Can Entrepreneurial Team Heterogeneity Promote Innovation Performance: The Moderating Effects of Strategic Consensus and Team Cohesion

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ABSTRACT

As the main body of entrepreneurship in modern economic society, the entrepreneurial teams play an extremely important role in the development of entrepreneurial enterprises, technological innovation and economic prosperity. In this research, data were collected through the questionnaire survey from 106 entrepreneurial team members. It is aimed to analyse the positive moderating effects of strategic consensus and team cohesion on team heterogeneity on organizational innovation performance. The results show that strategic consensus positively moderates the effect of team heterogeneity on innovation performance; team cohesion positively moderates the effect of team heterogeneity on innovation performance; high strategic consensus and high team cohesion positively co-moderate the impact of team heterogeneity on innovation performance. Through empirical research, this paper enriched the academic findings in this field, and provided strategic advices and paradigm reference for developing entrepreneurial enterprises.

Keywords: Entrepreneurial team heterogeneity, team cohesion, strategic consensus, innovation performance.

1. INTRODUCTION

Entrepreneurship is not only an important force to promote scientific and technological innovation and economic development, but also an important source to expand employment and maintain social vitality. With the policy support of various countries, varieties of start-up companies led by entrepreneurial teams have emerged. According to the latest data of CB insights, an American research company, the number of "unicorn enterprises", which means that the value of start-ups is more than $1 billion, exceeded 1,000 in February 2022. In 2021, 517 "unicorn enterprises" emerged globally, about four times than that in 2020. These companies have enormous potentials to provide core technologies and disruptive business models that drive economic prosperity [1].

Under the background that the development of entrepreneurial companies has a particularly important impact on economy, it is more necessary to solve the problems encountered by entrepreneurial teams in the process of development. Existing studies distinguishes the types of entrepreneurial teams according to the existing relationships of team members, cognitive characteristics and resource attributes of the teams [2]. Based on the Resource-Based Theory of the Firm, there are two types of entrepreneurial teams, which are homogeneous teams and heterogeneous teams. From the insight of academic studies, heterogeneity, which represents the differences in industry experience, demographic characteristics and values among members of the start-up teams [3], as a vital attribute of team formation, has received widespread attention. At the same time, many studies tried to find the relationship between heterogeneity and team innovation performance which is a significant indicator to judge the initial development of entrepreneurial companies.

However, the existing research has some limitations. Firstly, there are some differences among results of these studies. Some scholars such as Kim et al [4], and Harvey et al [5] who are representatives of Information Decision Theory, think that entrepreneurial team heterogeneity is beneficial to providing diversified information. Through interactions and message exchanges among team members, the integration of information and experience

is ultimately promoted to make higher-level decisions and enhance the creativity of the team. However, there are some scholars representing Self-Categorization Theory including Blatt [6] insist on their opinions that heterogeneity is causing negative results about companies' innovation performance because differences indicate less trust among team members. Given the inconsistency of relevant research results, it is necessary to add new research moderators to further study the relationship between them [7]. Secondly, existing research lacks the consideration of the dynamic interaction between the entrepreneurial team member structure and the team intrinsic structure. Team internal dynamic variables are independent of team heterogeneity variables, which means that teams with heterogeneous members may still have advantages in internal dynamics [8]. Lastly, existing studies often focus on the CEO teams, the composition of human resources of enterprises and the impact of spiritual leaders on firms, rather than entrepreneurial teams.

Based on the characteristics of modern entrepreneurial environment, this paper focuses on the entrepreneurial team itself and explores the impact of entrepreneurial team heterogeneity on enterprise innovation performance. In this paper, 106 entrepreneurial firms were selected as research objects to explore the moderating effect of team interior dynamics on the impact of entrepreneurial team heterogeneity on innovation performance, attempting to enrich the existing empirical research conclusions, and provide paradigmatic suggestions for the positive development of entrepreneurial firms.

2. LITERATURE REVIEW AND HYPOTHESIS

Knowledge learning ability, information integration ability and technology innovation ability play important roles in the long-term development of entrepreneurial enterprises. Innovation performance is vitally important to firms as well. Strategic consensus which refers to the consistency of a strategic proposition considered by stakeholders within an enterprise [9] and team cohesion which means team members gather together under the influence of common goals or emotional needs to jointly complete a task [10], both have significant moderating effect on the impact of team heterogeneity on innovation performance.

2.1. The moderating effect of strategic consensus

As the carrier of common knowledge system and values, the consensus among members of entrepreneurial teams at the strategic level can maintain a close and stable relationship between them in spiritual dimension, which will further improve information exchange of the team

and promote the rational allocation of resources. Additionally, it is capable of motivating the team members to jointly promote the long-term development of the company. Although it seems that team heterogeneity increases the cost of communication and understanding among team members, according to existing research, having high strategic consensus is not inconsistent with team heterogeneity. Millar et al [11] believed that when team heterogeneity is high, the higher the level of strategic consensus the team has, the better its innovation performance will be.

Besides, strategic consensus has a significant moderating effect on improving innovation performance. Kellermanns et al [12] found in their study that if there is no strategic consensus within the entrepreneurial team, heterogeneity will aggravate internal conflicts, consume organizational resources to a greater extent and it is detrimental to team innovation performance as well. High strategic consensus can encourage team members to pay more attention on decisions beneficial to the company's innovation, gathering more influential information on innovation improvement rather than on trivial matters irrelevant to the company's interests. Thinking with similar logics among team members is also conducive to understanding and implement innovative ideas, and it is good to cultivate an adaptive organizational culture [13]. Dobni et la [14] believe that adaptive organizational culture is innovation-oriented and can improve organizational innovation performance significantly. Based on above researches, this paper proposes:

H1: Strategic consensus positively moderates the impact of team heterogeneity on innovation performance.

2.2. The moderating effect of team cohesion

Team cohesion is not only an important concept of group dynamics, but also an important dimension of team internal dynamics. Similar to the moderating effect of strategic consensus, team cohesion can mediate the effect of team heterogeneity on organizational innovation performance. Hackman [15] pointed out that team cohesion includes two aspects, namely task cohesion and interpersonal cohesion, which can strengthen the relationship between members of the entrepreneurial team from different aspects, such as work and life, and promote seamless cooperation and communication among team members. Liu and Zhang [16] believe that team cohesion is the basis for maintaining the existence of a team, and also can stimulate the innovation degree of team members' thinking, thus better promoting the improvement of organizational innovation performance. Shi et al [17] believe that cohesion can enhance the willingness of team members to share information, avoid the possibility of key information being hidden due to lack of communication, and promote the integration of innovation resources. In addition, team cohesion is fundamental to maintain the existence of the team and it

is a guarantee to maximize the efficiency of the team. It plays a vital role in the exertion of the potential of the team and the improvement of innovation performance [18]. Based on the above literature review, this paper proposes:

H2: Team cohesion positively moderates the impact of team heterogeneity on innovation performance.

2.3. The combined moderating effect of strategic consensus and team cohesion

Strategic consensus and team cohesion, as different indicators in task performance and interpersonal interaction, can positively moderate the impact of team heterogeneity on organizational innovation performance. Information interaction within the team is the core element of this influence. In this core process, strategic consensus can promote the reception and understanding of information, integrate it into a consistent strategic plan, and give full play to the positive effectiveness of heterogeneity. At the same time, organizational learning is vital to improve the performance of organizational innovation. High strategic consensus can build an effective learning mechanism, promote the learning

atmosphere of the organization and improve the level of team innovation [19]. In addition, because the strategic consensus is the cornerstone which builds on common interests among team members, it can also enhance team cohesion and reduce problems that may arise in coordination [20].

For high team cohesion, the bond between members of the organization is stronger and more conducive to promoting the understanding of strategy by members of the organization. Moreover, high cohesion will also establish an invisible norm among members of the organization, which benefits team members to consider innovative elements beneficial to the sustainable development of the company. On this basis, when the team's strategic consensus and team cohesion are both at high level, information integration of organization is greatly improved. The impact of them can ultimately affect team performance and produce greater innovation efficiency. Therefore, this paper proposes:

H3: High strategic consensus and high team cohesion positively co-moderate the impact of team heterogeneity on innovation performance.
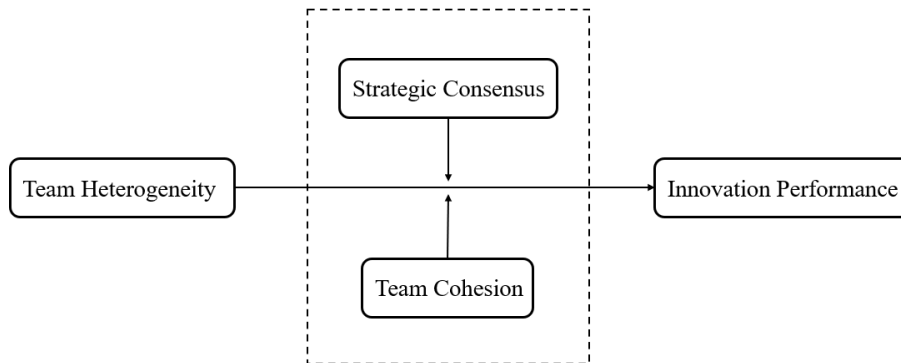
The research model is as follow.

Figure 1 Research Model

3. METHODOLOGY

3.1. Participants and procedure

Multiple copies of the questionnaire were sent to leaders of entrepreneurial team through the Internet, and most of the participants come from Anhui province and Guangdong province of China. All participants are key members of the start-up teams in existing companies. Due to the difficulty of seeking accurate participants, judgmental sampling and snowball sampling are chosen to be the sampling method in this study. Through the method above, a total of 110 copies of questionnaires were collected. After removing invalid questionnaires including incomplete information and too short filling time, 106 valid questionnaires were collected. The questionnaire recovery rate was about 96.4%.

3.2. Measures

This study uses the five-point Likert scale, with the numbers 1 to 5 representing "strongly disagree", "disagree", "neutral", "agree" and "strongly agree" respectively to examine the heterogeneity, strategic consensus, team cohesion and team innovation performance of entrepreneurial teams.

Entrepreneurial Team Heterogeneity. The scale developed by Jehn et al [21] is used to assess the heterogeneity of entrepreneurial teams, which is widely used in researches on the heterogeneity of entrepreneurial teams. The scale contains four items. In this study, the alpha reliability coefficient was 0.773.

Team Cohesion. This study used the scale which was developed by Carless et al [22] to assess team cohesion.

The scale contains four items, and the alpha reliability coefficient was 0.856 in this study.

Strategic consensus. Strategic consensus was assessed by the scale of Millar et al.[11] There are three items of that scale in this study, and the alpha reliability coefficient was 0.752.

Innovation Performance. When measuring team innovation performance, this paper refers to the assessment method of Amabile [23]. The assessment consists of six items and the alpha reliability coefficient was 0.921 in this study.

Control Variables. In this study, gender, age, academic background and development status of companies were used as control variables.

4. RESULTS

4.1. Descriptive Statistics

This paper used IBM SPSS Statistics 26 to analyse and process data. Table 1 provides the means, standard deviations and correlation analysis for all variables.

	AVE	SD	1	2	3	4
TH	3.7877	0.76204	0.773			
TC	3.8726	0.61552	0.567***	0.856		
SC	4.1730	0.67649	0.492***	0.602***	0.752	
IP	3.9969	0.71046	0.371***	0.665***	0.646***	0.921

NOTE: N=106; *** means significantly correlated at 0.01 level (bilateral); the diagonal values indicate the alpha reliability of the scale.

Figure 2 Descriptive statistics and correlation analysis of variables

4.2. Multivariate Hierarchical Linear Regression Analysis

In order to avoid the problem of multicollinearity in the following analysis, the independent variables and intermediary variables were centralized before being analysed in this study.

As can be seen from the multivariate regression analysis results in Table 2, when team heterogeneity is added into M2, there is a positive correlation between team heterogeneity and innovation performance, and the result is significant (*B*=0.329, *p*<0.001). It suggests that entrepreneurial team heterogeneity can broaden teams' information resources and equip entrepreneurial teams with a wider range of industry experience resources. For that, entrepreneurial teams are able to enhance their ability to make strategic decisions and create an atmosphere where the enterprises' organizational culture are more creative. This result confirms the Resource-Based Theory of the Firm and supports that entrepreneurial team heterogeneity do have benefits to improving enterprises' innovation performance from

certain perspectives.

From M3 in Table 2, the result shows that after the product term of team heterogeneity and strategic consensus is added, the coefficient of the product term is positive and the result is significant (*B*=0.369, *p*<0.001). At the same time, R^2 has increased from 0.187 to 0.540 when strategic consensus and the product term of team heterogeneity and strategic consensus was put into the model, which has significantly improved (*p*<0.001). In conclusion, strategic consensus positively moderates the relationship between team heterogeneity and innovation performance, which proves hypothesis 1.

After the addition of the product term of team heterogeneity and team cohesion, the product term coefficient is positive and the result is significant (*B*=0.178, *p*=0.087<0.1), which can be seen from M4 in Table 2. At the same time, R^2 has significantly increased (*p*<0.001), indicating that team cohesion has a positive moderating effect on the relationship between team heterogeneity and innovation performance. Due to this result, hypothesis 2 can be proved.

Variable	M1	M2	M3	M4
Age	0.004	-0.006	0.059	0.024
Gender	-0.325	-0.313	-0.244	-0.093
Academic Background	-0.061	-0.044	-0.028	-0.032
Enterprise's development stage	0.067	0.019	-0.026	-0.004
Team Heterogeneity (TH)		0.329***	0.029	-0.032
Strategic Consensus (SC)			0.728***	
Team Cohesion (TC)				0.710***
TH*SC			0.369***	
TH*TC				0.178*
Model R^2		0.073	0.187***	0.540***	0.463***
ΔR^2		0.073	0.114***	0.353***	0.276***

NOTE: N=106; * means significantly correlated at 0.1 level (bilateral); *** means significantly correlated at 0.01 level (bilateral).

Figure 3 Multivariate hierarchical linear regression analysis results

The testing procedure of combined regulation effect is similar to that of ordinary regulation effect. As can be seen from M4 in Table 3, when the product term of team heterogeneity, strategic consensus and team cohesion is added, the product term coefficient is positive and the result is significant (B=0.418, p=0.038<0.05). What is more, R^2 has significantly improved (p=0.038<0.05). The result proves that strategic consensus and team cohesion do have a joint moderating effect on the relationship between team heterogeneity and innovation performance. Therefore, H3 can be proved.

Variable	M1	M2	M3	M4
Age	0.004	0.015	0.047	0.052
Gender	-0.325	-0.116	-0.155	-0.141
Academic Background	-0.061	-0.003	-0.020	-0.012
Enterprise's development stage	0.067	-0.002	-0.019	-0.004
Team Heterogeneity (TH)		-0.044	-0.061	0.072
Strategic Consensus (SC)		0.418***	0.542***	0.593***
Team Cohesion (TC)		0.500***	0.377***	0.408***
TH*SC			0.277**	0.129
TH*TC			0.018	0.272
SC*TC			-0.067	-0.105
TH*SC*TC				0.418**
Model R^2	0.073	0.546	0.585**	0.557**
ΔR^2	0.073	0.473	0.039**	0.019**

NOTE: N=106; ** means significantly correlated at 0.05 level (bilateral); *** means significantly correlated at 0.01 level (bilateral).

Figure 4 Joint moderating effect of strategic consensus and team cohesion

5. CONCLUSION

This study constructs a research model about team heterogeneity, strategic consensus, team cohesion and innovation performance, analysing the moderating effects of strategic consensus and team cohesion on the impact of team heterogeneity on innovation performance, and verifies the joint moderating effects of the two. The research conclusions are as follows:

First, strategic consensus positively moderates the effect of team heterogeneity on innovation performance. This result indicates that strategic consensus, as an indicator of task performance in the internal dynamic measurement system of the team, can significantly improve team performance through the recognition of a certain strategic decision by team members, and its impact on innovation is also quite significant. At the same time, it is more conducive to promote the avoidance of the negative impact of heterogeneity, maximize team effectiveness and positively affect the development of the entrepreneurial company.

Second, team cohesion positively moderates the effect of team heterogeneity on innovation performance. This result proves that innovation performance can be influenced by team cohesion of interpersonal dimension. Team cohesion can integrate the heterogeneous characteristics of entrepreneurial team members, smooth

the communication channels of information and ideas, boost the performances of the strengths of heterogeneity at different dimensions, and ultimately improve the innovation performance of the organization, which can promote the creation of unique advantages of entrepreneurial enterprises and the development of the industry.

Third, high strategic consensus and high team cohesion positively co-moderate the impact of team heterogeneity on innovation performance. This result shows that the integration of the advantages in task dimension and interpersonal dimension can give a full play to advantages of heterogeneity in information collection, resource integration and experience offering to a greater extent, achieving the optimal development goals of the organization through the full cooperation of all team members.

Based on the above conclusions, this paper initially argues that the formation form of entrepreneurial team should include the consideration of team members' experience based on multiple business directions in the industry, professional heterogeneity factors and team members' common values, so as to achieve better experience sharing and information integration and promote the further development of the enterprise. Secondly, it is extremely important to establish a clear mission, vision and values of the enterprise. These set clear norms for each member. Under the guidance of norms, the team will have more centripetal force, and it is also conducive to the formation of strategic consensus and team cohesion. Finally, entrepreneurial enterprises cannot ignore the cultivation of innovative organizational culture. The core of success of start-up firm lies in innovation, and the innovative organizational culture can motivate members, which is beneficial to the emergence of innovative technologies and ideas. Only the combination of active culture and firm systems can gather entrepreneurial team members, promote the cooperation and sharing of enterprise employees, build the enterprise into a dynamic and enduring century-old enterprise and create greater value.

However, there are some limitations in this study. First of all, samples of this research are mostly from Anhui province and Guangdong Province, which cannot represent the situation of start-up teams nationwide. Moreover, in this study, the growth stages of sample companies are evenly distributed, and different stages of enterprise development are not taken into consideration as variables. Finally, the research is limited to the influence of entrepreneurial team's own dynamic characteristics on innovation performance, without considering the influence of external objective factors on enterprise innovation performance. Future studies can further refine the influence variables of team heterogeneity on innovation performance, and explore at a deeper level from different dimensions such as different

time and space, so as to provide stronger theoretical support for the development of entrepreneurial enterprises.

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