

STRATEGIES FOR EMBEDDING INFORMAL RELATIONSHIP NETWORKS IN DIFFERENT STAGES OF INDIVIDUAL CREATIVITY

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Abstract: This paper uses the method of individual interview to collect data to explore the informal relationship network strategy behavior of individual creativity enhancement. The research results show that in order to achieve higher creativity performance, it is necessary to embed appropriate informal relationship networks in different stages of creativity. Specifically, it is necessary to embed knowledge sharing relationship networks in the stage of idea generation and workplace friendship networks in the stage of creative implementation. This paper further discusses the specific influencing factors of individuals embedding informal relationship network strategy behavior. First, it holds that only strategic behavior can achieve high performance, and the "two-pronged" relationship network construction strategy cannot be adopted. In terms of strategic behavior, the strategy of changing the existing advantages of informal relationship networks is more creative than that of strengthening the existing advantages, and individuals in the center of the network need to establish workplace friendship, and individuals in the edge need to establish more knowledge sharing relationship networks to achieve higher creativity performance. Obviously, this study provides a new research idea for clarifying the differences in the research of informal relationship network embedding strategies in different stages of individual creativity, and the research on the heterogeneity of strategic behavior has important practical value for both organizations and individuals engaged in creativity work.

Keywords: Informal relationship network; Different stages of individual creativity; Strategic behavior; Case study

1 INTRODUCTION

In today's innovative economy, the creativity of employees has become one of the important sources of organizational competitive advantage. In order to win the competition, both academia and industry have begun to deeply discuss the creativity of employees. Among them, the research on the key factors to enhance employees' creativity has received particular attention. In addition to the human capital factors of individual employees, more and more scholars began to pay attention to the impact of individual social networks on employee creativity. However, studies on the relationship between the two have produced too many inconsistent results[1], the reasons may be mainly from two aspects: on the one hand, the inconsistency caused by the selection of variables, sample selection or empirical methods in empirical research; on the other hand, it may be caused by the lack of further segmentation of social network and employee creativity constructs. Due to the particularity of empirical research, we try to explore the important impact of social network on employee creativity from the perspective of construct segmentation. The constructs in this paper are divided into two aspects. First, the types of social networks are divided into knowledge sharing networks and workplace friendship networks based on the purpose of individual creativity research. The second is to subdivide the applicable scenarios of these two types of social networks, and divide the stage of individual creativity into the stage of creative generation and the stage of creative implementation, so as to explore the performance of individual creativity.

This paper focuses on two questions: (1) How are informal relationship networks embedded in different stages of innovation? (2) What is the relationship between embedding strategies and individual creativity to improve performance? The research results of this paper propose some viewpoints that challenge the traditional relational network strategy embedding theory. Granovetter made a pioneering study on the relationship between relationship strength and innovation performance, emphasizing the importance of "weak relationship" for individual creativity[2]. Since then, innovation to obtain "utilitarian" stronger "weak relationship" has become the core of creativity research. The "strong relationship" that focuses on emotional friendship is weakened in the field of innovation. In fact, these two kinds of relationships are applicable to different stages of innovation. In the stage of creativity generation, the knowledge-sharing relationship that can obtain innovative resources becomes more effective, while in the stage of creativity implementation, the workplace friendship relationship that can build trust and is conducive to the implementation of the plan will achieve better practical performance. Therefore, on the one hand, this study clarifies the adaptive relationship between creativity stage and relational network, and at the same time, it explores the mechanism of action through case analysis of investigation and interview.

2 RESEARCH BACKGROUND

There are several different views on informal network embedding strategies to enhance individual creativity. A mainstream research point of view emphasizes that the establishment of knowledge sharing network positively affects

individual creativity performance. This is mainly based on the pioneering research of Granovetter, and the elaboration of "structural holes" by Burt further highlighted the importance of "weak relations" that can bring about creative knowledge[3-4]. Subsequent studies have basically followed this view. Research on the influence of factors such as the structure of innovation network, the location of core participants and the synergy of internal and external knowledge networks on creativity[5].

Another mainstream view emphasizes the balance between the two relationships. Uzzi found that organizations with both strong relationships (which help to adapt to each other and gain rich information) and weak relationships (which help to adapt to change) are more successful. This is a conclusion based on the complementary advantages and disadvantages of the two relationships. The strong relationship is conducive to rich and efficient transactions and conducive to the implementation of the scheme, while the weak relationship is flexible and can provide new information[6]. Of course, there are also scholars who study the conflict between the two[7]. It is believed that it is difficult for decision-makers to establish two kinds of relationship networks under the condition of limited attention, so individuals who try to establish two kinds of relationship networks will have a phenomenon of creativity decline.

Although these views are varied, they do not well address two key practical issues. First, why professional friendship networks continue to be used and play an important role as "strong relationships" in knowledge-intensive organizations. According to the principle of cost-benefit decision making, this kind of relationship network that requires constant investment requires individuals to make long-term investment, and they will not take this approach if there is no benefit. It is clear that the benefit of workplace friendships is most likely not the acquisition of new knowledge, but the establishment of effective implementation skills based on trust relationships[8]. However, this kind of implementation ability is "useless" in the creative generation stage, and more suitable for the creative implementation stage, so as to find a logical basis for the construction of "strong relationships" such as workplace friendships. Second, theoretically speaking, both knowledge-sharing relationship and workplace friendship relationship will produce higher creativity performance once they find their suitable creativity stage. However, how to establish these two relationships and how to break the balance of these two relationships to enhance individual creativity in practice is an important strategic issue.

In general, the existing literature (1) identifies the advantages, disadvantages and important roles of different informal relationship networks; (2) It emphasizes the important role of "weak ties" such as knowledge sharing in promoting individual creativity; (3) This paper proposes a strategy to enhance individual creativity by balancing knowledge sharing relationship network and workplace friendship network. However, on the one hand, they ignore the important role of workplace friendship in the creative implementation stage, and on the other hand, there is a lack of in-depth discussion on how to establish a suitable relationship network when the attention of decision-makers is limited, especially how to establish a relationship network combination for individuals with limited resources and social capital. Therefore, our research question is: how individuals can establish appropriate informal networks according to different stages of creativity.

3 RESEARCH METHODS

In view of the lack of informal relationship network embedding strategy theory to enhance individual creativity, we adopt inductive multi-case study method to study. Moreover, inductive research is particularly effective in answering 'how' and 'why' research questions in unexplored areas of research. Although a single case study can adequately describe the existence of a phenomenon, multiple case studies can often provide a more solid foundation for theoretical construction. A very important theoretical sampling method for case studies is the "bipolar model", in which extreme cases are selected to make it easier to find contrasting patterns in the data. Based on this empirical research logic, this paper also adopts this "bipolar model" for the selection of research samples, selecting individuals who prefer to establish knowledge sharing relationship networks or workplace friendship relationship networks, and examining creativity performance at two stages of creative generation and creative implementation[9-10].

This study uses the method of interview to collect data, and obtains the most intuitive information through one-to-one communication with the interviewees. Interview method is often used for occasional or strategic behavior research, and it is also an efficient method to obtain empirical data. In addition to focusing on the adaptation stage of embedded strategies, our research also focuses on how embedded strategies are formed, that is, how individual employees adopt different relational network embedding strategies at different innovation stages. Therefore, interview method becomes a more suitable method for data collection. Moreover, the research involves the most authentic feelings of employees in some specific work situations. Therefore, compared with questionnaire survey, interview has greater flexibility and space for interpretation of meaning. Interviewers can interact with interviewees on the spot in real time and establish basic trust and certain feelings with them. According to the specific situation of the other party, different ways are adopted to conduct interviews, so that the interviewees can actively participate and cooperate, and tell their real thoughts, opinions, attitudes and emotions more frankly, so as to make the research more authentic. This is also an important basis for us to conduct case studies to construct theories .

Two key problems need to be solved in this study. First, how to adapt the informal relationship network to the creative stage; The other is how individuals choose informal relationship network embedding strategies in the specific creative stage, so our interview is also divided into two stages. Each stage is to solve one of the above problems, so as to deepen the discussion in stages, trying to analyze the mechanism of action and strategy selection of the construction of individual informal relationship network and the enhancement of individual creativity. The interviewees included the employees and supervisors of the case samples. The interview of individual employees is mainly to understand the

motivation and function of their informal network choice, and the interview of their supervisors is mainly to examine the evaluation results of their creativity performance. So our data comes from three main sources: (1) preliminary interviews with employees and supervisors; (2) Unstructured interviews with employees and supervisors; (3) Archival data records, etc. In order to ensure the truth and accuracy of the interview data, the interview was recorded with the consent of the interviewees. At the same time, the interviewees are asked to confirm the interview records made by the interviewer to confirm the identity of the interviewees and the authenticity of the interview information.

During the interview, we interviewed a total of 16 employees and 8 supervisors in two separate interviews, each of which lasted about 40 minutes. The first is a preliminary survey, in which 8 employees and 4 supervisors of the same company are interviewed unstructured, mainly to understand the status quo and main problems of individual creativity and informal relationship network construction, with the purpose of obtaining intuitive impression and initial data through this preliminary interview to draw up a detailed interview outline for further research.

In the second interview, in order to discuss the key issues of our research in sections, this interview was also processed in sections. In the first stage, we need to focus on the adaptation strategies of different stages of creativity, so the interview outline basically focuses on this content. For employees, the interview outline: (1) How do you classify your interpersonal relationships in the team? (2) Do you think that knowledge-sharing relationships and professional friendship relationships are equally helpful to your work? If so, in what way? (3) What influence do you think these interpersonal relationships have on your individual creativity and what aspects do they reflect? (4) Does the type of interpersonal relationship have a different impact on creativity? Do you follow a consistent relationship strategy, or do you choose between them? The interview with the supervisor is mainly reflected in the evaluation of the employee's individual creativity performance. The main outline of the interview is as follows: (1) Do you think that an employee has a high level of individual creativity in his work? (2) In what aspects are these individual creativity embodied? Do they focus on creative generation or creative implementation? At this stage, we interviewed 8 employees and 4 managers from different organizations and teams, and tried to make the data we collected comparable and universal in the interviews. In order to maintain the data consistency of supervisors' assessment of employees' individual creativity, we used the same interview subjects in the second interview stage, and conducted detailed interviews on the motivation and performance of 8 employees' individual informal relationship network embedding strategy. The main interview outline is as follows: (1) Have you been trying to build your own knowledge sharing network and workplace friendship network? What difficulties and challenges have you encountered in this process? (2) Where are you in the team or network, at the core or on the periphery? (3) Does the knowledge sharing network or workplace friendship network you have established strengthen your previous network or open up new areas of network? (4) Do you think that embedding yourself in an informal network really improves your creativity?

The institutions we interviewed are mainly knowledge-intensive institutions, including high-tech enterprises, universities, training institutions, research institutions, etc., in which individual creativity becomes particularly important. In order to use the comparative case study method, we use two types of employees in the same team as a group to compare and explore their individual creativity. The specific information of the main respondents is shown in Table 1 and Table 2:

Table 1 Information of Interviewees in the First Interview

Respondent	Age	Gender	Years of work	Education	Major
Staff A1	28	Male	3	Master	Mathematics
Staff A2	23	Male	1	Undergraduate	Computer
Supervisor A	32	Male	7	Master	Computer
Staff B1	24	Male	1	Undergraduate	Production Management
Staff B2	25	Female	3	Undergraduate	Logistics Management
Supervisor B	29	Female	5	Master	Production Management
Staff C1	24	Female	2	Undergraduate	Marketing
Staff C2	23	Female	1	Undergraduate	Industrial Design
Supervisor C	26	Male	4	Undergraduate	Business Administration
Staff D1	25	Female	2	Undergraduate	Project Management
Staff D2	27	Male	2	Master	Chemistry
Supervisor D	29	Male	7	Undergraduate	Computer

Table 2 Information of Respondents in the Second Interview

Respondent	Age	Gender	Years of work	Education	Major
Staff E1	26	Male	1	Master	Chinese
Staff E2	28	Male	3	Master	English
Supervisor E	37	Female	11	Master	Education
Staff F1	22	Female	1	Undergraduate	Network Management
Staff F2	23	Male	1	Undergraduate	Biology
Supervisor F	33	Female	8	Master	Project Management
Staff G1	23	Female	2	Undergraduate	English

Staff G2	23	Female	1	Undergraduate	English
Supervisor G	26	Male	4	Undergraduate	Maths
Staff H1	24	Male	2	Undergraduate	Project Management
Staff H2	28	Male	2	Master	Investment Management
Supervisor H	36	Male	9	Master	Production Management

4 THE ADAPTATION OF INFORMAL RELATIONSHIP NETWORKS EMBEDDED IN DIFFERENT STAGES OF INDIVIDUAL CREATIVITY

The interview data in this part mainly come from the interviews of 8 employees and 4 supervisors in the same organization, to explore the matching relationship between the enhancement of individual creativity of employees and the embedding of informal relationship network, and to examine the performance of individual creativity. Specific interview data and examples are shown in Table 3.

4.1 The Performance of Workplace Friendship Embedded in Different Stages of Individual Creativity

We first examine the influence of workplace friendship on individual creativity, which has been neglected by academic research. In the interview, we can see that the interview materials of four employees are related to the influence of the establishment of workplace friendship network. Employee B1 mentioned the important role of workplace friendship in the project implementation stage, and also mentioned the use of knowledge sharing relationship when accidental situations occur, but he thinks that this phenomenon is relatively small. Therefore, I think the importance of workplace friendship in the stage of creative implementation. Employee A2 also gave the help brought by workplace friendship in the second half of the project implementation. The encouragement and "emotional value" brought by friendship made employees full of energy and vitality, which further strengthened the important role of workplace friendship. From the opposite logic, employees A1 and C2 give negative evidence, showing that workplace friendship is not a good embedding strategy in the creative generation stage, because "acquaintance relationship" does not bring diversified creative basis, "want to hear different opinions" in the workplace relationship embedding strategy is more difficult. Workplace friendships can reduce anxiety, increase trust, and even provide direct resource support, but they have limited impact on creativity. So we get proposition 1 and proposition 2:

Proposition 1: Workplace friendship positively affects the improvement of individual creativity in the creative implementation stage.

Proposition 2: Workplace friendship negatively affects the improvement of individual creativity in the creative generation stage.

4.2 The Performance of Knowledge Sharing Relationship Embedded in Different Stages of Individual Creativity

From the interview data on the influence of knowledge sharing relationship on individual creativity, it can be seen that knowledge sharing relationship supports the improvement of individual creativity in the project production stage. As employee C1 mentioned, "The communication between diverse colleagues helps to think from multiple perspectives, which contributes greatly to the novelty of creativity." The interview evidence of employees D1 and D2 further supported this conclusion, but the opposite result was obtained for the creative implementation stage. Employee B1 said that the casual effect of knowledge sharing network in the project implementation stage could not become the mainstream relationship in this stage, but should be a professional friendship relationship. So we get proposition 3 and proposition 4:

Proposition 3: Knowledge sharing relationship positively affects the improvement of individual creativity in the creative generation stage.

Proposition 4: Knowledge sharing relationship negatively affects the improvement of individual creativity in the creative implementation stage.

Table 3 Adaptive Relationship Interview Data Embedded in Informal Relationship Networks at Different Stages of Individual Creativity

Staff	Interview Data	Individual Creativity Performance		Adaptation Relationship
		Self-Evaluation	Supervisor Evaluation	
Staff A1	"As soon as you enter the job, you want to make friends with everyone, this is the most powerful tool in the workplace,..... It soon became familiar. In creative discussions, we try to be on the same page."	"Familiar colleagues and my ideas are more similar, basically can not give me too much inspiration,..... I want to hear different opinions and ideas."	"His efforts are well documented, he's very motivated, he has good relationships, but maybe he needs to work on his own ideas."	Workplace friendship negatively affects individual creativity in the creative generation stage
Staff A2	"When it comes to the execution phase of a	"At this time, the support and	"He was always able to stay active and saw	Workplace friendship positively affects

	<p>project,..... Over time, you may become irritated with the task. This time is like a long distance running, the more you get to the middle and back, the more tired you become, and you need people around you to cheer you up."</p>	<p>encouragement from friends will make me feel more confident about the project,..... Make the execution process full of creativity."</p>	<p>constant interaction with his colleagues in the company,..... Be able to creatively solve the difficulties encountered in project implementation"</p>	<p>individual creativity during project execution</p>
Staff B1	<p>"At the stage of project execution,..... It's about repeating things, following a protocol, and having strong friendships with people helps a lot to get things going."</p>	<p>"There will be some unexpected situations where knowledge sharing plays a role, but the probability of this happening is generally not very large."</p>	<p>"He was always compliant and efficient in his operations, and had good relationships with colleagues that gave him a lot of support."</p>	<p>The relationship of workplace friendship (knowledge sharing) positively (negatively) affects individual creativity in the project execution stage</p>
Staff B2	<p>"I used to brainstorm a lot when I was in school, and now I like to have different opinions and suggestions during project discussions." "There's so much uncertainty at the beginning of a project, when the core task is to come up with novel solutions and building emotional friendships often feels hollow."</p>	<p>"Talking to colleagues in other departments has allowed me to come up with some very creative ideas."</p>	<p>"I often see her having heated discussions with colleagues from other sections,..... There are always novel ideas."</p>	<p>Knowledge sharing relationship positively influences individual creativity in the creative generation stage</p>
Staff C1	<p>"The new environment was a bit difficult for me to adjust to, and the good relationships I built for it eased the anxiety,..... But that's not going to be very helpful when we talk about a new plan."</p>	<p>"The interaction between diverse colleagues helps people to think from multiple perspectives, which contributes a lot to the novelty of ideas."</p>	<p>"She has always been able to take a different perspective on ideas, further establishing her as the innovative heart of the team."</p>	<p>Knowledge sharing relationship positively influences individual creativity in the creative generation stage</p>
Staff C2	<p>"At the stage of project execution,..... It's about repeating things, following a protocol, and having strong friendships with people helps a lot to get things going."</p>	<p>"Generally speaking, I fit in well with the company and have regular friends, but I still feel inadequate in terms of innovation and lack a diverse environment."</p>	<p>"In team discussions, she doesn't speak very boldly and agrees with others. Sometimes it's better to replace her with an unfamiliar colleague."</p>	<p>Workplace friendship negatively affects individual creativity in the creative generation stage</p>
Staff B1	<p>"At the stage of project execution,..... It's about repeating things, following a protocol, and having strong friendships with people helps a lot to get things going."</p>	<p>"There will be some unexpected situations where knowledge sharing plays a role, but the probability of this happening is generally not very large."</p>	<p>"He was always compliant and efficient in his operations, and had good relationships with colleagues that gave him a lot of support."</p>	<p>The relationship of workplace friendship (knowledge sharing) positively (negatively) affects individual creativity in the project execution stage</p>

It can be seen from the above interview summary that both knowledge sharing relationship network and workplace friendship relationship network can enhance individual creativity, but the influence is not consistent in different stages of individual creativity. Separately, knowledge sharing relationship has a positive effect on the improvement of individual creativity in the creative generation stage, while workplace friendship relationship has a positive effect on the creative implementation stage. We summarize the theoretical framework as shown in Table 4.

Table 4 The Matching Relationship Diagram of the Informal Relationship Network Embedded in Different Stages of Individual Creativity

Informality Relational Network Type	Knowledge-Sharing Network Workplace Friendship Network	Individual Creativity Stage	
		Creative Generation Stage	Creative Implementation Stage
		Positive	Negative
		Negative	Positive

5 THE STRATEGIC BEHAVIOR OF INDIVIDUALS EMBEDDING INFORMAL NETWORK RELATIONSHIPS

The above research on the matching relationship between different stages of individual creativity embedding informal relationship networks provides a clear strategic direction, but it is unclear how individuals carry out these strategic behaviors in the process of creativity enhancement, that is, what factors affect them to adopt a certain relationship network embedding strategy in practice. Based on literature research and interview data, we proposed three factors: relationship balance, network location, and existing experience. Specific interview data are shown in Table 5 below.

Table 5 Strategic Behavior Interview Data of Individuals Embedded in Informal Relationship Networks

Staff	Interview Data	Strategic Behavior			Strategic behavior	
		Relationship Balancing	Network Location	Experience	Self-Evaluation	Supervisor Evaluation
Staff E1	"I know that knowledge sharing and professional friendships are both important, but sometimes it's hard to have the best of both worlds,..... Limited energy!"	Both	—	—	"I want both, but the result is not good, and I feel powerless."	"He worked very hard,..... But clearly there needs to be a focus."
Staff E2	"I want to build different networks of relationships to deal with different challenges,..... At present, I prefer to share knowledge, and I hope to achieve greater honor through continuous learning."	Strategic Behavior	—	—	"Feeling really good at the job at the moment,..... They can also come up with innovative solutions."	"He knows when to do what and is very flexible in terms of innovation."
Staff F1	"The work I am doing is my area of expertise, I am more familiar with it, and there are fewer challenges in the work, so I am turning my attention to professional friendships instead."	Strategic Behavior	—	Allocation of Attention	"More time to bond with colleagues and feel like I have friends everywhere....."	"Always able to complete work tasks efficiently and have many leisure activities."
Staff F2	"My major is not quite in line with my current job. I have to consult my colleagues a lot. Knowledge sharing network is very important for me."	Strategic Behavior	—	Allocation of Attention	"The knowledge-sharing network helps me work efficiently."	"As a trust, I learn from my predecessors."
Staff G1	"My job is teaching, and I value creative teaching methods and teaching results, so knowledge sharing networks are very important."	Strategic Behavior	Edge Position	—	"You have less management, you're not in the core management, you're constantly exposed to fresh knowledge."	"Strong teaching ability, constantly developing new teaching methods."
Staff G2	"What gives me more satisfaction is the high evaluation of my students,..... "All my efforts are focused on improving the quality of teaching. We need to learn from our predecessors."	Strategic Behavior	Edge Position	—	"The focus is still on improving the quality of teaching,..... The ability to innovate courses is increasing."	"It's very popular. There are always new ideas in the teaching ideas competition."
Staff H1	"The job requires more new knowledge and I have the time and opportunity to consult other colleagues and supervisors..... Some problems are easily solved with a little prodding."	Strategic Behavior	Edge Position	—	"I feel like my abilities are constantly improving,..... Work feels more in control."	"The new person grows quickly, and the knowledge-sharing relationship enhances his creativity."
Staff H2	"Since I came to the company after my master's degree, as a core member of the project team, I feel it is necessary to establish more friendship, after all, many projects need to be completed by cooperation."	Strategic Behavior	Central Position	—	"So far the project team is working well, and I'm going to focus a lot on integrating people."	"As a core member of the project team, I need to cultivate comprehensive abilities, and I am performing well at present."

5.1 Balance the Influence of Two Kinds of Network Input

Since both the knowledge sharing network and the workplace friendship network have an important impact on the improvement of individual creativity, individuals in organizations will certainly face the problem of how to balance the two relationships. Previous studies have shown that the quantity and strength of relationships are incompatible, and that managing these relationships is laborious[11]. Given the distribution of attention, it is difficult for individuals with limited energy to juggle the construction of both relationships, and it is possible to want both but do neither well. In the interview, employee E1 and employee E2 are very obvious comparison cases. Employee E1 pursues a more comprehensive relationship network, but in the process, he is "powerless" and the overall creativity performance is not good. On the other hand, employee E2 can flexibly embed the two relationship networks, know what relationship network needs to be built at the right time, and have superior performance in overall creativity. Therefore, it can be seen that in the balance of these two relationships, we should try to avoid "both", but should adopt the idea of contingency, "with some emphasis" to take embedded strategy behavior. This leads to the following proposition:

Proposition 5: Individuals who strive to establish two networks of relationships perform worse in creativity.

Proposition 6: Individuals who strategically choose a certain relationship network will perform better in creativity.

5.2 The Impact of Established Network Advantages

There are also differences in creativity among employees who engage in strategic behavior. Based on the economic principle of efficient allocation of limited resources, employees with strategic behavior will allocate resources, energy, and attention to places that lead to higher creative performance. We mainly investigate the heterogeneity of existing experience and network location. In this part, we investigate the influence of subsequent selection brought about by the advantages of relationship network with existing experience. In the next part, we investigate the heterogeneity of network location. Both employee F1 and employee F2 mentioned their professional fields in the interview, and employee F1's major and work are relatively similar, so there is no need to allocate too much energy to work, and more energy to the construction of workplace friendship. Due to differences in work and profession, employee F2 needs to establish more knowledge-sharing relationships for work efficiency. Therefore, it can be seen that employees' strategic behavior will turn to build another relationship network because of the original experience advantage. We get the following proposition:

Proposition 7: Individuals with an advantage in one type of network will turn to another type of network.

5.3 The Influence of Individual's Network Location

The research on network location has been going on for a long time. Both the research on the centrality of the focus enterprises in the alliance[12] and the research on the influence of individual location in the network on resource acquisition[13] focus on the performance generated by network location. We interviewed four employees to investigate the influence of network location. Through the investigation, we found that G1, G2 and H1 in the marginal position all tried or succeeded in establishing knowledge sharing relationship, while H2 in the central position tried to establish workplace friendship relationship. This may be because of the needs of their respective jobs, the employees in the central position may no longer blindly care about the knowledge resources brought by the "structure hole" to obtain benefits, but should turn to the cooperative friendship relationship that can efficiently complete the team task. The best strategic behavior of employees in marginal positions may be to acquire new knowledge as soon as possible to improve their creative ability, so as to gain the recognition of the team. So we can get the following statement:

Proposition 8: Individuals at the edge of the network will try to establish a knowledge sharing relationship network.

Proposition 9: Individuals at the center of the network will attempt to establish a network of professional friendships.

From the analysis of the interview data from the above three aspects, it can be seen that the strategic behavior of individuals to establish informal relationship networks is necessary. Active strategic behavior may vary due to the existing network advantages and the network location of individuals, which makes the analysis of strategic behavior more "strategic" significance. The theoretical analysis framework is specifically constructed as shown in Figure 1 below.

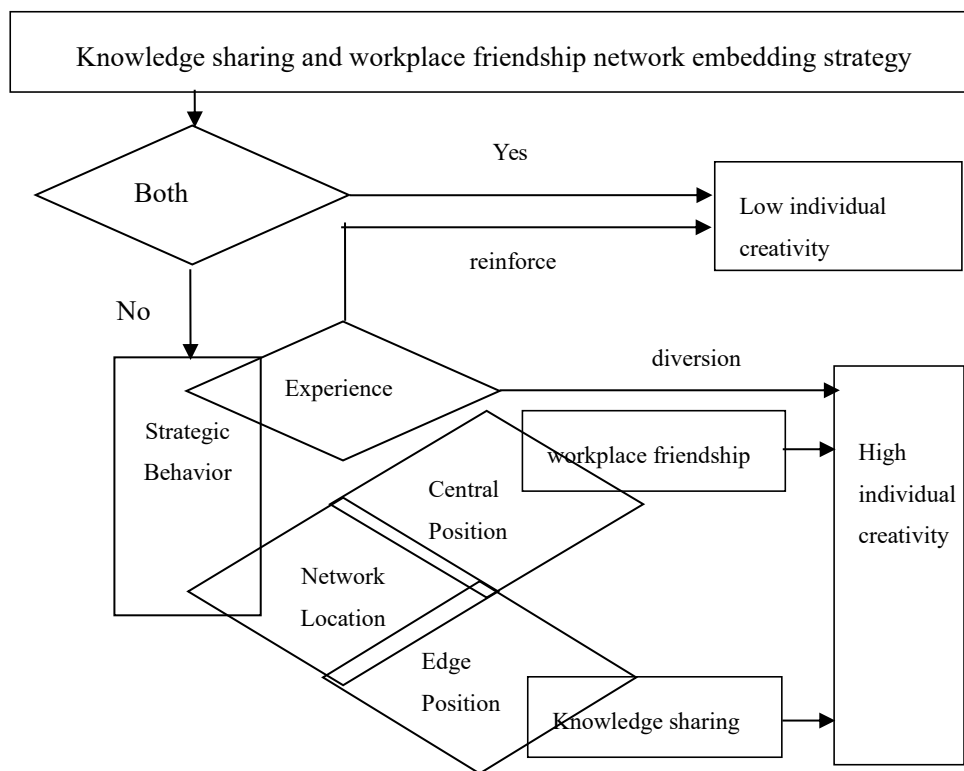


Figure 1 Strategy Behavior of Individuals Embedded in Informal Relationship Networks

6 CONCLUSION

This paper uses the method of individual interview to collect data to explore the informal relationship network strategy behavior of individual creativity enhancement. The research results show that in order to achieve higher creativity performance, it is necessary to embed appropriate informal relationship networks in different stages of creativity. Specifically, it is necessary to embed knowledge sharing relationship networks in the stage of idea generation and workplace friendship networks in the stage of creative implementation. This paper further discusses the specific influencing factors of individuals embedding informal relationship network strategy behavior. First, it holds that only strategic behavior can achieve high performance, and the "two-pronged" relationship network construction strategy cannot be adopted. In terms of strategic behavior, the strategy of changing the existing advantages of informal relationship networks is more creative than that of strengthening the existing advantages, and individuals in the center of the network need to establish workplace friendship, and individuals in the edge need to establish more knowledge sharing relationship networks to achieve higher creativity performance. Obviously, this study provides a new research idea for clarifying the differences in the research of informal relationship network embedding strategies in different stages of individual creativity, and the research on the heterogeneity of strategic behavior has important practical value for both organizations and individuals engaged in creativity work.

COMPETING INTERESTS

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REFERENCES

- [1] Grigoriou K, Rothaermel F T. Organizing for knowledge generation: Internal knowledge networks and the contingent effect of external knowledge sourcing. *Strategic Management Journal*, 2017, 38(2): 395-414.
- [2] Perry-Smith J E, Mannucci P V. From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review*, 2017, 42(1): 53-79.
- [3] Burt R S. Reinforced structural holes. *Social Networks*, 2015, 43: 149-161.
- [4] Balachandran S, Hernandez E. Networks and innovation: Accounting for structural and institutional sources of recombination in brokerage triads. *Organization Science*, 2018, 29(1): 80-99.
- [5] Clement J, Shipilov A, Galunic C. Brokerage as a public good: The externalities of network hubs for different formal roles in creative organizations. *Administrative Science Quarterly*, 2018, 63(2): 251-286.
- [6] Rhee L, Leonardi P M. Which pathway to good ideas? An attention-based view of innovation in social networks. *Strategic Management Journal*, 2018, 39(4): 1188-1215.
- [7] Tortoriello M. The social underpinnings of absorptive capacity: The moderating effects of structural holes on innovation generation based on external knowledge. *Strategic Management Journal*, 2015, 36(4): 586-597.
- [8] Shaver J M. Causal identification through a cumulative body of research in the study of strategy and organizations. *Journal of Management*, 2020, 46(7): 1244-1256.
- [9] Hernandez E, Menon A. Acquisitions, node collapse, and network revolution. *Management Science*, 2018, 64(4): 1652-1671.
- [10] Casciaro T, Lobo M S. Affective primacy in intraorganizational task networks. *Organization Science*, 2015, 26(2): 373-389.
- [11] Gomez-Solorzano M, Tortoriello M, Soda G. Instrumental and affective ties within the laboratory: the impact of informal cliques on innovative productivity. *Strategic Management Journal*, 2019, (40): 1593-1609.
- [12] Reagans R, Vir Singh P, Krishnan R. Forgotten third parties: Analyzing the contingent association between unshared third parties, knowledge overlap, and knowledge transfer relationships with outsiders. *Organization Science*, 2015, 26(5): 1400-1414.
- [13] Hernandez E, Shaver J M. Network synergy. *Administrative Science Quarterly*, 2019, 64(1): 171-202.