ISSN: 2688-9323

The Impact of Resilient Leadership on Employee Deviant Innovation: A Moderated Two-tier Mediation Model

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Abstract

Leadership style is one of the important antecedents affecting employees' deviant innovation behavior. However, as a new leadership style in the VUCA era, no scholars have studied the relationship between resilient leadership and employees' deviant innovation behavior. Based on self-determination theory and social exchange theory, this paper explores the predictive effect of resilient leadership on employees' deviant innovation behavior, its mechanism and boundary conditions, and expands the influence results of resilient leadership and the predictive antecedents of employees' deviant innovation. The hierarchical regression analysis technique was used to analyze 422 employee sample data from the network questionnaire survey. The results showed that: the resilient leadership positively affected deviant innovation, psychological capital and harmonious work passion; Psychological capital and harmonious work passion have positive effects on employees' deviant innovation; Psychological capital and harmonious work passion play a mediating role between resilient leadership and deviant innovation; Environmental uncertainty moderates the promoting effect of resilient leadership, psychological capital and harmonious work passion. The research results are helpful to enrich the relevant research on resilient leadership and employees' deviant innovation, help managers better identify and manage employees' behaviors, pay attention to and reasonably guide employees' deviant innovation, and fully stimulate the innovation potential of enterprises.

Keywords

Resilient Leadership; Deviant Innovation; Psychological Capital; Harmonious Work Passion; Environmental Uncertainty.

1. Introduction

Under the background of comprehensively deepening the innovation-driven development strategy and accelerating the construction of innovation as the core engine of enterprises, stimulating employees' innovation momentum has become the focus of enterprises [1]. As the core force of enterprise innovation, the innovation ability of employees directly determines the technological breakthrough and market competitiveness of enterprises. Therefore, how to stimulate the creative potential of employees and transform it into a sustainable driving force for enterprise development has become an important topic of increasing concern in the theoretical and industrial circles. However, in real enterprises, employees often face many challenges after coming up with innovative ideas. For example, these ideas often cannot be fully recognized and understood by the management in a timely manner. At the same time, due to the limited resources of the organization, even the recognized innovative ideas may not be supported by the organization and finally implemented [2]. After the innovative ideas were hindered, some employees still chose to violate the order and continue to implement the innovative ideas underground, resulting in deviant innovative behaviors. Deviant innovation is

ISSN: 2688-9323

a kind of bottom-up secret innovation behavior of employees, which is not officially authorized by the management, for the purpose of improving organizational innovation revenue[3].

Previous studies have shown that individual factors such as personality traits and sense of excess qualification as well as situational factors such as team innovation atmosphere and organizational innovation support significantly affect deviant innovation behaviors[4]. In addition, in recent years, as an important part of situational factors, the influence of leadership style on employees' deviant innovation behavior has gradually attracted scholars' attention, such as differential leadership, authentic leadership, non-ethical leadership, transformational leadership, etc. [5][8]. However, as a new leadership style in the VUCA era, the influence of resilient leadership on employees' deviant innovation behavior has not been tested. Compared with other leadership styles, resilient leadership has the attribute of adaptability to the environment. It can maintain flexibility in stability and stability in changes. It is more able to match employees' deviant innovation behaviors and make the organization fall into the trap of innovation and innovation balance. Therefore, resilient leadership is likely to have a significant impact on employees' deviant innovation behavior. Further, how does resilient leadership influence employees' deviant innovation? Under what boundary conditions are the aforementioned effects strengthened or weakened?

In order to answer the above questions, based on resource conservation theory and self-determination theory, this paper expounds the influence of resilient leadership on employees' deviant innovation behavior and its action process. Specifically, resilient leadership can enhance employees' sense of self-efficacy, increase employees' psychological capital and work commitment, and reduce employees' emotional exhaustion from work stress. According to the resource preservation theory, psychological capital is a positive psychological state in which employees show confidence, hope, optimism and resilience at work, which can provide an important driving force for employees to implement innovative behaviors. When employees are at a high level of psychological capital, they will dare to solve the problems they face in innovative ways [9]. According to the self-determination theory, employees' work passion is influenced by leaders with passion in the organization [10]. Leaders with resilient leadership are persistent, courageous and full of passion in the face of adversity [11], which will have a subtle impact on employees. Employees will regard resilient leaders as role models to shape their own work attitudes and behaviors, generate self-internalized work motivation, and promote harmonious passion. Employees with a high level of harmonious passion will internalize work as a part of their identity, tend to make extra-role behaviors, and usually take the initiative to take responsibility to meet their psychological needs for a sense of work accomplishment. They will also be more likely to have deviant innovative behaviors when faced with obstacles to innovative ideas at work.

In addition, this paper argues that high level of environmental uncertainty leads to lack of employees' resources, which is unlikely to improve their psychological capital, and employees continue to support resources to make up for resource losses. Under the principle of "resource protection first", employees have a stronger demand for resilient leadership to empower employees' resources, so resilient leadership has a stronger effect on employees' psychological capital. Furthermore, employees with a high level of psychological capital will be more engaged in their work and more proactive in their work, thus promoting the generation of deviant innovative behaviors. On the contrary. Low level of environmental uncertainty means that employee resources are abundant, their psychological capital level is enough to nourish work prosperity, and employees' demand for resilient leadership is relatively weak. The effect of resilient leadership on psychological capital and job prosperity is weakened, and the generation of deviant innovation behavior is reduced.

The overall model of this paper is shown in Figure 1. The expected contributions are as follows: First, explore the relationship between resilient leadership and employees' deviant innovation

ISSN: 2688-9323

behavior, respond to scholars' call for strengthening research on the impact of different leadership styles on employees' deviant innovation behavior, enrich the influencing factors of employees' deviant innovation behavior, and expand the results of the impact of resilient leadership; Secondly, based on the theory of self-determination and the theory of resource conservation, psychological capital and harmonious work passion are introduced as the intermediary mechanism between resilient leadership and employees' deviant innovation, and the mechanism of the influence of resilient leadership on employees' deviant innovation is initially explored. Thirdly, the moderating effect of environmental uncertainty is verified, and the boundary conditions of the influence of resilient leadership on employees' deviant innovation are clarified. Fourthly, it provides practical enlightenment for organizations to clarify the generation of employees' deviant innovation to cope with the environment of VUCA era.

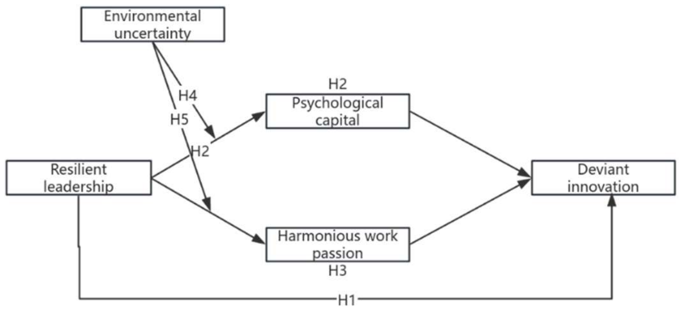

Figure 1. Study the overall model

2. Theoretical Derivation and Hypothesis

2.1. The Direct Impact of Resilient Leadership on Employees' Deviant Innovation

Resilient leadership refers to the ability and process of organizational leaders to take active and effective measures in the face of adversity, challenges or uncertain situations, maintain flexibility in stability, and maintain stability in flexibility, so as to lead the organization to recover from difficulties and achieve growth [12]. In this process, the leader's perseverance, calm and innovative qualities will bring great encouragement to the subordinates. Existing studies have shown that leadership style, leadership style and the relationship between leadership members have a significant impact on employees' deviant innovation behavior [13]. Positive leadership behavior is conducive to helping subordinates obtain various material and spiritual resources, enabling subordinates to have positive social identification, and subordinates will move toward the goal desired by the organization, thus exerting a positive influence on subordinates [14]. Deviant innovation refers to the behavior of employees who have innovative ideas or creative ideas with the fundamental purpose of improving the interests of the organization without the consent of their superiors[15]. The high risk and high cost of employees' deviance not only challenges the rules and regulations of the organization, but also brings pressure to employees' work. Based on existing studies, it can be seen that the key influencing factors of employees' deviant innovation are that employees perceive the risk of deviance is low, they will not be punished by the organization regardless of whether the deviant succeeds or not, and employees have strong organizational motivation [16]. In a highly uncertain environment, resilient leaders can not only flexibly face themselves, but also empathize with employees and call on employees to develop adaptability and innovation capabilities. Lin and Liao(2020)[17] also pointed out in their research that resilient leaders

ISSN: 2688-9323

usually encourage employees to believe in themselves, set challenging goals, and dare to innovate and go forward. Therefore, this paper assumes that:

H1: Resilient leadership positively affects deviant innovation.

2.2. The Mediating Role of Psychological Capital

Luthans and Youssef-Morgan(2017) pointed out that psychological capital means that individuals have the confidence to face difficulties in work and positively attribute present and future success. As a new type of leadership in the VUCA era, resilient leadership has excellent qualities such as optimism, positivity and courage, responds quickly to difficulties, delivers encouragement and care to employees, enhances employees' individual resources such as hope, optimism, self-confidence and resilience, and thus builds employees' psychological capital and improves their level of psychological capital (Singh et al.,2022)[18]. Deviant innovation refers to the behavior of employees who have innovative ideas or creative ideas with the fundamental purpose of improving the interests of the organization without the consent of their superiors (Augsdorfer,2004). Although the purpose of deviant innovation is for the benefit of the organization, employees may also fear that the failure of deviant innovation will be punished and affect the future development of the organization. Individuals with high levels of psychological capital are willing and able to go beyond their "in-group" norms to adopt new ones, and they have a tendency to deviate. However, when the level of psychological capital of employees is low, they are more worried about the result of deviant failure, afraid of organizational punishment and interpersonal loss, so employees will avoid deviant behavior, and their psychological capital is not enough to support them to adopt deviant ways to implement innovation. Therefore, this paper assumes that:

H2: Psychological capital plays a mediating role between resilient leadership and deviant innovation.

2.3. The Mediating Role of Harmonious Work Passion

Harmonious passion means that with the deepening of self-internalization in activities, individuals take the initiative to recognize and generate strong motivation (Vallerand,2003). Employees with harmonious passion have a strong working attitude. According to the self-determination theory, employees' work passion is influenced by leaders with passion in the organization (Astakhova et al.,2020)[19]. Resilient leaders are persistent and innovative in the face of adversity, and their unique way of doing things allows employees to follow their example and subtly influence their behavior. Employees will shape their own work attitude and behavior against the resilient leadership, generate independent work motivation, and promote the generation of harmonious work passion. The generation of innovative behavior requires employees to have innovative ideas and be willing to devote a lot of time and energy to their work. In the process of deviant innovation, employees not only have to face the problems to be solved in the innovation process, but also need to face the incomprehension of other members and the opposition of superiors. According to self-determination theory (Deci & Ryan, 2000)[20], the degree to which an individual is affected by external events depends on the degree to which an individual internalizes the activity. For employees with high passion for harmonious work, work is internalized into their lives, and they have higher autonomy in work, are not susceptible to interference from the external environment, and are more likely to make deviant innovative behaviors when faced with obstruction of innovative ideas. It can be inferred that when employees with high harmonious work passion put forward innovative ideas, if the ideas cannot be recognized by the organization, they will be more inclined to put their ideas into practice through deviant innovation. Therefore, this paper assumes that:

H3: Harmonious work passion plays an intermediary role between resilient leadership and deviant innovation.

2.4. The Moderating Effect of Environmental Uncertainty

Environmental uncertainty refers to the ability of individuals to perceive that they cannot accurately predict the external environment, which affects the attitude and behavior of leaders and employees when they face a complex, volatile and unpredictable environment (Kong et al.,2016)[21][22]. When the external environment is highly uncertain, it indicates that the external environment is highly risky, and even a small mistake may bring huge losses. Employees will have worries and anxiety, and will become self-conscious and feel great pressure on their work. At this time, leaders need to bring confidence to employees. Resilient leadership is a new type of leadership that ADAPTS to the VUCA situation, and its essence is to help organizations successfully cope with various changes and challenges. In the face of uncertain environment, the confidence, optimism and flexibility shown by resilient leaders can create a good atmosphere of innovation in the organization. In addition, resilient leaders have higher risk tolerance and weaker fear of risk and uncertainty . At the same time, resilient leaders also accept the shortcomings and differences of employees, pay attention to the unique value of employees, and are willing to listen to the creative suggestions of employees. These characteristics greatly enhance the confidence and psychological capital of employees in an uncertain environment, and it is easy to create an emotional atmosphere of hard work and work together to face the challenges brought by uncertainty. In addition, according to the self-determination theory, employees have the innate competency need to "share honor and shame" with their work, devote themselves to their work, achieve challenging goals and show their own value in an uncertain environment, which further increases employees' harmonious work passion [23]. Therefore, this paper assumes that:

H4: Environmental uncertainty positively moderates the relationship between resilient leadership and psychological capital.

H5: Environmental uncertainty positively moderates the relationship between resilient leadership and harmonious work passion.

3. Research Design

3.1. Sample and Program

This study was conducted by means of random sampling of enterprise employees through an online platform. Questionnaires were produced and distributed by using the electronic platform questionnaire star, covering age and position as widely as possible. A total of 450 questionnaires were published. In order to control the common methodology bias, this study clearly indicated in the questionnaire that "This survey is only for academic research, the data is completely confidential, will never be used for commercial purposes, and promises to be anonymous throughout the whole process" to dispel the concerns of the participants, and indicated that "all the answers are not right or wrong, just answer truthfully." In order to ensure high data quality and real and effective data, sample screening was carried out in this study, and the questionnaires with short filling time and strong selectivity were discarded and cleared. After sample screening and clearing, 422 valid questionnaires were finally generated, with an effective response rate of 93.78%.

Based on the existing samples, it can be seen that: in terms of gender distribution, males accounted for 49.3%; The proportion of women is 50.7%. From the perspective of age distribution, 31-40 years old samples are the largest, accounting for 45.5% of the total number of people; The sample aged 21-30 accounted for 30.8%; The sample aged 41 to 50 accounted for 15.2%; The over-50s made up the smallest sample, at 8.5% of the total. In terms of education level, undergraduate samples accounted for the largest proportion, accounting for 46.0% of the total samples; Followed by master's degree accounted for 24.2%; The proportion of junior college or below was 16.4%; The proportion of doctors is 13.5%. From the perspective of

ISSN: 2688-9323

working years, the number of people with 6-10 years and more than 10 years is larger, accounting for 35.1% and 42.7% of the total sample, respectively. In terms of industry types, IT services such as information technology and financial industries accounted for a relatively large proportion, accounting for 35.5% and 26.8% of the total sample respectively.

3.2. Measuring Tool

The scales selected in this paper are all mature scales at home and abroad. For the foreign scale adopted in this paper, in order to ensure the reliability and validity of the scale, all items were translated and translated back by professionals to determine, and finally Likert 5-point scoring method was adopted.

1) Deviant innovation. The scale developed by Criscuolo et al. (2014), such as "At work, I will carry out multiple personal interest projects to learn knowledge in new fields", has been highly recognized by scholars at home and abroad.

2) Resilient leadership. Use the scale developed by Zhan Xiaojun et al. (2023), such as "My leader has clear thinking in the face of problems and can make reasonable judgments".

3) Psychological capital. Based on the research scenario of this study, this paper mainly draws on the Chinese localized psychological capital questionnaire developed by Chinese scholar Ke Jianglin et al. (2009), such as "I like to constantly set higher goals for myself" and so on.

4) Harmonious work passion. Harmonious work passion scale developed by Vallerand(2003) is adopted, which is divided into two parts, harmonious work passion and compulsive work passion. The part adopted in this paper is harmonious work passion, and the specific item is "work is harmonious with other activities in my life".

5) Environmental uncertainty. Based on the studies of Jaworski and Kohli(1993), Tan and Litsschert(1994) and Chen and Paulraj(2007), five indicators are used to measure environmental uncertainty, such as "market competition is difficult to predict", in combination with the study scenario in this paper.

6) Control variables. According to the research of Vadera et al. (2013), demographic variables such as education background and working years will have a certain impact on deviant innovation. Therefore, demographic variables such as education background, industry type and working years were selected as control variables to eliminate their interference with the research results.

4. Hypothesis Testing

4.1. Common Method Bias

Since all items in the measurement questionnaire in this paper are filled in by the same individual, it may lead to artificial covariation between predictor variables and criterion variables, that is, common method bias. Harman's single factor test, shallow variable method and label variable method were used in this study. The specific operation is to use exploratory factor analysis to conduct unrotated factor analysis for all items. If the first unrotated single factor variance explanation rate is lower than 40%, it indicates that there is no serious common method bias in this study[24]. After testing, it was found that the feature roots of five factors were greater than 1, and the explanation rate of the first unrotated single factor variance was 39.809%, lower than 40%, indicating that the common method bias did not seriously affect the study, and subsequent analysis could be conducted.

4.2. Confirmatory Factor Analysis

In this study, AMOS24.0 was used to conduct confirmatory factor analysis for the study variables. Table 1 shows that compared with other factor models, the five-factor model (χ^2/df=1.274; NFI=0.935; CFI=0.985; IFI=0.985; GFI=0.926; TLI=0.984; RMSEA=0.026)

ISSN: 2688-9323

obtained ideal data fitting results, proving that the five concepts adopted in this paper are well differentiated.

Table 1. Confirmatory factor analysis

model	χ^2/df	RMSEA	NFI	CFI	IFI	GFI	TLI
Five-factor model	1.274	0.026	0.935	0.985	0.985	0.926	0.984
Four-factor model	3.130	0.071	0.838	0.884	0.884	0.764	0.873
Three-factor model	4.798	0.095	0.751	0.791	0.792	0.648	0.774
Two-factor model	7.006	0.119	0.634	0.668	0.669	0.532	0.643
Single factor model	7.628	0.125	0.601	0.633	0.634	0.518	0.606

Note: Single factor model: resilient leadership + psychological capital + harmonious work passion + deviant innovation + environmental uncertainty; Two-factor model: resilient leadership + psychological capital + harmonious work passion + environmental uncertainty, deviant innovation; Three factor model: resilient leadership + harmonious work passion + environmental uncertainty, psychological capital, deviant innovation; Four-factor model: resilient leadership + environmental uncertainty, psychological capital, harmonious work passion, deviant innovation; Five-factor model: resilient leadership, psychological capital, harmonious work passion, deviant innovation, environmental uncertainty.

4.3. Descriptive Statistics and Correlation Analysis

In this paper, SPSS24.0 software was used to conduct correlation analysis on variables, and the correlation coefficient, Mean (Mean) and standard deviation (SD) between variables could be obtained. The specific results are shown in Table 2. Resilient leadership had positive effects on psychological capital ($r=0.485$, $p<0.05$), harmonious work passion ($r=0.487$, $p<0.05$), deviant innovation ($r=0.478$, $p<0.05$), and environmental uncertainty ($r=0.490$, $p<0.05$). Psychological capital was positively correlated with harmonious work passion ($r=0.511$, $p<0.05$) and deviant innovation ($r=0.484$, $p<0.05$). Harmonious work passion was positively correlated with deviant innovation ($r=0.508$, $p<0.05$). Therefore, according to the above analysis, it can be seen that the correlation between the five variables studied in this paper provides preliminary support for verifying the theoretical model.

Table 2. Correlation coefficient, mean value and standard deviation among variables

	1	2	3	4	5	6	7	8
1	1							
2	0.044	1						
3	-0.045	-0.034	1					
4	-0.009	0.005	0.022	(0.771)				
5	0.020	0.007	0.029	0.485**	(0.783)			
6	0.043	0.003	-0.043	0.487**	0.511**	(0.757)		
7	0.064	0.016	0.040	0.478**	0.484**	0.508**	(0.749)	
8	-0.001	0.009	-0.003	0.490**	0.499**	0.513**	0.465**	(0.794)
M	2.350	3.150	2.270	3.725	3.770	3.577	3.641	3.646
SD	0.909	0.890	1.228	1.006	0.969	1.051	1.018	1.091

Note: 1, 2, 3, respectively represent education, working years, industry type, 4 represents resilient leadership, 5 represents psychological capital, 6 represents harmonious work passion, 7 represents deviant innovation, 8 represents environmental uncertainty; * means $p<0.05$, ** means $p<0.01$, *** means $p<0.001$; On the diagonal is the square root of AVE, and below the diagonal is the correlation coefficient between the latent variables. N=422.

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4.4. Hypothesis Testing

4.4.1. Direct Effect Test

In this paper, the test of the direct effect is verified by a multi-level regression model. Firstly, deviance innovation is taken as the dependent variable, control variables are introduced to build model 1, including education background, working years and industry type, and then resilience leadership is added as the independent variable to build model 2. SPSS24.0 is used for linear regression analysis of the data, and the specific results are shown in Table 3. According to the results in the table, the regression coefficient of resilient leadership on deviant innovation is 0.484($p<0.001$), indicating that resilient leadership has a significant positive impact on deviant innovation, which proves that hypothesis H1 in this study is valid.

Table 3. Regression analysis of deviant innovation behavior by resilient leaders

variable	Deviant innovation	
	model1	model2
Educational background	0.021	0.025
Working years	0.007	0.004
Industry type	0.030	0.019
Resilient leadership		0.484***
R2	0.001	0.236
ΔR2	-0.006	0.229
F	0.188	32.173***

Note: * means $p<0.05$; ** means $p<0.01$; *** indicates $p<0.001$.

4.4.2. Intermediate Effect Test

(1) The mediating role of psychological capital

Table 4. Analysis of the mediating effect of psychological capital on deviant innovation

variable	Psychological capital		Deviant innovation		
	model3	model4	model5	model6	model7
Educational background	0.041	0.045	0.021	0.001	0.009
Working years	-0.001	-0.003	0.007	0.007	0.005
Industry type	-0.041	-0.052	0.030	0.051	0.038
Resilient leadership		0.488***			0.362***
Psychological capital				0.513***	0.307***
R2	0.004	0.242	0.001	0.264	0.335
ΔR2	-0.004	0.234	-0.006	0.257	0.327
F	0.490	33.208***	0.188	37.312***	42.003***

Note: * means $p<0.05$; ** means $p<0.01$; *** indicates $p<0.001$.

Table 5. Summary of analysis results on the mediating role of psychological capital (Bootstrap method)

	Effect	BootSE	BootLLCI	BootULCI
Indirect effect	0.1690	0.0294	0.1147	0.2285
Direct effect	0.2982	0.0440	0.2117	0.3847
Total effect	0.4672	0.0412	0.3863	0.5481

In order to test the mediating effect of hypothesis H2 psychological capital, the stepwise method was first adopted, and then the Bootstrap method was adopted to further verify the size of direct and indirect effects. According to the regression results of Model 4 in Table 5.8, it can be seen that resilient leadership has a significant positive impact on psychological capital (β=0.488, p<0.001). Through the analysis of model 6 in Table 4, it can be seen that after adding control variables, the regression coefficient of the influence of psychological capital on deviant innovation is significantly positive (β=0.513, p<0.001). After adding the assumed psychological capital, the regression coefficient of resilient leadership on deviant innovation is also significantly positive (β=0.362, p<0.001), indicating that psychological capital plays a partial mediating role between resilient leadership and deviant innovation, and hypothesis H2 has been preliminarily verified. In addition, according to PROCESS4.1 program in SPSS24.0, the significance of the mediating effect of psychological capital between resilient leadership and deviant innovation is further tested. The analysis results are shown in Table 5. The direct effect of resilient leadership on deviant innovation is 0.2982, and the confidence interval is [0.2117, 0.3847], excluding 0. The direct effect is significant. After adding the intermediary effect, the total effect is 0.4672, with confidence interval [0.3863, 0.5481] excluding 0, while the indirect effect of influencing deviant innovation through psychological capital is 0.1690, with confidence interval [0.2117, 0.3847]. Therefore, psychological capital has a partial mediating effect between resilient leadership and deviant innovation, and hypothesis H2 is verified again.

(2) The mediating role of harmonious work passion

Table 6. Analysis of the mediating effect of harmonious work passion on deviant innovation

variable	Harmonious work passion		Deviant innovation		
	model8	model9	model10	model11	model12
Educational background	0.066	0.070	0.021	-0.010	0.003
Working years	0.015	0.012	0.007	0.000	0.000
Industry type	0.044	0.033	0.030	0.009	0.008
Resilient leadership		0.478***			0.326***
Harmonious work passion				0.484***	0.329***
R2	0.006	0.234	0.001	0.234	0.317
ΔR2	-0.001	0.227	-0.006	0.227	0.309
F	0.876	31.898***	0.188	31.881***	38.672***

Note: * means p<0.05; ** means p<0.01; *** indicates p<0.001.

Table 7. Summary of analysis results on the mediating role of harmonious work passion (Bootstrap method)

	Effect	BootSE	BootLLCI	BootULCI
Indirect effect	0.1506	0.0284	0.0988	0.2105
Direct effect	0.3167	0.0443	0.2296	0.4038
Total effect	0.4672	0.0412	0.3863	0.5481

In order to test the mediating role of the hypothesis H3 harmonious work passion, the stepwise method was first adopted, and then the Bootstrap method was used to further verify the size of the direct and indirect effects. According to the regression results of model 9 in Table 6, it can be seen that resilient leadership has a significant positive impact on harmonious work passion (β=0.478, p<0.001). Through the analysis of model 11 in Table 6, it can be seen that after adding control variables, the regression coefficient of the influence of harmonious work passion on deviant innovation is significantly positive (β=0.484, p<0.001). After adding the hypothesis of harmonious work passion, the regression coefficient of resilient leadership on deviant innovation is also significantly positive (β=0.326, p<0.001), indicating that harmonious work passion plays a partial mediating role between resilient leadership and deviant innovation, and hypothesis H3 has also been preliminarily verified. In addition, the significance of the mediating effect between resilient leadership and deviant innovation is further tested according to PROCESS4.1 program in SPSS24.0. The analysis results are shown in Table 7. The direct effect of resilient leadership on deviant innovation is 0.3167, and the confidence interval is [0.2296, 0.4038], excluding 0. The direct effect is significant. After adding the intermediary effect, the total effect is 0.4672, and the confidence interval is [0.3863, 0.5481] excluding 0, while the indirect effect of influencing deviant innovation through harmonious work passion is 0.1506, and the confidence interval is [0.0988, 0.2105]. Therefore, harmonious work passion has a partial mediating effect between resilient leadership and deviant innovation, and hypothesis H3 is again verified.

4.4.3. Adjustment Effect Test

(1) The moderating effect of environmental uncertainty on resilient leadership and psychological capital

In this study, hierarchical regression was adopted to test the moderating effect of environmental uncertainty. In order to avoid the negative impact of multicollinearity on data analysis, the resilient leadership and environmental uncertainty were first standardized to construct interaction terms. As shown in Model 14 of Table 8, the interaction of resilient leadership × environmental uncertainty on psychological capital is significant (β=0.128, p<0.01), that is, the higher the environmental uncertainty, the positive effect of resilient leadership on employees' psychological capital will be enhanced, and hypothesis H4 is supported.

Table 8. Analysis of the moderating effect of environmental uncertainty on resilient leadership and psychological capital

variable	Psychological capital	
	model13	model14
Educational background	0.044	0.042
Working years	-0.006	-0.007
Industry type	-0.047	-0.048
Resilient leadership	0.311***	0.341***
Environmental uncertainty	0.361***	0.372***
Resilient leadership × environmental uncertainty		0.128**
R2	0.340	0.356
ΔR2	0.333	0.346
F	42.956***	38.152***

Note: * means p<0.05; ** means p<0.01; *** indicates p<0.001.

(2) The moderating effect of environmental uncertainty on the relationship between resilient leadership and harmonious work passion

In this study, hierarchical regression was used to test the moderating effect of environmental uncertainty. First, the resilient leadership and environmental uncertainty were standardized to construct interaction terms. As shown in model 16 of Table 9, the interaction of resilient leadership × environmental uncertainty on harmonious work passion is significant (β=0.114, p<0.01), that is, the higher the environmental uncertainty, the positive effect of resilient leadership on harmonious work passion will be enhanced, assuming that H5 is supported.

Table 9. Analysis of the moderating effect of environmental uncertainty on resilient leadership and harmonious work passion

variable	Harmonious work passion	
	model15	model16
Educational background	0.069	0.067
Working years	0.010	0.009
Industry type	0.037	0.037
Resilient leadership	0.329***	0.355***
Environmental uncertainty	0.304***	0.314***
Resilient leadership × environmental uncertainty		0.114**
R2	0.305	0.317
ΔR2	0.296	0.307
F	36.466***	32.035***

Note: * means p<0.05; ** means p<0.01; *** indicates p<0.001.

5. Conclusion and Discussion

5.1. Research Conclusion

Based on resource conservation theory and self-determination theory, this paper explores the influence, mechanism and boundary conditions of resilient leadership on employees' deviant innovation behavior. The results show that: (1) Resilient leadership has a significant positive impact on employees' deviant innovation behavior; (2) Psychological capital plays an intermediary role between resilient leadership and employees' deviant innovation behavior; (3) Harmonious work passion plays an intermediary role between resilient leadership and employees' deviant innovation behavior; (4) Environmental uncertainty positively moderates the direct effects of resilient leadership on psychological capital and harmonious work passion.

5.2. Theoretical Contribution

First, based on the leadership style, it expands the important antecedents of employees' deviant innovation. As a leadership style in the new era, there is no research on the relationship between resilient leadership and employees' deviant innovation. Based on the theory of resource conservation, this paper responds to scholars' call to strengthen the influence of different leadership styles on employees' deviant innovation, and verifies that resilient leadership significantly improves employees' deviant innovation behavior and expands the important antecedents of employees' deviant innovation.

Second, it expands the influence results of resilient leadership and verifies the effectiveness of resilient leadership. As a leadership style in the new era, the empirical research on resilient leadership is still relatively scarce in China. Through the empirical research, this paper confirms that resilient leadership has a significant impact on employees' psychological capital, employees' harmonious work passion and employees' deviant innovation behavior, and expands the influence outcome variables of resilient leadership.

Third, it enriches the mechanism of resilient leadership. There is a lack of empirical research on resilient leadership. Based on resource conservation theory and self-determination theory, this paper constructs a double-layer intermediary model of resilient leadership on employees' deviant innovation behavior, further enriches the mechanism of resilient leadership and deepens the understanding of the influence process of resilient leadership.

Fourth, it verifies that environmental uncertainty is the boundary condition that affects the effect of resilience leadership. At present, no empirical research on resilient leadership has taken environmental uncertainty as a boundary condition. Therefore, based on resource conservation theory and self-determination theory, this paper verifies that environmental uncertainty is an important boundary condition to promote the effectiveness of resilient leadership, and further enricues the research on the boundary condition of resilient leadership.

5.3. Management Enlightenment

First, improve managers' awareness of resilience and pay attention to the cultivation of resilient leaders within the organization. In the highly uncertain business environment, the construction of organizational resilience has become a key proposition for the sustainable development of enterprises. Enterprises should change their management thinking, improve managers' awareness of resilience, attach importance to the cultivation of resilient leaders, select leaders with resilience quality and ability, and improve the organization's ability to recover in adversity. Resilient leaders have positive characteristics such as self-confidence, optimism, tenacity and flexibility. They can swim upstream and persevere in the face of crisis or adversity, and organize their subordinates to adapt flexibly to help the enterprise survive the crisis or even achieve reverse growth. Therefore, enterprises should take resilience as an important direction when selecting, assessing and training middle and senior leaders, encourage leaders to display resilience leadership style, encourage leaders to develop flexible and unforced characteristics, cultivate optimism in the face of adversity, and set a good example in the organization to encourage subordinates and employees to improve innovative thinking, and promote the improvement of organizational performance.

Second, improve the psychological capital of employees and pay attention to the harmonious work passion of employees. A high level of psychological capital is conducive to employees' positive organizational behavior in organizational work. According to the four-dimensional structure theory of psychological capital proposed by Luthans and Youssef(2004), the level of individual psychological capital stock has significant predictive validity on their organizational behavior selection. Research has confirmed that when employees maintain a higher psychological capital threshold, they are more inclined to implement constructive organizational behavior. Low level of psychological capital will affect the innovation vitality of employees to a certain extent. Therefore, enterprise managers should encourage employees to improve the level of psychological capital, encourage employees to adopt an optimistic and positive attitude to face work, improve their self-confidence and enhance their resilience. In addition, individual work passion will also have an impact on employees' work behavior. In the study, it is found that in the behavior process of resilient leadership, resilient leadership has a positive promoting effect on employees' harmonious work passion, and paying attention to employees' harmonious work passion is of great significance for employees' innovative behavior. Therefore, when selecting talents, enterprises can select talents with high level of harmonious work passion through certain psychological tests, and combine with the needs of enterprise development to organize some training activities to improve employees' work passion, guide employees to improve the level of work passion, and make it easier to identify and manage their own emotions and others' emotions, so as to have a positive impact on work.

Third, create an organizational innovation atmosphere and pay attention to employees' deviant innovation. Under the condition of resource constraints, managers need to balance innovation input and efficiency output carefully to avoid inhibiting innovation momentum due to excessive control. The intensification of market competition highlights the strategic value of innovation ability, and employee innovation behavior has become the core driving force for enterprises to obtain competitive advantage. Managers should establish an innovation-oriented incentive mechanism to activate organizational innovation vitality through dual paths: on the one hand, to shape the demonstration effect of leadership and build a supportive innovation atmosphere; On the other hand, we should improve the fault-tolerant mechanism of innovation and prudently treat non-standardized innovation practices. In addition, when faced with deviant behaviors that benefit the organization, managers should treat them rationally rather than

ISSN: 2688-9323

blindly reject them, because informal behaviors are inherently uncertain and highly risky, which may create an atmosphere of innovation phobia and formalism, and reduce employees' innovation ambitions. On the contrary, organizations should actively build an organizational culture that encourages trial and error, allowing employees to use informal ways to express and promote creativity in some cases, so that organizations can try a large number of new ideas in an informal way, and improve the innovation ability and core competitiveness of enterprises. Therefore, enterprises should pay attention to and reasonably guide employees' deviant innovation.

5.4. Research Deficiency and Prospect

Based on the subjective and objective conditions of reality, there are still some shortcomings in this paper, which need to be improved in the future research.

First, in terms of research objects, data collection in this study is subject to research conditions, and all scales are completed in the form of self-report of respondents. In order to test the data quality, the research team adopted Harman single factor analysis method for diagnosis, and compared and verified by constructing a confirmatory factor analysis framework and introducing method factor model. The empirical results show that there is no significant difference in the goodness-of-fit index between the two models, indicating that the data are not affected by serious systematic bias. However, it should be pointed out that due to the single characteristics of data sources, the objectivity of research conclusions may still be weakened to a certain extent, especially in the subjective cognitive differences of respondents. The potential impact of common method variation cannot be completely ruled out.

Second, the development and use of scales. The scales used in this study are all mature scales that have been empirically tested. Although these scales are also adopted by many scholars, considering the unique cultural background of China, the behavioral interaction between leaders and employees may be different from that in foreign cultures. Limited by time and effort, this study did not develop and test the scale of deviant innovation, harmonious work passion, and environmental uncertainty in the Chinese context.

Third, the intermediary path is not unique. Although this study examines how resilient leaders achieve deviant innovation through psychological capital and harmonious work passion, it reveals the dual path of psychological perception and passion stimulation for the implementation of deviant innovation. However, based on the existing studies, we can see that there are still many possibilities for further exploration and development.

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