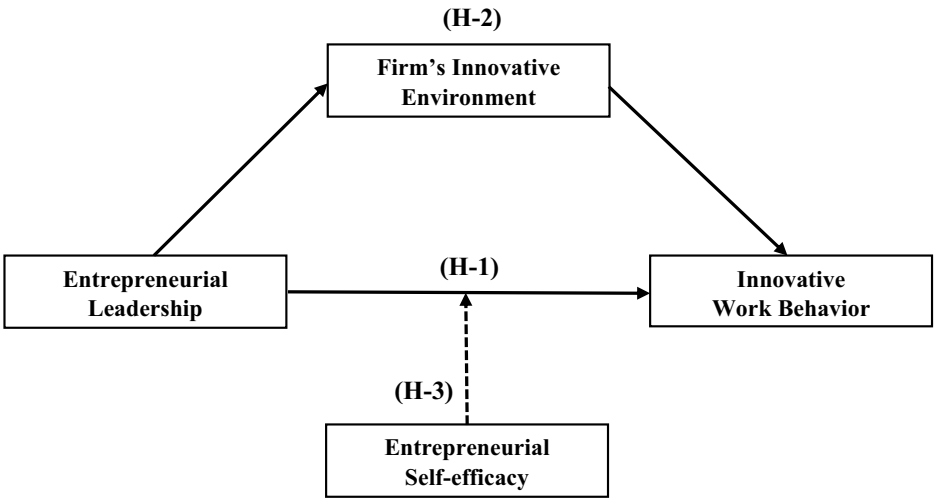

Figure 1 Theoretical framework of the study.
Notes: The theoretical framework summarizes the proposed relationship among different variables of study. The model suggests that the relationship between entrepreneurial leadership (EL) and employees' innovative work behavior is mediated by the firm's innovative environment. The model also proposed that the high level of entrepreneurial self-efficacy strengthens the relationship of EL and employees' innovative behavior.

employees' age, gender, education, and organizational tenure as control variables in hypotheses testing.

Analyses and the Results

Assessment of Measurements' Validity

To assess the reliability and validity of all construct measures, conformity factor analyses (CFA) is performed using the software solution AMOS 21. CFA results for the EL measurement construct has specified a good fit, goodness-of-fit indexes: χ^2/df=3.87; goodness of fit index (GFI)=0.978; comparative fit index (CFI)=0.986; normed fit index (NFI)=0.976; root mean square of approximation (RMSEA)=0.056; P<0.05. CFA results for the innovative environment scale showed a good fit, goodness-of-fit indexes: χ^2/df=3.76; GFI=0.928; CFI=0.978; NFI=0.956; RMSEA=0.048; P<0.05. CFA results for the ESE scale also indicated a good fit, goodness-of-fit indexes: χ^2/df=3.58; GFI=0.984; CFI=0.985; NFI=0.983; RMSEA=0.062; P<0.058. The CFA results for the innovative work behavior scale also indicate good fit, goodness-of-fit indexes: χ^2/df=2.34; GFI=0.980; CFI=0.983; NFI=0.978; RMSEA=0.054; P<0.05. Moreover, the factor loading for each item of the constructs exceeded the threshold value of 0.50 and Cronbach alpha coefficient of all the constructs is greater than 0.75, statistically significant at 5% confidence level.

Means, Standard Deviations, and Inter-Variable Correlations

Before going to analyze the hypothetical relationship between different variables of research, the study has provided the descriptive statistics of the selected sample and inter-variable correlations for all of the subject variables. The means, standard deviations, and inter-variable correlations are presented in (Table 1).

Table 1 Means, Standard Deviations and Inter-Variable Correlations

Scale	Mean	SD	1	2	3	4	5	6	7	8
1. Gender	0.85	0.18	1							
2. Age	36.45	6.78	0.01	1						
3. Education	1.95	0.48	0.05	0.06	1					
4. Tenure	5.35	3.54	0.04	0.05	0.07	1				
5. Entrepreneurial Leadership	5.65	0.55	0.05	0.07	0.09	0.08	1			
6. Entrepreneurial Self-efficacy	5.64	0.48	0.07	0.25*	0.35*	0.13	0.38*	1		
7. Firm's Environment	3.55	0.35	0.06	0.08	0.22*	0.26*	0.45*	0.28*	1	
8. Innovative Behavior	3.45	0.32	0.05	0.18*	0.26*	0.25*	0.43*	0.35*	0.46*	1

Notes: N=350 dyads; *P <0.01 (two-tailed).

Results of Mediation Analyses

The hypothesis (H-2) of the study proposed that a firm's innovative environment acts as a mediator between the relationship of EL and innovative work behavior. To investigate the mediation effect, we followed Baron and Kenny's[156] criteria which suggests the three conditions that must be met to advocate the mediating effect in a given association. First, the independent variable should significantly relate to the dependent variable; second, the independent variable should significantly relate to the mediator; third, when controlling the mediating variable, the relationship between independent and dependent variable must be much smaller than when the independent variable is the sole predictor. Accordingly, we test the second hypothesis, which stated the mediation effect, by investigating the effect of EL when firm's innovative environment was entered into the model. As depicted in Model 3 of (Table 2), a firm's innovative environment became a stronger predictor of employees' innovative behavior (ΔR^2 = 0.21, P <0.05). Alternatively, the beta coefficient of EL became smaller then when it was the sole predictor of employees' innovative behavior. Findings from the analyses suggested that a firm's innovative environment partially mediates the link between EL and innovative behavior of employees and provides empirical support to our second hypothesis. Furthermore, a bootstrapping test was conducted with a bootstrap sample of 280 to confirm the mediating impact of the firm's innovative environment in the association between EL and employees' innovative behavior. The standardized mediating effect of EL on innovative behavior via a firm's innovative environment was significantly different from zero at the 0.005 level (coefficient of standardized indirect effect =0.048; P = 0.003; χ^2 = 104.44, χ^2/df = 2.72, P=0.005; RMSEA=0.05; CFI=0.975; TLI=0.98, NFI=0.985). Therefore, the results from bootstrapping also provided support to our second hypothesis as it confirmed an indirect (mediating) effect of the firm's innovative environment in the relationship between EL and employees' innovative behavior.

Table 2 Regression Analysis of Mediation for Innovation Work Behavior

Variables		Innovative Work Behavior		
		Model 1	Model 2	Model 3
Step. 1	Age	0.15*	0.08	0.05
	Gender	0.12	0.07	0.04
	Education	0.16**	0.09	0.07
	Tenure	0.10*	0.08	0.06
Step. 2	Entrepreneurial Leadership (EL)		0.42**	0.36*
	Firm's Environment (FE)			0.48**
Step. 3	R^2	0.06	0.22	0.45
	ΔR^2		0.16**	0.21**
	F	4.98**	18.75**	35.56**

Notes: N=350 dyads; *P <0.1, **P <0.05, (two-tailed tests); standardized coefficients are reported.

Hierarchical Regression Model for Moderation

To simplify the interpretability of the interaction term (EL × ESE), we followed the hierarchical regression procedure (in which we entered control variables in the first step, in the second step we entered the main effects, and the interaction of independent and moderator come into the third step).[157] Moderation analyses (see Table 3) confirmed that ESE strengthens the positive effect of EL on employees' innovative work behavior as the interaction term (EL × ESE) was found to be statistically significant and in the proposed direction (β=0.16, P<0 0.05). Furthermore, it accounts for an additional 16% of the variance in employees' innovative work behavior ($\Delta R^2 2$ =0.16, P<0.01). We have also plotted the slope of the simple regression (Figure 2) to examine the nature of the influence of EL on innovative behavior with respect to the levels of an individual's ESE.[158] The interaction term is illustrated in (Figure 2)

Table 3 Regression Analysis of Moderation for Innovation Work Behavior

Variables		Innovative Work Behavior		
		Model 1	Model 2	Model 3
Step 1	Age	0.15*	0.06	0.05
	Gender	0.12	0.08	0.06
	Education	0.16**	0.07	0.04
	Tenure	0.10*	0.06	0.05
Step 2	Entrepreneurial Leadership (EL)		0.38**	0.35**
	Entrepreneurial Self-efficacy (ESE)		0.32**	0.28**
Step 3	(EL × ESE)			0.16**
	R^2	0.08	0.20	0.36
	ΔR^2		0.12**	0.16**
	F	4.80**	18.86**	32.58**

Notes: N=350 dyads; *P <0.1, **P <0.05, (two-tailed tests); standardized coefficients are reported.

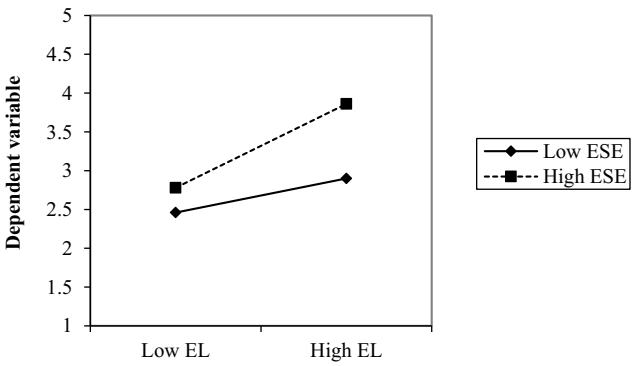

Figure 2 Graphical presentation of interaction term.
Notes: The graphical presentation of interaction term and the influence of entrepreneurial leadership (EL) on innovative behavior with respect to the different levels of an individual's entrepreneurial self-efficacy (ESE).

which predicted that, at high level, ESE strengthens the positive impact of EL on employees' innovative behavior. Therefore, both the results provide empirical support to our hypothesis (H-3).

Discussion

In the last few decades, EL has gained a growing consideration among entrepreneurship and leadership scholars and practitioners.[92,159–161] Nonetheless, only a few studies have explored the outcomes of this leadership style in high-tech[44,162] and entrepreneurial-based SMEs.[36,89] Present study is aimed at exploring the mechanism through which EL affects employees' innovative work behavior, especially in high-tech SMEs. To pursue the objectives, we have developed a theoretical grounded conceptual model to test the direct, mediated, and the moderated effect of this leadership style on employees' innovative work behavior. The model suggests that this leadership style impacts on employees' innovative behavior with the mediation of the firm's innovative environment, and furthermore, this impact becomes stronger when we add employees' ESE as a moderator in the given model. Studies conducted by Alabduljader et al[163] and Choi et al[164] stated that transactional and transformational leadership has a direct positive effect on their immediate followers' innovative behavior. Kang et al[165] have also found in their study that the firm's innovative environment mediates the positive relationship among transactional and transformational leadership, and follower's innovative work behavior. The findings from Bagheri[36] Bagheri and Akbari[82] claimed that EL is a key influential factor that enables, encourages, and promotes the employees' innovation work behavior. Our study added value to these findings, by examining the mediation role of the firm's innovative environment between EL and employees' innovative work behavior. Furthermore, Choi et al[164] indicate that perceived organizational support acts as a moderator between the positive relationship of transformational leadership and employees' innovation behavior. In our study, we have suggested a different mechanism by seeking the moderation effect of employees' ESE between the relationship of EL and employees' innovative work behavior. Our results not only complement the previous research findings, but also contribute to the literature with regard to leadership and innovative behavior, by bringing together ESE as a moderator and firm's innovative environment as a mediator between the relationship of EL and employees' innovative behavior. The literature also claimed that some of the contextual factors can strength the level of employees' innovative behavior. To the best of our knowledge, this study is the first attempt in entrepreneurship, leadership, and innovation literature that offers an empirically supported comprehensive model to augment employees' innovative behavior, especially in high-tech SMEs.

Conclusion

This study aimed to explore the mediation and moderation mechanism to improve employees' innovative behavior in Chinese high-tech SMEs. Based on social cognitive theory, this work has examined the impact of EL on employees' innovative behavior through the moderating path of ESE. The study also explored the mediating effect of a firm's innovative environment in the association of EL and employees' innovative behavior. In line with the previous research findings of Bagheri,[36] Chen,[57] andMokhber et al[127] results of the present study suggested that EL has a significant positive impact on employees' innovative work behavior. The findings also confirmed that, at high level, ESE strengthens the positive relationship between EL and employees' innovative behavior. Results also declared that a firm's innovative environment mediates the relationship between these two variables. The study contributes to the existing body of knowledge by investigating the impact of EL on employees' innovative behavior through the moderating path of employees' ESE. To the best of authors' knowledge, this work is the first attempt in the leadership and entrepreneurship domain that has explored the mediating and moderating mechanism to improve employees' innovative behavior in entrepreneurial context.

Theoretical Implications

By probing the role of EL in improving employees' innovative behavior, this work makes a number of distinct

contributions to entrepreneurship and innovation literature. First, by investigating the contribution of EL in augmentation of employees' innovative behavior, the present study assisted in the development of new theories on innovation, as it extended the leadership styles deemed effective in fostering employees' innovative behavior. Further, this work also extends the EL theory by applying it to explain the process of innovation in high-tech SMEs. Second, this work has extended the theory of organizational climate by explaining the mediating role of a firm's environment in association between EL and employees' innovative behavior. On the basis of their distinct functional competencies, the entrepreneurial leaders create a promising environment that facilitates and encourages their members to leave the traditional way of thinking, generate new ideas, and find innovative solutions to the problems encountered by them in the workplace. Our findings suggest that the entrepreneurial leaders can intentionally influence employees' innovative behavior by providing them with an innovative environment in which to generate novel ideas and accomplish them without fear of failure. In other words, the firm's innovative environment generated by EL, promotes employees' innovative behavior. Third, this work also extends the literature on self-efficacy by examining the additive effect of EL on employees' innovative behavior at different levels of employees' ESE. Our study suggests that it is more important to consider the personal characteristics of employees when we want to determine the most influential factors associated with their behavior. Findings from the present study not only declares that the higher an individual's ESE is associated with higher innovative behavior,[53] but it also strengthens the relationship of EL and employees' innovative work behavior.[36]

Practical Implications

Findings from this work have a number of implications for the managers and leaders of high-tech SMEs who want to enhance the innovative capacity of their employees so as to improve the progress and competitiveness of their business. First, the findings of this work assist the current and prospective business leaders and the entrepreneurs in identifying the key roles that they can play in order to improve innovative capabilities among their employees and develop a promising and innovative environment to streamline the innovation process. Second, for entrepreneurial-based high-tech SMEs, it would be more advantageous for them to organize a brief and easy-to-administer psychometric test during the recruitment process in order to find candidates that have a high level of ESE. Further, managers should also ensure that such recruits are employed under the leadership that displays EL behavior.[166] When leaders encourage such employees they respond more positively and try to identify creative solutions to the problems encountered in the workplace. They also make the most of the various learning opportunities provided by the entrepreneurial leader.[53]

Limitations and the Future Research

Some limitations are associated with this research work. First, this study is based on cross-sectional data which was collected from a single country that could be challenged. In future, we recommend longitudinal cross-country datasets and comparison of findings from different countries that have different cultural backgrounds to support/challenge the outcomes of this model. Second, our measurement scale was not able to capture the multistage process of innovative behavior (idea exploration, idea generation, idea championing, and idea implementation), as we have adopted a combined single measure of innovative work behavior developed by De Jong and Den Hartog.[83] In the future, researchers may try to develop and apply the measure of innovative behavior in a way that captures multistage processes based on the longitudinal research design.

Ethical Statement

This research work was carried out in compliance with the Ethical Code of Conduct of American Psychological Association (APA). After taking approval from the board of directors, the participants were offered a cover letter indicating the willingness of participation and confidentiality of their responses. All the participants willingly took part in the questionnaire survey and written informed consent was provided by the participants and institutions. This work was conducted under the supervision a Chinese professor and the Institutional Review Board of Jiangsu University has approved the study.

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