

Study on the Regulation Mechanism of Organizational Quality Specific Immune to Innovation Performance

Li Bing^{1,a,*}, Liu Qiang^{1,b}, Li Xue^{1,c}, Tang Shulin^{2,d}, Guo Yu^{2,e}

1School of Economics and Management, Liaoning University of Technology, Jinzhou, Liaoning,

2School of Economics and Management, Harbin Engineering University, Heilongjiang, Harbin

a. 1301126500@qq.com, b. xq1986625@163.com, c. 1412378368@qq.com,

d. 313686302@qq.com, e. gyu1991@163.com

**corresponding author 1301126500@qq.com*

Keywords: Tissue Quality Specific Immune, Innovation Performance, Regulation.

Abstract: This study studies the impact of organizational quality specific immune on innovation performance, and explores whether dual learning ability, innovation atmosphere, and knowledge absorption ability have a regulatory role. Construct a theoretical model based on theoretical analysis. This study refers to the survey of relevant scholars, collects data through questionnaire surveys, and conducts empirical analysis on the survey data using bootstrap method to explore the dual learning ability, innovation atmosphere and knowledge absorption ability between organizational quality specific immune and innovation performance Mechanism. The analysis results show that: (1) dual learning ability has a moderating effect between organizational quality specific immune and innovation performance; (2) innovation atmosphere has a moderating role between organizational quality specific immune and innovation performance; (3) knowledge absorptive capacity has a moderating role between organizational quality specific immune and innovation performance.

1. Introduction

Innovation performance refers to the improvement of the overall performance of the enterprise achieved by the company through a series of innovation activities. Yang Baiyin [1] found in the survey that the innovation results obtained by innovation activities [2] are the innovation performance. Some scholars have studied their impact on innovation performance from the aspects of leadership [3], open innovation [4], and the relationship between the 2 parties of corporate cooperation [5]; Li Wei [6] believes that the development of high-level marketing capabilities is the basic means for companies to improve innovation performance. Based on previous study, this study explores the impact of organizational quality specific immune on innovation performance, and

whether there is a moderating effect on dual learning ability, innovation atmosphere, and knowledge absorption ability. Exploring these issues will help to find the behind the differences in enterprise innovation performance of the mechanism of action of quality specific immune.

2. Theoretical Basis and Assumptions

This section mainly introduces the theory of each variable and related scholars' study, makes assumptions based on the survey in this study.

2.1 Organizational Quality Specific Immune and Innovation Performance

Organizational quality specific immune is an extension of organizational specific immune, which is to transfer the main body of immune theory from biology to enterprise quality. Wang Meng [7] believes that the application of the immune system in enterprises can improve enterprise immunity, promote the improvement of various benefits of enterprises and the stability of enterprise development, and achieve the purpose of enterprise development speed and development quality. Pan Xiangwu [8] and Wang Nan [9] compared the enterprise's own prevention system with biological immunity, and discussed the enterprise quality's own immunity from the perspective of immunology, including the study on enterprise quality immune response and enterprise quality immune mechanism. Quality specific immune includes quality monitoring, defense, and memory. Organizational quality monitoring: In the field of biology, the ability of tissues to remove mutant cells is tissue monitoring. Quality monitoring is the first step for companies to ensure quality. Only when the quality environment is sensed in time and problems found could the quality problems be eliminated at the beginning. To reduce quality costs. Organizational quality defense: In biological biology, organizational defense refers to the ability of an organization to fight against and eliminate antigens. In quality management, organizational defense is an enterprise that actively or passively changes supply strategies, adjusts resource allocation, and coordinates production rhythm to deal with quality issues. After effective surveillance by the organization, it begins to make a series of countermeasures against the antigen, which is organizational defense. Organizational quality memory: After a part of lymphocytes react with antigen for organizational defense, another part of lymphocytes begins to differentiate, and then this part of differentiated lymphocytes becomes memory cells to form organizational memory. Organizational quality memory is the key to the successful survival of enterprises in response to risks. It is a record of organizational quality monitoring, a summary of defense, and feedback of the formed organizational quality memory later. The effective implementation of organizational quality monitoring can intercept the pathogens that hinder the normal operation of the enterprise, while ensuring the normal operation of the enterprise and the innovation activities of the enterprise. Quality defense deals with all kinds of quality problems that arise in the process of carrying out innovation activities, so that innovation activities can be carried out smoothly. Enterprises can realize the innovation of knowledge through the use and update of the original knowledge in organizational quality memory, thereby achieving innovation and improving innovation performance. In summary, this study makes the following assumptions.

H1: Organizational quality specific immune has an impact on innovation performance.

2.2 Dual Learning Ability

March believes that dual learning is the pursuit of both exploratory learning and utilization learning [10]. Some scholars believe that there is a positive U-shaped or inverted U-shaped relationship between dual learning and innovation performance [11]. Some scholars believe that both ways of learning have a positive effect on innovation performance [12]. Study such as Yalcinkaya [13] have shown that utilization learning is closely related to short-term performance, while exploratory learning is more conducive to long-term performance. Exploratory learning tends to use organizational weak connections and implicit resources to create new knowledge and obtain organizational growth and performance; exploratory learning tends to use organizational strong connections, existing resources, and inherent knowledge to obtain organizational stable productivity [14]. Dual learning is an important way for organizations to acquire knowledge and accumulate knowledge. The use is to implement, expand and mine existing knowledge, increase the depth of organizational resources, and explore and broaden the breadth. Utilized learning emphasizes the implementation and extension of existing knowledge, improves efficiency, and improves performance. Exploratory learning tends to study and develop, explore new knowledge, and find new positioning and new models [15]. When the organization conducts quality monitoring, employees can correct the results of the monitoring. The stronger the employee's ability to correct errors, the better the pathogen can be blocked outside the organization during the monitoring process. The level of employee error correction of ability depends on the employee's knowledge reserve, learning ability and application ability. The employee learns and uses the knowledge obtained from the inside and outside of the enterprise to increase the knowledge reserve and improve his own error correction ability, so that the enterprise can better monitor the quality. At the same time, it also enables enterprises to learn from the quality management models that other organizations have or are implementing, improve operational efficiency, and promote innovation performance. Also in the process of quality defense, the higher the enterprise's ability to use learning, the faster it can analyze the problems that arise and find reasonable solutions based on experience. The stronger the ability to explore learning, the better the company can develop new more suitable for the organization's own characteristics, more targeted solutions to existing problems, better quality defense, better response to the changing competitive market, stimulate organizational vitality, and improve organizational innovation performance. The stronger the dual learning ability, the more the experience generated by the organization in the defense process can be used, and the faster the experience can be applied to the quality monitoring and defense process, reducing the interference of trial and error and promoting the improvement of innovation performance. In summary, this study makes the following assumptions.

H2: Dual learning ability plays a moderating role between organizational quality specific immune and innovation performance.

2.3 Innovation Atmosphere

At present, the academic community divides the innovation atmosphere into two levels: individual level and organizational level. Zhang Li believes that the atmosphere of innovation reflects employees' intuitive description of their environment and the overall perception of organizational

innovation environment [16]. Some scholars believe that the innovation atmosphere is a kind of employee's self-environment perception, prompting employees to innovate and produce innovation performance [17-20]. Zhang Yin and others divided the innovation atmosphere into internal innovation atmosphere and external innovation atmosphere [21]. Wang Yanfei and others believe that the innovation atmosphere is an environmental characteristic that affects the innovative thinking and behavior of employees [22]. Liu Yun and others believe that the internal innovation atmosphere affects the occurrence of employees' innovative behavior within the enterprise, which is a subjective perception that everyone agrees with [23]. Chen Chen [24] defined the innovation atmosphere as the understanding of organizational innovation characteristics and organizational support by the members of the organization, and promoted the subjective environment perception of employee innovation within the organization.

Professor Amabile believes that employees' perception of the overall working atmosphere will affect employees' innovation performance in a certain sense. Isaksen and Akkermans demonstrated the positive influence of innovation climate on innovation performance [25]. Scholars such as Carmeli (2007) believe that employees spontaneously generate innovative behaviors. In a sense, they are based on personal wishes. The good innovation atmosphere created by the organization can make employees feel emotionally recognized and resonate, so that employees will be more willing it is more active for organizational innovation, thereby increasing innovation performance [26]. Scholars such as Lian Xin (2013) conducted empirical study on the relationship between innovation atmosphere and innovation performance, and the experimental results show that there is a positive influence between the two [27]. Scholars such as Gu Yuandong (2014) also demonstrated that the innovation atmosphere can affect employees' innovation performance through employees' self-efficacy [28].

The relationship between innovation atmosphere and innovation performance has been confirmed by Chinese and foreign scholars. When employees perceive the support from the organization, supervisors, and colleagues, they will have a strong sense of organizational identity and responsibility, which is also an indispensable motivation for employees to innovate. If the innovation atmosphere in the organizational environment is better, employees are better at working and investing in their own work. While completing quality monitoring, defensive work and memory work, employees can have no thought burden put forward new ideas and new ideas, and continuously push forward the innovation activities of enterprises, thereby improving innovation performance. In summary, this study makes the following assumptions.

H3: The innovation atmosphere plays a moderating role between the specific immunity of organizational quality and innovation performance.

2.4 Knowledge Absorption Capacity

Cohen believes that the improvement of employees' knowledge absorptive capacity will lead to the improvement of the organization's knowledge absorptive capacity, so the employee's knowledge absorptive capacity is very important. Cohen was the first scholar to propose knowledge absorptive capacity from the organizational and individual levels [29]. March believes that the core of knowledge absorption ability is the exploration and utilization of new and old knowledge [30]. Mowery believes that absorptive capacity includes both the ability to learn and use within the

organization, as well as the ability to learn external technologies and use them within the organization [31]. He Yongqing believes that knowledge absorptive capacity is that employees obtain new knowledge from outside the enterprise and then transform it into knowledge that can serve their own workplace [32]. At the same time, he also emphasized that acquiring new knowledge internally is also an important way. Bi Yanqiu believes that knowledge absorptive capacity is that employees learn and digest useful knowledge inside and outside the enterprise to form new knowledge that meets the needs of work [33]. Qin Pengfei and others believed that the core of knowledge absorption ability is that employees will explore external knowledge of the enterprise and integrate this knowledge into the enterprise [34]. Xiao Yanhong and others connected the four links of knowledge absorption capacity and knowledge integration, knowledge creation, and external knowledge search to joint realize knowledge exploration and absorption [35]. Chen Chen [24] believes that knowledge absorptive capacity refers to the ability of employees to selective acquire external knowledge according to their needs, while continuously digesting and using the internal knowledge of the enterprise, and combining and applying this knowledge proficiently in their work.

Many domestic scholars have also put forward insights on the relationship between knowledge absorptive capacity and innovation performance. Qin Jialiang demonstrated the positive influence of personal knowledge absorption ability on innovation performance [36]. Xie Xuemei demonstrated that knowledge absorptive capacity could promote the improvement of innovation performance [37]. Liu Lu demonstrated that knowledge absorption capacity affects corporate performance [38]. Employees with high knowledge absorption ability are more likely to present their new insights to quality problems in the process of specific immune to organizational quality, the more curious they are to new ideas, and the easier it is to stimulate high-level innovation performance. The improvement of individual knowledge absorptive capacity promotes the learning and sharing of knowledge and the connection and collision of knowledge of the individual team, improves the work efficiency in the process of organizational quality memory, and at the same time improves the creativity of the entire team, thereby improving innovation performance. In summary, this study makes the following assumptions.

H4: Knowledge absorptive capacity plays a moderating role between the specific immune of organizational quality and innovation performance.

2.5 Integration Model

In summary, the theoretical model of this study is shown in the following figure 1.

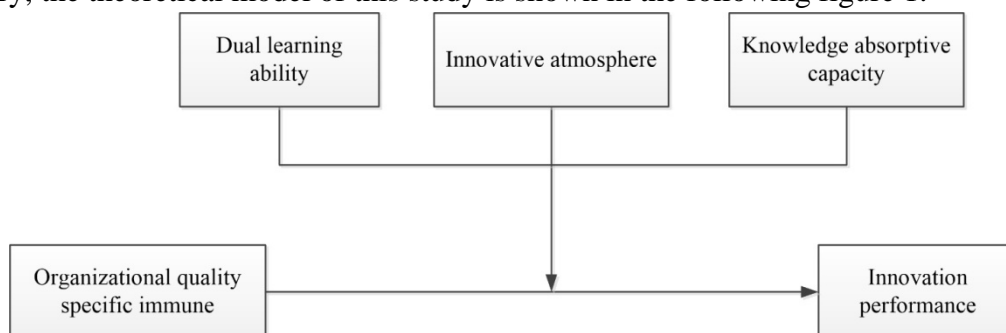


Figure1: Theoretical Model.

3. Research Design

This section mainly introduces the research objects, questionnaire distribution, variable measurement, reliability, and validity test.

3.1 Research Objects and Questionnaire Distribution Analysis

This subsection mainly introduces the research objects and questionnaire distribution of this study.

3.1.1 Research Objects and Questionnaire Distribution

The data in this study comes from manufacturing companies in the eastern region, and the research object is middle-level leaders. Taking into account the survey characteristics of the questionnaire and the convenience of the interviewees, the questionnaire has three distribution methods: field survey, using the questionnaire star website to create an electronic questionnaire, online search of the company's website yellow pages, email, etc., to find relevant contact methods, to the relevant Questionnaires distributed by email. The three ways of distributing questionnaires are complementary to ensure that the data surveyed is representative and random.

3.1.2 Questionnaire Recovery

One hundred twenty questionnaires distributed through field research. Among the returned questionnaires, there were four invalid questionnaires due to failure to meet the recycling standards. The remaining valid questionnaires were 77. The effective recovery rate was 65.83%; 180 questionnaires distributed through the questionnaire star website. Among the questionnaires, 121 questionnaires recovered, seven of which were invalid due to failure to meet the recovery criteria. The remaining valid questionnaires were 114, and the effective recovery rate was 63.33%. Find 100 yellow questionnaires and emails issued by the company's website through the Internet. Sixty-three copies, 6 invalid questionnaires due to failure to meet the recovery standard, and 57 valid questionnaires remaining, with an effective recovery rate of 57%. Two hundred and forty eight valid questionnaires finally formed through this method, which theoretically meets the requirements of the sample size for analysis.

3.2 Variable Measurement

In this study, for the measurement of variables, the Linker seven-point scoring method is adopted. The measurement of organizational quality specific immune is based on the research of Shi Liping [39] and Ma Jing [40], including 18 items. The measurement of innovation performance refers to the study results from Han [41], including five items. The measurement of learning ability refers to the study results of Wang Yihui [42], including 12 items. The measurement of innovation atmosphere refers to the study results of Chen Chen [24], including 15 items. The measurement of knowledge absorption capacity refers to the study results of Su Zhongfeng, there are six items in total [43].

3.3 Reliability and Validity Test

This study first uses the SPSS software to check the reliability and validity of the data. The results shown in the table 1 below.

Table 1: Reliability.

Variable	KMOvalue	Bartlett chi square	P	CITC	Cronbach's coefficient	Factor load	CR	Ave
Innovation performance	0.890	955.978	0.000	0.836	0.909	0.806-0.914	0.9331	0.7365
Organizational quality specific immune	0.854	759.456	0.000	0.793	0.877	0.741-0.894	0.9124	0.6765
Dual learning ability	0.945	1797.503	0.000	0.835	0.935	0.777-0.835	0.9457	0.6593
Innovative atmosphere	0.959	3053.173	0.000	0.731	0.952	0.722-0.870	0.9587	0.6417
Knowledge absorptive capacity	0.937	3463.515	0.000	0.773	0.951	0.681-0.902	0.9582	0.6224

The table gives the results of the reliability and validity analysis of the scale. The Cronbac's coefficient of each scale is above 0.9, the KMO value of each scale is greater than 0.8, and the significance level is 0.000, which shows that these indicators have reached Acceptable level. The factor load value is between 0.8 and 0.92, and the CR values are all greater than 0.67, indicating that the convergence validity is good.

4. Data Analysis and Hypothesis Testing

This section mainly analyzes the collected data and tests hypotheses.

4.1 Descriptive Statistical Analysis of Samples

In the survey sample, it can be seen that there are 126, 92 and 30 basic, middle and senior management personnel. There are 136 males and 112 females, accounting for 54.84% and 45.16%, respectively, and the majority of people are between 26 and 45 years old. There are 83 undergraduates, accounting for the largest proportion, 33.47%, 76 professional graduates, 43 high school graduates and below, and 46 graduate students and above. The number of employees with a working age of less than one year accounted for 23.79%. The number of employees with a working age of 1-3 years accounted for 18.95%. The number of employees with a working age of 3-5 years was 52. The number of people in 5-10 years is 46, accounting for 18.55%. The number of employees with a tenure of more than 10 years is 44, accounting for 17.74%. In the survey sample, the number of people working in state-owned enterprises is 51, accounting for 20.56%; the number of people working in other enterprises is 23, accounting for 9.27%.The results are shown in the table 2 below.

Table 2: Descriptive Statistical Analysis of Samples.

Feature	Category	People	Proportion (%)	Feature	Category	People	Proportion (%)
---------	----------	--------	----------------	---------	----------	--------	----------------

Gender	Male	136	54.84	Education level	High school and below	43	17.34
	Female	112	45.16		Specialist	76	30.65
Age	18-25	57	22.98		Undergraduate	83	33.47
	26-35	63	25.40		Graduate student and above	46	18.55
	36-45	77	31.05	Business nature	State-owned enterprise	51	20.56
	46 and up	51	20.56		Private Enterprise	123	49.60
Post age	Less than one year	59	23.79		Joint venture	51	20.56
	1-3 years	47	18.95	Other	23	9.27	
	3-5 years	52	20.97	Current position	Primary manager	126	50.81
	5-10 years	46	18.55		Middle managers	92	37.10
	More than 10 years	44	17.74		Senior management	30	12.10

4.2 Relationship between Organizational Quality Specific Immune and Innovation Performance

Table 3: Regression Coefficient of Innovation Performance and Innovation Performance.

Equation	Inspection	
	t	Sig.
Y=0.883X	29.461	0.000

Table 4: Model Summary1.

Outcome: Y(innovation performance) Independent Variable: X(innovation performance)						
R	R-sq	MSE	F	df1	df2	p
0.883	0.779	0.124	867.925	1	246	0.000

It can be seen from the above table 3 and table 4 that the regression equation model of organizational quality specific immune and innovation performance has an R-sq value of 0.779, mean square error MSE of 0.124, F statistic of 867.925, and P value of 0.000, indicating that the model is good. T value is 29.461 and Sig. is 0.000, indicating that the regression coefficient passes the test. That is assumed that H1 holds.

4.3 Adjustment Effect Inspection

This article uses analysis methods such as Wen Zhonglin for analysis.

4.3.1 Dual Learning Ability

Table 5: Model Summary 2.

Outcome: Y (innovation performance) Independent Variable: X (innovation performance) Moderator: W1 (Dual learning ability)						
R	R-sq	MSE	F	df1	df2	p
0.9229	0.8517	0.0837	467.0572	3	244	0.000
Product terms key: int_1: X*W1 R-square increase due to interaction(s):						
	R2-chnq	F	df1	df2	p	

Int_1	0.0025	4.0921	1	244	0.0442
-------	--------	--------	---	-----	--------

Table 6: Moderating Effect of Dual Learning Ability.

	Standardized regression equation	R12	R22	*R2
Step 1	Y=0.883X	0.779		
Step 2	Y=0.2688X+0.0990W1+0.0626XW1		0.8517	0.0727

According to the above analysis results, the R-sq value of the regression model of organizational quality specific immune to innovation performance is 0.779. The second step is to add the dual learning ability and the interaction items of the dual learning ability and the specific immune of organizational quality based on the first step. The regression model of innovation performance after quality-specific interaction terms can be seen from the above table 5 and table 6. The R-sq value of the model is 0.8517, the mean square error MSE is 0.0837, the F statistic is 467.0572, and the P value is 0.000, indicating that the model is good. The R-sq value of step 2 is larger than the R-sq value of step 1, indicating that the dual learning ability has a moderating effect between organizational quality specific immune and innovation performance. In addition, the R2-chnq value of the interaction term is 0.0025, P value 0.0442 is less than 0.05, indicating that the adjustment effect of dual learning ability is significant, assuming that H2 holds.

4.3.2 Innovation Atmosphere

Table 7: Model Summary 3.

Outcome: Y (innovation performance) Independent Variable: X (innovation performance) Moderator: W2 (Innovation atmosphere)						
R	R-sq	MSE	F	df1	df2	p
0.9300	0.8649	0.0763	520.7215	3	244	0.000
Product terms key: int_2: X*W2 R-square increase due to interaction(s):						
	R2-chnq	F	df1	df2	p	
Int_2	0.0037	6.6020	1	244	0.0108	

Table 8: Moderating Effect of Innovation Atmosphere.

	Standardized regression equation	R12	R22	*R2
Step 1	Y=0.883X	0.779		
Step 2	Y=0.3053X+0.0728W2+0.0754XW2		0.8649	0.0859

According to the above analysis results, the R-sq value of the regression model of organizational quality specific immune to innovation performance is 0.779. The second step is to add an innovation atmosphere and its interaction with organizational quality specific immune based on the first step. The regression model of innovation performance can be seen from the table 7 and table 8 above. The R-sq value of the model is 0.8649, the mean square error MSE is 0.0763, the F statistic is 520.7215, and the P value is 0.000, indicating that the model is good. The R-sq value of step 2 is larger than the R-sq value of step 1, indicating that the innovation atmosphere has a moderating effect between organizational quality specific immune and innovation performance, and the R2-chnq value of the interaction term is 0.0037 and the P value 0.0108 is less than 0.05, indicating a significant adjustment effect, assuming that H3 holds.

4.3.3 Knowledge Absorption Capacity

Table 9: Model Summary 4.

Outcome: Y (innovation performance) Independent Variable: X (innovation performance) Moderator:W3 (Knowledge absorption capacity)						
R	R-sq	MSE	F	df1	df2	p
0.9320	0.8686	0.0742	537.7483	3	244	0.000
Product terms key: int_3: X*W3 R-square increase due to interaction(s):						
	R2-chnq	F	df1	df2	p	
Int_3	0.0028	5.1214	1	244	0.0245	

Table 10: Moderating Effect of Knowledge Absorption Capacity.

	Standardized regression equation	R12	R22	*R2
Step 1	Y=0.883X	0.779		
Step 2	Y=0.2637X+0.1264W3+0.0615XW3		0.8686	0.0896

According to the above analysis results, the R-sq value of the regression model of organizational quality specific immune to innovation performance is 0.779. The second step is to add knowledge absorption capacity and its specific immune to organizational quality based on the first step. After the interaction item, the regression model of innovation performance can be seen from the above table 9 and table 10. The R-sq value of the model is 0.8686, the mean square error MSE is 0.0742, the F statistic is 537.7483, and the P value is 0.000, indicating that the model is better. The R-sq value of step 2 is larger than the R-sq value of step 1, indicating that knowledge absorptive capacity has a moderating effect between organizational quality specific immune and innovation performance. In addition, the R2-chnq value of the interaction term is 0.0028 and the P value is 0.0245, it is less than 0.05, it indicates that the adjustment function of knowledge absorption ability is significant, and it is assumed that H4 holds.

The above is the empirical part of the test results, assuming that the test results are organized in the following table 11.

Table 11: Hypothesis Test.

Assumptions	Results
H1: Organizational quality specific immune has an impact on innovation performance.	Establishment
H2: Dual learning ability plays a moderating role between organizational quality specific immune and innovation performance.	Establishment
H3: The innovation atmosphere plays a moderating role between organizational quality specific immune and innovation performance.	Establishment
H4: Knowledge absorptive capacity plays a moderating role between organizational quality specific immune and innovation performance.	Establishment

5. Conclusion and Revelation

This section is mainly to introduce the survey conclusions of this study and the enlightenment.

5.1 Conclusion

(1) Dual learning ability plays a moderating role between organizational quality specific immune and innovation performance.

Employees learn and use knowledge acquired from inside and outside the enterprise to increase knowledge reserves and improve their own error correction capabilities, so that the enterprise can better monitor quality. At the same time, it also enables enterprises to learn from the quality management models that other organizations have or are implementing, reduce time costs and test costs, improve operational efficiency, and promote innovation performance. In the process of quality defense, the higher the enterprise's ability to use learning, the faster it can analyze the problems that arise and find reasonable solutions based on experience. The stronger the ability of exploratory learning, the more companies can develop new solutions that are more suitable for the organization's own characteristics, more targeted to solve existing problems, and better quality defense. It is also more conducive to companies to respond to the changing competitive market, stimulate organizational vitality, and thus improve organizational innovation performance. The stronger the dual learning ability, the more the experience generated by the organization in the defense process can be used, and the faster the experience can be applied to the quality monitoring and defense process, reducing the interference of trial and error and promoting the improvement of innovation performance.

(2) The innovation atmosphere plays a moderating role between organizational quality specific immune and innovation performance.

When employees perceive the support from organizations, supervisors and colleagues, they will have a strong sense of organizational identity and responsibility, and this is an indispensable motivation for employees to innovate. If the innovation atmosphere is better in the organizational environment, employees are better at working and investing in their own work. While completing quality monitoring work, defense work and memory work, employees can put forward new ideas and new ideas without any thought burden, and continuously push forward the enterprise's innovation activities, thereby improving innovation performance.

(3) Knowledge absorptive capacity plays a moderating role between organizational quality specific immune and innovation performance.

Employees with high knowledge absorption ability are more likely to present their new insights to quality problems in the process of specific immune to organizational quality, the more curious they are to new ideas, and the easier it is to stimulate high-level innovation performance. The improvement of individual knowledge absorptive capacity promotes the learning and sharing of knowledge and the connection and collision of knowledge of the individual team, improves the work efficiency in the process of organizational quality memory, and at the same time improves the creativity of the entire team, thereby improving innovation performance.

5.2 Revelation

This study studies the mechanism of the impact of organizational quality specific immune on innovation performance, and explores the moderating effect of dual learning ability, innovation atmosphere, and knowledge absorption capacity of enterprises, which is conducive to a more

systematic understanding of the mechanism of organizational quality specific immune on innovation performance. From the theoretical level, it enriches the theory of organizational quality specific immune.

Acknowledgements

This research is funded by 2019 science research fund of department of education of Liaoning Province (JQW201915402, JFW201915401), Natural Science Foundation of Heilongjiang Province (G2018005), Scientific Research Project of Chinese Ocean Development Research Association(CAMAZD201911).

References

- [1] Yang B. Y., Gao A. (2013) *Research on the choice of enterprise innovation management mode and innovation performance. Scientific Research Management*, 34(3), 41-49.
- [2] Liu L., Li S. S., Zhang S. Q. (2017) *A Review of Research on Enterprise Innovation Performance Index System. New West*, (24), 64+77.
- [3] Fang H., He B., Zhang Q. (2017) *A review of the research on the influence mechanism of leadership on creativity and innovation performance. East China Economic Management*, 31(12), 60-66.
- [4] Li X. J., Zhong L., Wang J. L., Wang W. (2016) *The impact of open innovation and absorptive capacity on innovation performance--Based on the empirical study of my country's auto companies. Scientific Research Management*, 36(1), 45-52.
- [5] Wang G. X. (2018) *Multi-dimensional proximity and relationship norms in enterprise-university-research cooperation influence mechanism on enterprise innovation performance. Management and Management*, (2), 48-51.
- [6] Li W. (2015) *Summary and Enlightenment of the Research on the Relationship between Marketing Capability and Innovation Performance. Science and Technology Management Research*, (5), 140-143.
- [7] Wang M. (2015) *The role of "immune system" theory in reshaping the internal audit image of enterprises. Times Finance*, (9), 142.
- [8] Pan X. W., Wang N. (2015) *Research on the principle and path of capacity improvement of enterprise quality immune response. Journal of Chongqing Jiao tong University (Social Science Edition)*, 15(4), 57-60.
- [9] Wang N., Li Q. X. (2015) *Empirical research on the influencing factors of enterprise risk immune ability under the immune recognition mechanism. Social Science Front*, (2), 267-270.
- [10] March J. G. (1991) *Exploration and exploitation in organizational learning. Organization Science*, 2(1), 71-87.
- [11] Bai .J K., Wang J. (2016) *The balance effect and interaction effect of dual learning and enterprise innovation performance. Finance and Economics Research*, (9), 94-100.
- [12] Min H. H., Lee K. C., Lee D. S. (2015) *Network structure, organizational learning culture, and employee creativity in system integration companies: The mediating effects of exploitation and exploration. Computers in Human Behaviour*, 42 (1), 167-175.
- [13] Yalcinkaya G., Calantone R. J., Griffith D. A. (2013) *An Examination of Exploration and Exploitation Capabilities: Implications for Product Innovation and Market Performance. Journal of International Marketing*, 15(4), 63-93.
- [14] Xiao Y., Xiang X. Y., Cheng L. (2019) *Research on the impact of sabotage on dual learning of innovative organizations. Science Research*, 37(8), 1517-1528.
- [15] Jia L. Y. (2019) *Research on the relationship between dynamic ability, dual learning and enterprise innovation performance. Journal of Beijing Economic Management College*, 34(4), 38-45.

- [16]Zhang L., Wang Y. P.(2018) *Research on the relationship among employee creativity, innovation performance and innovation atmosphere based on hierarchical regression model. Journal of Harbin University of Commerce (Social Science Edition)*, (2), 65-73.
- [17]Oldham G.R., Cummings A. (1996) *Employee creativity: personal and contextual factors at work. Academy of Management Review*, 39(3), 34-607.
- [18]Tesluk P.E., Farr J. L., Klein S. R. (1997) *Influences of organizational culture and atmosphere on individual creativity. Journal of Creative Behaviour*, 31(1), 27-41.
- [19] Fang L. T., Shi K., Liu R. H. (2012) *Review on the research of team innovation atmosphere. Scientific Research Management*, 33(6), 146-153.
- [20] Jin S. H., Zheng J. J., Ding J. (2008) *Concept, measurement and related research hotspots of organizational innovation atmosphere. Psychological Exploration*, 28(3), 67-72.
- [21] Zhang Y. (2014) *Research field of relationship between innovation atmosphere, knowledge duality and service innovation. Zhejiang Technology and Business University.*
- [22] Wang Y. F., Zhu Y. (2005) *Overview of foreign organizations' innovation climate research. Foreign Economy and Management*, 27(8), 26-32.
- [23] Liu Y., Shi J. T., Zhang W. Q. (2009) *Definition of innovation atmosphere and scale verification. Science Research*, 27(2), 289-294.
- [24] Chen C. (2019) *Empirical research on the impact of innovation climate and knowledge absorption ability on innovation performance. Nanjing University of Posts and Telecommunications.*
- [25]Isaksen S.G., Akkermans H. J. (2011) *Creative atmosphere: a leadership lever for innovation. Journal of Creative Behavior*, 45(3), 161-187.
- [26]Carmeli A., Cohen-Meitar R., Elizur D. (2007) *The role of job challenge and organizational identification in enhancing creative behaviour among employees in the workplace. Journal of Creative Behaviour*, 41(2), 75-90.
- [27] Lian X., Yang B. Y., Ma Y.T. (2013) *Research on the impact of organizational innovation atmosphere on employee innovation behaviour. Journal of Management*, 10(7), 985-992.
- [28] Gu Y. D., Zhou W. L., Peng J. S.(2014) *Research on the impact mechanism of organizational support on the innovative behaviour of R&D personnel. Management Science*, 27(1), 109-119.
- [29]Cohen W. D., Levinthal A. (1990) *Absorptive Capacity: A New Perspective on Learning and Innovation. Administrative Science Quarterly*, 35,128-152.
- [30]March J. G. (1991) *Exploration and exploitation in organizational learning. Organization Science*, 2(1), 71-87.
- [31]Mowery D. C., Oxley J. E., Silverman B. (1996) *Strategic alliances and inter firm Knowledge transfer. Strategic management journal*, 17(1), 77-91.
- [32] He Y. Q., Zhang Q. P. (2012) *The connotation and composition dimension of knowledge absorption capacity: based on the perspective of human body digestion and absorption. Information Theory and Practice*, 35(3), 32-36.
- [33] Bi Y. Q.(2016) *Research on the relationship between tacit knowledge sharing, absorptive capacity and employee innovation behaviour. Xinjiang University of Finance and Economics.*
- [34] Qin P. F., Shen G. L., Hu W. B., Wang X. X. (2019) *Research on the effect of knowledge search on innovation ability under the dual adjustment of knowledge absorption and integration ability. Journal of Management*, 16(2), 219-228.
- [35] Xiao Y. H., Zhu W., Sun K. (2019) *Research on the construction of external knowledge search model based on innovation network. Information Theory and Practice*, 42(6), 131-137.
- [36] Qin J. L., Zhang Y. C. (2018) *Research on the relationship between personal knowledge absorptive capacity and dual innovation. Science and Technology Progress and Countermeasures*, 35(8), 128-136.

- [37] Jie X. M., Zuo L. L. (2013) *Enterprise collaborative innovation network characteristics and innovation performance: Research on the intermediary effect based on knowledge absorptive capacity*. *Nankai Management Review*, 16(3), 47-56.
- [38] Liu L., Yang H. X. (2018) *The impact of institutional distance on the performance of Chinese listed companies' cross-border mergers and acquisitions-the intermediary role of international experience and knowledge absorption ability*. *Science and Technology Progress and Countermeasures*, 35(5), 113-119.
- [39] Shi L. P., Liu Q., Wu K. J., Du Z. W. (2013) *The mechanism of the consistency of organizational quality specific immune construction elements on quality performance: an empirical analysis based on PP method, fit method and AHP*. *Industrial Engineering and Management*, 18(3), 84-91.
- [40] Ma J. (2019) *Research on the formation mechanism of quality-specific immunity in equipment manufacturing enterprises*. Liaoning University of Technology.
- [41] Han Y., Li D. (2015) *Effects of intellectual capital on innovative performance*. *Management Decision*, 53(1), 40-56.
- [42] Wang Y. H. (2018) *Research on the Influence of Organizational Cognition and Organizational Learning on Innovation Performance from a Dualistic Perspective*. Xinjiang University of Finance and Economics.
- [43] Su Z.F., Li J. (2014) *Research on the impact of absorptive capacity on product innovation*. *Scientific Research Management*, 35(5), 62-69.