

Research on the Interaction Mechanism of Institutional Environment, Regulatory Focus and Maker's Innovative Behavior

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Abstract: Based on individual-situational interaction theory, an interaction model between institutional environment and makers' regulatory focus influencing innovative behavior is constructed. Through a multiple linear regression analysis of 254 makers' questionnaires, the following conclusions were drawn: (1) makers' promotion focus positively affects innovation behavior and prevention focus negatively affects innovation behavior; (2) the cognitive and normative environments only positively affect innovation behavior of high promotion focus makers, but have no significant effect on innovation behavior of high prevention focus makers. (3) the cognitive and normative environments only positively influence the innovation behaviors of high-focus makers, but have no significant effect on the innovation behaviors of high-prevention makers. The conclusions are conducive to further enriching the research on the influence of maker traits on innovation behavior in crowdsourcing spaces, revealing the correlation between the two in the institutional environment, and providing theoretical references for stimulating makers' innovation energy and promoting innovation willingness.

1. Introduction

Since Premier Li Keqiang raised the slogan of "mass entrepreneurship and innovation" at the Davos Forum, a number of "crowdsourcing spaces" with characteristics, potential and highlights have been emerging nationwide. It has become a base for makers to innovate and provides a venue for them to do so. Governments at all levels have also introduced a series of innovation policies to help crowdsourcing spaces incubate and accelerate innovation projects. While crowdsourcing spaces are flourishing, there are still problems such as low service level, low resource utilization efficiency and low overall innovation level, with an average innovation efficiency value of only 0.573. Therefore, it is a noteworthy issue to improve the innovation output in the current operation and management of crowdsourcing spaces.

Individual innovation is the basic unit and source of organizational innovation^[1], it is necessary to focus on the innovation behavior of individuals to study the innovation output of crowdsourcing spaces. The makers are the important innovation individuals, the main initiators of innovation activities, and the innovation subjects of crowdsourcing spaces^[2]. Makers based on interests and hobbies gather in crowdsourcing spaces to transform their ideas into commodities by their own hands

through creative exchanges, information sharing, and complementary resources^[3]. Here, makers can enjoy their imagination, knowledge ability and technical ability to transform their ideas into economically valuable products^[4]. Thus, it is evident that makers' innovative behaviors are important to increase the innovation output of crowdsourcing spaces. Consequently, what factors influence makers' innovation behavior? And how these factors influence innovation behavior becomes a pressing issue. According to the individual-situational interaction theory, the factors that lead to an individual's behavior are the result of the interaction between the individual and the context. Therefore, this paper introduces the variable of maker regulation focus and constructs a model of the interaction between institutional environment and maker regulation focus on makers' innovation behavior, in order to comprehensively analyze the inner mechanism of their influence on innovation behavior and provide a reference for stimulating makers' innovation energy and promoting innovation willingness.

2. Research Hypothesis

2.1. Regulating the Focus and Innovative Behavior of Makers

2.1.1. Promote Focus and Innovative Behavior of Makers

Promotion focus is a self-regulatory tendency associated with the need for self-improvement (e.g., self-growth, development, and nurturing, etc.)^[5] Individuals with a facilitative focus enjoy a variety of options and creative ways of working and are good at coming up with new approaches.^[6] At the same time, they are more adventurous, so when faced with unknown challenges in the innovation process, promotion-focused makers will adopt an aggressive approach to seek multiple solutions to problems and will not be discouraged even if they fail^{[7][8]} and thus exhibit more innovative behaviors. Secondly, positive emotions help individuals to cope with the uncertainties associated with innovation and motivate individuals to dare to challenge and generate innovative behaviors.^[9] The process of generating innovative behaviors can include There are various difficulties and pressures in the process of generating innovative behaviors, and individuals with a higher focus are future-oriented, they are passionate and energetic in the process of innovation, and this positive emotion helps them to overcome obstacles and thus achieve innovative behaviors.^[10]

Based on the above analysis, the following hypotheses are derived.

H_{11} : Promotional focus is positively correlated with maker innovation behavior.

2.1.2. Defensive Focus and Creative Behavior of Makers

Defensive focus is a self-regulatory tendency associated with the need for self-security (e.g., avoiding punishment, fulfilling responsibilities and obligations, etc.).^[5] Individuals with a defensive focus are oriented to safety needs, tend to do their job within their responsibilities, and tend to adopt avoidance strategies for risky behaviors such as innovation because they are afraid to take losses from failure^{[7][11]}, thus inhibiting innovative behavior. Second, the active motivation model states that individuals will only perform risky behaviors that may bring negative outcomes if they are driven by strong internal motivation.^[9] Compared to individuals with a facilitative focus, defensive-focused individuals have a reduced level of motivation by being protective, which makes them less likely to produce innovative behaviors and hinders their creativity.^[12] Furthermore, defensively focused individuals are prone to negative emotions such as anxiety and fear when faced with unexpected negative outcomes^[13] In addition, the process of implementing innovative behaviors may be difficult and may even result in financial losses, making the negative emotions of defensively focused individuals high. Therefore, they try to avoid such risks and reduce the innovative behaviors^[10].

Based on the above analysis, the following hypotheses are derived.

H_{12} : Prevention focus is negatively associated with maker innovation behavior.

2.2. The Interaction between Institutional Environment and Maker Regulatory Focus on Maker Innovation Behavior

2.2.1. The Interaction between Regulatory Environment and Regulatory Focus on Makers' Innovative Behavior

The regulatory environment provides support in terms of policies, taxes, etc. that will help makers to carry out innovative activities. A good regulatory environment provides a full range of innovation resources that not only add value to the innovation activities for the high promotion-focused makers who themselves want to adopt innovative behaviors, but also facilitate the makers to carry out their activities so that the makers perceive a more specific innovation direction and thus become more engaged in their innovation activities. At the same time, the help of regulatory environment will alleviate the concerns of high prevention-focused makers from pursuing security and stability too much. The better the regulatory environment, the lower the probability of innovation risks, thus helping makers to alleviate their fears of failure and focus on achieving their innovation goals, thus stimulating their innovation behavior.

Based on the above analysis, the following hypotheses are derived.

H_{21} : The regulatory environment reinforces the positive influence relationship between the focal point of promotion and makers' innovative behaviors, i.e., the better the regulatory environment, the more significant the positive effect of the focal point of promotion on makers' innovative behaviors.

H_{22} : The regulatory environment weakens the negative influence relationship between prevention focus and makers' innovation behavior, i.e., the better the regulatory environment, the less negative effect of prevention focus on makers' innovation behavior.

2.2.2. The Interaction between Cognitive Environment and Regulatory Focus on Makers' Innovative Behavior

For makers with a high promotion focus, a good cognitive environment means that it is easier to learn from each other, exchange ideas, and communicate information about policies, quotes, and knowledge with other makers^[14]. These communications enable high promotion focus makers to see problems from multiple perspectives and solve them by multiple paths, thus stimulating their sense of reciprocity to invest more innovative outputs in return^[15], facilitating innovative behavior generation. On the other hand, hindering pressure arises when the cognitive environment atmosphere is weak and makers need multiple steps to get the information they want. When makers with a high defensive focus are confronted with hindering pressures, they reduce their intrinsic motivation level, exhibit a "should-be" state, and pay more attention to responsibilities, burdens, and obligations, thus adopting avoidance strategies.^[12] This is not conducive to the development of innovative behavior.

Based on the above analysis, the following hypotheses are derived.

H_{31} : The cognitive environment reinforces the positive influence relationship between the promotion focus and makers' innovative behaviors, i.e., the better the cognitive environment, the more significant the positive effect of the promotion focus on makers' innovative behaviors.

H_{32} : The cognitive environment weakens the negative influence relationship between prevention focus and maker innovation behavior, i.e., the better the cognitive environment, the lower the negative effect of prevention focus on maker innovation behavior.

2.2.3. The Interaction between Normative Environment and Regulatory Focus on Makers' Innovative Behavior

On the one hand, with the improvement of the normative environment, the higher the social recognition of innovative behavior and the more respect given to makers, therefore, when a social climate proud of innovation is formed, the aggressive-oriented situation presented will stimulate the need for growth and strong ideals of makers with a high facilitative focus, thus tending to adopt aggressive innovative behavior.^[16] On the other hand, since the defensive focus is more concerned with how to hold themselves to external standards of behavior. Therefore, support from society can effectively enhance the self-confidence of high-prevention-focus makers, reduce their worries about the results of their mistakes, and transform them into positive cognitions, thus driving high-

prevention-focus makers to generate more creativity.^[12]

Based on the above analysis, the following hypotheses are derived.

H_{41} : The normative environment reinforces the positive influence relationship between the promotion focus and makers' innovative behavior, i.e., the better the normative environment, the more significant the positive effect of the promotion focus on makers' innovative behavior.

H_{42} : The normative environment weakens the negative influence relationship between prevention focus and makers' innovative behavior, i.e., the better the normative environment, the less negative effect of prevention focus on makers' innovative behavior.

The general framework of this study is shown in Figure 1.

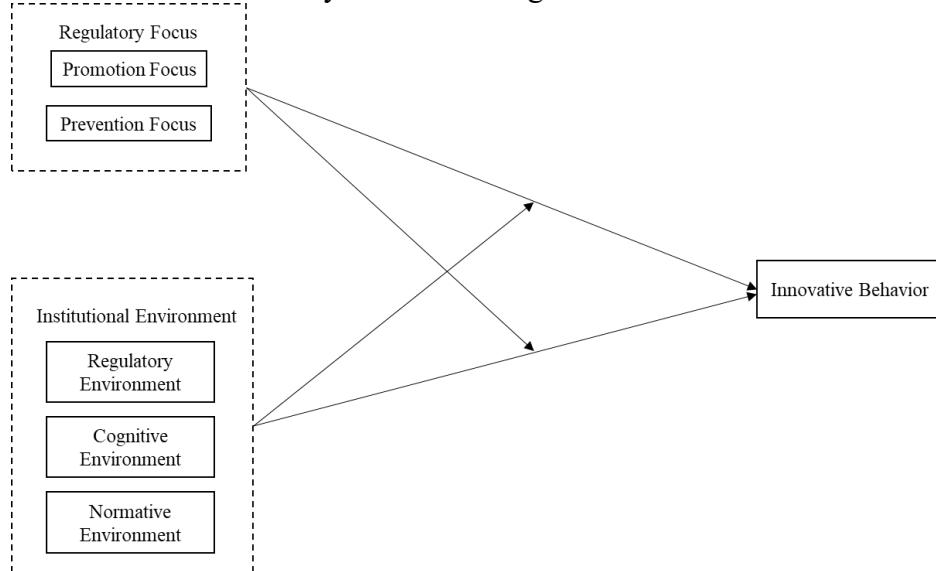


Figure 1 Hypothetical model.

3. Data analysis and results

3.1. Direct effect testing

The direct effect effects of facilitative focus, and defensive focus were verified using cascade regression, and gender, age, education, and work experience were included as control variables in the model, and all regression results are shown in Table 1.

As can be seen from Table 1, Model 2 indicated that the promotion focus positively influenced maker innovation behavior ($\beta=0.577$, $p<0.01$), and the hypothesis H_{11} was supported; model 3 indicated that the prevention focus negatively influenced maker innovation behavior ($\beta=-0.357$, $p<0.01$), and the hypothesis H_{12} was supported.

Table 1 Results of direct effect regression analysis.

Forecast variable	Result variable: Innovative behavior		
	Model 1	Model 2	Model 3
Sex	0.056	0.054	0.033
Age	0.145	0.105	0.119
Education	0.092	0.092	0.087
Work Experience	0.226**	0.157**	0.159*
Promotion Focus		0.577***	
Prevention Focus			-0.357***
R ²	0.083	0.407	0.204
ΔR ²	0.083	0.323	0.121
F	5.653***	33.996***	12.722***

3.2. Moderating effect testing

Tabel 2 Results of adjustment effect regression analysis.

Forecast variable	Result variable: Innovative behavior								
	Model 1	Model 2	Model 4	Model 5	Model 6	Model 3	Model 7	Model 8	Model 9
Sex	0.056	0.054	0.043	0.097	0.101	0.033	-0.002	0.087	0.060
Age	0.145	0.105	0.053	0.045	0.062	0.119	0.056	0.030	0.056
Education	0.092	0.092	0.055	0.061	0.045	0.087	0.062	0.061	0.045
Work Experience	0.226**	0.157**	0.094*	0.066	0.088	0.159*	0.111	0.059	0.110
R E			0.315***				0.467***		
C E				0.262***				0.425***	
N E					0.201**				0.420***
Pro Focus		0.577***	0.480***	0.480***	0.530***				
Pre Focus						-0.357***	-0.160***	-0.191***	-0.153***
R E * Pro F			0.231***						
C E * Pro F				0.157***					
N E * Pro F					0.212***				
R E * Pre F						0.120**			
C E * Pre F							0.040		
N E * Pre F								-0.004	
R ²	0.083	0.407	0.501	0.513	0.463	0.204	0.377	0.424	0.337
△R ²	0.083	0.324	0.418	0.430	0.380	0.121	0.294	0.341	0.254
F	5.653***	33.996***	35.264***	37.000***	30.301***	12.722***	21.289***	25.830***	17.840***

As can be seen from model 4 in Table 2, the interaction term between regulatory environment and promotion focus positively affects maker innovation behavior ($\beta=0.231$, $p<0.01$), indicating that regulatory environment positively moderates the relationship between promotion focus and innovation behavior. The hypothesis H_{21} is further supported.

As can be seen from model 7 in Table 2, the interaction term between regulatory environment and prevention focus positively affects maker innovation behavior ($\beta=0.120$, $p<0.01$), indicating that the regulatory environment positively moderates the relationship between prevention focus and innovation behavior. The hypothesis H_{22} was verified.

As can be seen from model 5 in Table 2, the interaction term between cognitive environment and promotion focus positively influenced maker innovation behavior ($\beta=0.157$, $p<0.01$), indicating that the cognitive environment positively moderated the relationship between promotion focus and innovation behavior. The hypothesis H_{31} was verified. However, as seen from model 8 in Table 2, the interaction term between cognitive environment and defensive focus did not have a significant effect on makers' innovative behavior ($\beta=0.040$, $p>0.05$), indicating that the level of cognitive environment could not significantly moderate the relationship between defensive focus and innovative behavior, and the hypothesis H_{32} was not supported.

As can be seen from model 6 in Table 2, the interaction term between normative environment and promotion focus positively influenced maker innovation behavior ($\beta=0.212$, $p<0.01$), indicating that normative environment positively moderated the relationship between promotion focus and innovation behavior. The hypothesis H_{41} is further supported. In contrast, as can be seen from model 9 in Table 2, the interaction term between normative environment and defensive focus does not have a significant effect on makers' innovative behavior ($\beta=-0.004$, $p>0.05$), indicating that the level of normative environment cannot significantly moderate the relationship between defensive focus and innovative behavior, and the hypothesis H_{42} was not supported.

4. Conclusion

This study constructs a framework of "maker regulation focus \times institutional environment \rightarrow innovation behavior", and the test results support most of the hypotheses, leading to the following conclusions.

First, this study confirms that makers with a promotion focus have more innovative behaviors, while makers with a defensive focus have less innovative behaviors.

Second, this study confirms that the regulatory environment positively moderates the relationship between promotion-focused and prevention-focused on innovative behavior. That is, both promotion-focused and prevention-focused makers exhibit a positive tendency toward innovative behavior when the state provides better policy support in terms of finance, policy, and training.

Finally, the hypotheses proposed in this study H_{32} and H_{42} were not supported. That is, the cognitive and normative environments do not significantly enhance the innovative behavior of defensive-focused makers.

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