

# AN EMPIRICAL STUDY ON THE INFLUENCE OF KNOWLEDGE SHARING NETWORK AND WORKPLACE FRIENDSHIP NETWORK ON INDIVIDUAL CREATIVITY

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**Abstract:** The internal social network has great influence on individual creativity. Individual innovation behavior includes two specific stages: creative production and creative implementation. In this paper, data were collected by questionnaire survey, Harman single factor method was used to conduct common method bias test on the topics involved, and finally STATA software was used for regression analysis, and least square method (OLS) was used for estimation, and statistical test was performed on the hypotheses proposed. The empirical results show that the knowledge sharing relationship has a significant positive impact on individual creativity in the initial stage of the project; In the project implementation stage, emotional friendship relationship has a significant positive impact on individual creative implementation.

**Keywords:** Knowledge sharing network; Workplace friendship networks; Individual creativity; Empirical research

## 1 INTRODUCTION

In the early 21st century, after the process of individual innovation was segmented into two stages of idea generation and idea implementation, the academic community began to gradually pay attention to the influencing factors of idea generation, idea implementation and their respective differences. At the individual level, scholars mainly focus on the influence of factors such as individual thinking ability, learning ability, motivation and trust on the creation and implementation of creativity. Clegg et al. believe that individual intuitive thinking mode is conducive to the generation of creativity, but not conducive to the implementation of creativity[1]. In contrast, the impact of systematic thinking on creativity is not obvious, but it will also have an obvious hindrance to the implementation of creativity. From the perspective of organizational learning, both exploratory learning and exploitative learning are conducive to the generation and implementation of creativity, but only through the intermediary of creative implementation can the two organizational learning styles bring about substantial improvement in organizational innovation performance. In terms of individual motivation, Some authors pointed out that internal motivation can promote both the generation and implementation of innovative ideas, while external motivation can only have a positive effect on the implementation of innovative ideas[2]. In terms of trust, Clegg et al. divided trust within organizations into two dimensions: trust in revenue and trust in listening, and pointed out that trust in revenue makes employees believe that managers will share the benefits of innovation with them, and such trust mainly has a positive impact on creativity[1]. In contrast, trust in listening makes employees believe that managers will listen carefully to their innovative ideas, and this trust mainly has a positive impact on the implementation of ideas. In the organizational dimension, the organizational structure, the matching degree between individuals and organizations, the innovation atmosphere and the cooperation mode are the organizational influencing factors of individual specific innovation stage. Subramanian and Nilakanta pointed out that decentralized organizational structure can promote organizational innovation more, and this positive effect is more concentrated on the generation of ideas[2], but this study did not further explore the relationship between organizational structure and creative implementation. In terms of the matching degree between individuals and organizations, when individuals and organizations are highly consistent in values, the level of creativity generation will be improved, but it will not have a substantial impact on the specific implementation of creativity[3]. In fact, not only will the matching degree of values between individuals and organizations have an effect on the specific stage of individual innovation, but the improvement of matching between supply and demand, capacity and requirements will also have a positive impact on the generation and implementation of creativity. In terms of organizational innovation climate, Some authors pointed out that organizational innovation climate can improve employees' creativity generation through the intermediary path of innovation self-efficacy[4], but it may not have a positive impact on the implementation of creativity. In terms of cooperation mode, compared with the vertical cooperation mode of cooperation with supply chain related parties, the horizontal cooperation mode of school-enterprise cooperation has a stronger promotion effect on the generation of creativity. As vertical cooperation can collect more market information and promote the commercialization and marketization of innovation results, vertical cooperation has greater advantages in creative implementation[5]. This conclusion is similar to the findings of Rothaermel and Deeds based on exploratory alliances and development alliances[6].

Since innovation activities need a large number of non-redundant knowledge resources as the basis, and social network is an important source for individuals to obtain heterogeneous knowledge resources, the influence of social network on

individual creativity has been a major focus of academic attention for a long time. Social networks are divided into internal social networks and external social networks. The former mainly involves the social connections between employees within an organization, while the latter mainly involves the connections between an organization and external stakeholders such as customers, suppliers, and communities. In view of the research theme of this paper, we mainly comb the research on the influence of social networks within organizations on individual creativity. Through internal social networks, organization members can have close social interaction with other members, and obtain real and valuable innovative information from trusted individuals or departments at a lower cost through various internal interpersonal networks[7].

Although the academic community has carried out a lot of exploration on the relationship between social networks, especially internal social networks in organizations, and individual creativity, the research on the influence of internal informal networks on individual creativity is still relatively scarce. At the same time, with the deepening of the research on innovation process, the heterogeneity of internal factors on the creation and implementation of ideas has been emphasized. Since there is a great difference in the demand for resources in the two different stages of innovation, the creation and implementation of ideas, it is necessary to judge the different impact of different social network resources on the creation and implementation of ideas. Only by clarifying the characteristic social network resources required for different stages of innovation can we ensure that individual creativity can be effectively generated, and at the same time, we can ensure that creativity can be effectively implemented and truly transformed into innovative results. Therefore, in the next section, we will focus on the specific effects of knowledge sharing and workplace friendship, two distinct internal network resources, on individual creativity during a specific stage of innovation.

## **2 THEORETICAL BACKGROUND AND RESEARCH HYPOTHESIS**

### **2.1 The impact of Knowledge Sharing on Creativity**

The internal social network of a team has many characteristics. In this paper, two kinds of interpersonal relationships, knowledge sharing relationship and workplace friendship relationship with research gap, which are paid more attention by the research community, are selected as the measurement indicators of social network to investigate the impact of internal social network of a team on individual creativity. The classification of knowledge sharing relationship is mainly based on the purpose of obtaining resources, so the role of such personal network relationship is more reflected in how to obtain key resources through knowledge sharing relationship, so the research focus is often focused on the heterogeneity, diversity and intensity of knowledge sharing relationship. As an important source of innovation resource acquisition, knowledge sharing relationship plays an important role in the process of team creativity. In the process of knowledge sharing, the team can strengthen the communication among members and improve the efficiency of research and development; It is also conducive to the collision of ideas and thinking of team members, rubbing out new sparks, improving individual creativity, and promoting creativity and innovation of the team; In addition, knowledge sharing behavior can also strengthen the adaptability to the environment and effectively avoid the negative impact of organizational inertia factors such as innovation stagnation and closed thinking in the process of technological innovation[8]. In addition, knowledge sharing behavior can effectively transform and spread knowledge within the team, and promote the accumulation of knowledge in the whole team. It plays an important role in stimulating innovation for both excellent employees who share knowledge and new employees who have just emerged, and it will encourage team members to rethink their existing work and improve their creativity.

In the creative generation stage, individual employees need to explore various aspects of knowledge and technology through extensive divergent thinking, and establish the connection between old and new knowledge on this basis, so as to propose various solutions to problems and form a creative library[9]. On this basis, employees should use convergent thinking to conduct in-depth analysis and sorting of the creative library, evaluate the innovation and feasibility of each idea, and select a small number of high-quality creative ideas from it. Therefore, in order to ensure the effective generation of creativity, individual employees must conduct professional search for multiple knowledge types, such as scientific knowledge, market knowledge and supply chain knowledge, so as to build a rich creative database and provide a solid heterogeneous knowledge resource foundation for creative generation.

The improvement of knowledge sharing level provides great convenience for employees to search professional knowledge. As a necessary process of knowledge integration and sharing, employees can enhance knowledge reserves in the process of knowledge sharing and generate creative sparks with other individual knowledge resources[10]. At the same time, through the knowledge integration stage in knowledge sharing, individuals can fully integrate heterogeneous knowledge resources and think about the innovation and practicality of creativity based on a system perspective, thus improving the probability of creativity generation. Moreover, knowledge exchange among employees is not one-way, and the knowledge acquired by one party will also be transferred to a third party, which will further increase the possibility of the expansion of individual creativity database and provide a wider range of knowledge choices for the development of individual creativity. From the perspective of trust, due to the different professional knowledge of different employees, the uncertainty about the benefits from the future implementation of creative ideas hinders the birth of their innovative ideas[1]. Knowledge exchange among employees helps enhance trust and reduce the perception of income uncertainty, thus stimulating innovative thinking[14]. Therefore, the following hypothesis is proposed in this study:

H1: Other conditions being equal, knowledge sharing is conducive to promoting individual creativity of employees.

## 2.2 The Influence of Workplace Friendship on Creative Implementation

Creative generation is the result of knowledge sharing and exchange by employees, while creative implementation is the performance of employees applying the knowledge shared and exchanged. Compared with the creative generation process which requires a large number of heterogeneous resources and non-redundant information as support, the resource base required in the creative implementation stage has undergone fundamental changes. In the creative implementation stage, the structure of creativity is relatively perfect, and the demand for heterogeneous knowledge resources is greatly reduced. In this process, the key to the effective implementation of creativity lies in the pressure of norms. Only when organization members work together to form a highly consistent creative understanding and belief in a closed network can innovative thinking be promoted to the final implementation[11]. This makes workplace friendships with strong connections especially important during the creative implementation phase.

Workplace friendships are often established through the process of long-term work contacts, which are based on mutual interests or mutual trust. Once this kind of emotional friendship is established between such team members, the relationship is very stable, not only in the stability of the working relationship, but also in the "close personal relationship", which further strengthens the stable relationship between each other[3]. Because people's actual behavior is embedded in a specific social relationship network, and such relationship embeddedness will affect people's specific behavior, workplace friendship, as a high-quality interpersonal relationship between team members, will inevitably have an important impact on people's behavior.

In the creative implementation stage, due to the constraints of working environment, resources and other factors, individuals' enthusiasm for work tends to weaken, and their internal motivation also declines, resulting in a corresponding negative impact on individual creative implementation[4]. With the improvement of the level of workplace friendship, the possibility of interaction and cooperation among employees will rise, and individual employees can not only get the technical support needed for creative implementation from other colleagues, but also get hard-won emotional support, thus improving the internal motivation of employees in the creative implementation stage. In this process, close workplace friendships can also help employees get more substantive and constructive feedback, thus promoting the implementation of ideas[15]. On the contrary, when the intensity of workplace friendship within the organization is low, individual employees not only cannot get the dual support of technology and emotion in the creative implementation stage, but also the poor communication between members may further consume the enthusiasm and time of employees, thus further crowding out the resources required for creative implementation[14]. Based on the above analysis, this study proposes the following hypotheses:

H2: Other things being equal, workplace friendship is conducive to promoting individual creative implementation.

## 3 RESEARCH METHOD DESIGN

### 3.1 Data Collection Procedures

This study adopts the method of questionnaire survey to collect data, and the time of questionnaire distribution and recovery is between July and September 2024. The research specifically adopts snowball sampling. Five teachers who teach in MBA colleges of universities in Guangdong Province are selected as the subjects to issue questionnaires, and the sampling criteria are made clear to them: the target subjects should come from organizations or industries that emphasize innovation process and innovation intensity, work full-time in their current units for more than half a year, and be over 20 years old. Make full use of the student network of these 5 college teachers to issue online questionnaires. Based on the research objectives, it is a progressive process to clarify individual innovation behavior to the respondents in the questionnaire design, which includes two stages of creative generation and creative implementation. Among them, idea generation refers to the formation of novel and valuable ideas or technologies. This process can help and guide enterprises to survive and develop in the fierce competition, and can be regarded as the first stage of the innovation process. Creative implementation is the process of transforming the ideas formed in the creative generation stage into new products, services or processes, and successfully introducing them into the market.

Due to the potential interference of common methodology bias on data collection and research results, we adopted a three-point survey method for phased collection by referring to existing practices[12]. In the first stage of the questionnaire survey, the respondents were asked to report on workplace friendships and control variables in their organizations; In the second round of questionnaire survey, respondents were asked to report on knowledge sharing in their organizations; In the second round of questionnaire survey, respondents were asked to report on the specific situation of creative generation and creative implementation. In the end, 276 questionnaires were recovered, and 249 valid questionnaires were obtained, with an effective answering rate of 90.22%, excluding ineffective questionnaires with too short filling time and too high consistency of answers. As for the distribution of demographic characteristics of the samples, 40.16% were males in the valid questionnaire. In the age of 31-40, 120 people, accounting for 48.2%; The number of non-state-owned organizations was 191, accounting for 76.7%. Compared with state-owned enterprises, non-state-owned enterprises tend to have a higher innovation level due to profit needs. Therefore, the higher proportion of non-state-owned enterprises in the questionnaire is conducive to the research to explore individual innovation behaviors. The number of employees who worked in the current unit for less than 3 years was 70, accounting for 28.11%; The working life of 3 to 5 years is 32 people, accounting for 12.85%; The working life of 5 to 10 years is 44 people, accounting for 17.67%; The number of people who worked for more than 10 years was 103, accounting for

41.37%. All respondents in this study were from different organizations, and there was no nesting between data levels, so all analyses were conducted on an individual basis.

### 3.2 Questionnaire Measurement Tools

The constructs used in this study are all derived from mature and widely recognized scales, and the original English scales involved also follow a rigorous translation and back-translation process. Specifically, the original English title was first translated into Chinese by a member of the research team, and then translated back into English by another author. Finally, the research team discussed and resolved the differences between the original scale and the translated version, so as to determine the final Chinese version of the scale. It should be noted that the scales used in each original scale are not the same. In order to ensure the consistency of dimensions, all scales in this paper were measured using 5-level Likert scale (1= very inconsistent, 5= very consistent). At the same time, considering that the research in this chapter focuses on the impact of social networks within organizations on the employee innovation stage, this issue is more based on the perspective of information recipients, so all variable measurements are carried out from the employee level.

Core explanatory variable 1: workplace friendships. Referring to the practice of Nielsen et al.[13], we used six items to measure the friendship atmosphere of employees in the workplace, including: "In my work, I have the opportunity to get to know my colleagues well," "I can solve problems together with my colleagues," "In my work, I have the opportunity to have informal conversations or informal contacts with others," "My company encourages emotional exchange among employees," "I have built strong friendships with others in my work," "As long as the work is done," "I have a strong relationship with others." Informal communication is allowed in my company." After test, Cronbach's  $\alpha$  value of this scale was 0.8329.

Core explanatory variable 2: Knowledge sharing. At present, the academic circles have different views on the structural dimension division of knowledge sharing. Chiu et al.[14] mainly measured knowledge sharing from the quantity and quality of knowledge sharing. The quantity of knowledge sharing was represented by the specific frequency of knowledge sharing, while the quality of knowledge sharing was measured by scale items. Lin and Lee[4] believe that knowledge sharing behavior depends on knowledge sharing motivation, and the latter is jointly determined by sharing attitude, subjective norms of sharing and sense of behavioral control. It is worth mentioning that interpersonal interaction is a necessary condition for realizing knowledge sharing within an organization[2]. Considering the influence of interpersonal interaction differences on employees' knowledge sharing behaviors under specific cultural backgrounds, the above scale may not be suitable for the investigation of knowledge sharing in domestic organizations. To this end, the knowledge-sharing behavior scale developed by domestic scholars Yang Yuhao and Long Junwei[12] was used to measure the corresponding variables. The original scale above includes three dimensions: sharing quality, collaborative spirit and hands-on performance. However, considering that the research in this chapter is conducted from the perspective of information recipients, the hands-on performance dimension involves items such as "I try my best to create opportunities for mutual learning and communication among colleagues", which are more based on the perspective of information senders. Therefore, we mainly adopt the two dimensions of sharing quality and collaborative spirit in the scale. For items whose question mode is based on the perspective of the information sender, we also transform them into the perspective of the information recipient. Specific items include "In our company, colleagues can usually share work knowledge in a timely manner", "In our company, the work knowledge shared by colleagues is mostly reliable (not fabricated or deliberately deceived)", "the work knowledge shared by colleagues is mostly complete (will not be deleted or retained at will)", "The knowledge shared by colleagues is usually useful for work", "In our company," The work knowledge shared by colleagues is usually accurate (not ambiguous) "" The work knowledge shared by colleagues is usually expressed in a simple and understandable way" "In our company, it is normal for colleagues to share their knowledge with each other" "Colleagues learn something new and are happy to teach me" "When I ask colleagues for information, They would tell me, to the best of their knowledge, "When I ask my colleagues for technical help, they will teach me," a total of 10 items, of which the first six items belong to the category of knowledge sharing quality, and the last four items belong to the category of collaborative spirit. After testing, the Cronbach's  $\alpha$  value of the knowledge sharing quality dimension was 0.9075, the Cronbach's  $\alpha$  value of the collaborative spirit dimension was 0.8914, and the Cronbach's  $\alpha$  value of the overall scale was 0.9420, which had good reliability.

Core explained variable: individual innovation behavior. The existing researches mainly focus on individual creativity and the results of innovation performance. In contrast, there are few studies that distinguish idea generation from idea implementation based on an innovation process perspective. Lu Xiaojun and Zhang Guoliang[15] re-measured the scale developed by Kleysen and Street[16], and subdivided it into two dimensions: the generation of innovative ideas and the execution of innovative ideas. Based on the scale developed by Kleysen and Street[16], Huang Zhikai also subdivides individual innovation behavior into two stages of creative generation and creative implementation and measures them respectively. Based on the scale developed by Huang Zhikai, Kleysen and Street[16], Gu Yuandong et al.[17] re-adjusted and measured the specific items involved in the creation and implementation of ideas. Considering that the scales used in domestic creative generation and creative implementation are all based on the measurement tools developed by Kleysen and Street[16], we adopted 8 and 4 items respectively to measure creative generation and creative implementation on the basis of the above research. Among them, the specific items of idea generation are: "I will explore opportunities to improve the company's (or department's, work's) processes, products, or services," "I will look for issues that are not routine in the work, department, organization, or market," "I will propose ideas or solutions

to problems," "I will look at work problems from different perspectives to gain deeper insights," "I will test new ideas or solutions to problems." To understand unmet needs "" I will evaluate the advantages and disadvantages of new ideas or solutions" "I will try to convince others of the importance of new ideas or solutions" "I will take the initiative to promote new ideas or solutions so that they have a chance to be implemented". The specific questions for creative implementation are: "I will take risks to support new ideas or solutions," "I will make changes that may produce benefits," "I will try to correct problems created by new working methods as they are applied to company processes, products or services," "I will apply new ideas that improve work processes, products or services to my daily routine." After testing, the Cronbach's  $\alpha$  value of the creative generation dimension was 0.9282, the Cronbach's  $\alpha$  value of the collaborative spirit dimension was 0.8914, and the Cronbach's  $\alpha$  value of the whole scale was 0.7828, which had good reliability.

Control variables. Given that individual demographics and organizational nature may influence individual workplace friendships, knowledge sharing, and innovation behavior at specific stages, we control for gender, age, years of work, and education level at the individual level, for "belonging to a research team" at the team level, and for property rights at the firm level.

## 4 DATA ANALYSIS AND RESULTS

### 4.1 Common Method Deviation Test

Since the data are derived from individual self-reports, there may be common methodological biases. Therefore, referring to the practice of Zhou Hao and Long Lirong[18], this paper studies the use of Harman single factor method to carry out common method bias test for all related topics. The results showed that the explainable variance of the first factor obtained by the unrotated principal component analysis was 46.01%, which did not exceed the 50% threshold recommended by the social survey, so it could be considered that there was no common method bias problem in the data of this study[16].

### 4.2 Analysis of Empirical Results

In this study, STATA software was used for regression analysis, and the least square method (OLS) was used for estimation, and the hypothesis was statistically tested. Table 1 reports the baseline regression results.

As shown in column (1) of Table 1, when control variables are not included, the influence coefficient of knowledge sharing on employees' creativity is 0.5734, which is statistically significant at 1% level. (2) On the basis of column (1), the influence coefficient of knowledge sharing on employees' creativity is 0.5433, which is still significantly positive at the level of 1%, after the employee's gender, age, educational background, working years, team nature and organizational property nature are included. This indicates that the improvement of knowledge sharing within the organization is indeed conducive to significantly improving the level of employees' creative generation, so H1 is preliminarily verified.

As shown in column (3) of Table 1, when control variables are not included, the influence coefficient of workplace friendship on employees' creative implementation is 0.5273, which is statistically significant at 1%. (4) On the basis of column (3), the influence coefficient of workplace friendship on employees' creative implementation is 0.4882, which is still significantly positive at the level of 1%, after taking into account employees' gender, age, educational background, working years, team nature and organizational property nature. This indicates that the improvement of the level of workplace friendship within the organization is indeed conducive to significantly improving the level of creative implementation of employees, so H2 has been preliminarily verified.

**Table 1** Results of Baseline Regression

	(1) Ideas Generate	(2) Ideas Generate	(3) Ideas Implement	(4) Ideas Implement
Knowledge Sharing	0.5734*** (11.1928)	0.5433*** (10.6992)		
Workplace Friendship			0.5273*** (10.1692)	0.4882*** (9.2548)
Sex		0.0382 (0.5472)		0.0235 (0.3427)
Age		0.0824** (2.1223)		0.0222 (0.5809)
Property Right Nature		0.2176*** (2.7761)		0.2516*** (3.2967)
R&D Team		-0.2149** (-2.0239)		-0.1347 (-1.2937)
Working Years		0.0296 (1.0410)		0.0351 (1.2628)
Educational Background		0.1370** (2.3494)		-0.0239 (-0.4194)
Constant Term	1.6277***	0.7841*	1.7512***	1.5734***

	(8.1755)	(1.8263)	(8.8054)	(3.8462)
Sample Size	249	249	249	249
Adjusted $R^2$	0.334	0.390	0.292	0.325

Note: The t value is in parentheses; \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

### 4.3 Robustness Test

In order to ensure the reliability of the baseline regression results, we adopted the following methods for robustness testing.

First, we changed the measures of independent variable knowledge sharing and workplace friendship. Specifically, we generate dummy variables for knowledge sharing and workplace friendships. If the knowledge sharing level is higher than the whole sample mean, the dummy variable of knowledge sharing is assigned 1, otherwise it is 0. If the level of workplace friendship is higher than the full sample mean, the workplace friendship dummy variable is assigned a value of 1, otherwise it is 0. After changing the measurement methods of independent variables knowledge sharing and workplace friendship, we re-conducted the regression analysis, and the results are shown in columns (1) - (2) of Table 2. The influence coefficient of dummy variable of knowledge sharing on employees' creativity is significantly positive at the level of 1%, and the influence coefficient of dummy variable of workplace friendship on employees' creativity implementation is also significantly positive at the level of 1%. This proves the robustness of the baseline regression results.

**Table 2** Robustness Test: Change the Independent Variable Measure and Sub-Sample Estimation

	(1) Ideas Generate	(2) Ideas Generate	(3) Ideas Implement	(4) Ideas Implement
Knowledge Sharing Dummy Variable	0.4619*** (6.1861)			
Workplace Friendship Dummy Variable		0.4664*** (6.7477)		
Knowledge Sharing			0.5838*** (9.9310)	
Workplace Friendship				0.5488*** (8.9431)
Sex	0.0145 (0.1841)	0.0169 (0.2301)	-0.0188 (-0.2286)	0.0599 (0.7546)
Age	0.0831* (1.8951)	0.0348 (0.8537)	0.0765* (1.7338)	0.0216 (0.5103)
Property Right Nature	0.2378*** (2.6730)	0.2634*** (3.2308)		
R&D Team	-0.3324*** (-2.7974)	-0.2367** (-2.1496)	-0.1330 (-1.0938)	-0.1286 (-1.1057)
Working Years	0.0260 (0.8084)	0.0460 (1.5513)	0.0217 (0.6576)	0.0403 (1.2703)
Educational Background	0.0810 (1.2352)	-0.0126 (-0.2079)	0.1566** (2.4185)	0.0046 (0.0753)
Constant Term	3.0649*** (7.5103)	3.2251*** (8.5115)	0.9750** (1.9904)	1.6588*** (3.6506)
Sample Size	249	249	249	249
Adjusted $R^2$	0.223	0.230	0.382	0.335

Note: The t value is in parentheses; \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Second, referring to the practice of Zeng Chuhong et al.[19], we use samples of non-state-owned enterprises to conduct regression again. The results are shown in columns (3) - (4) of Table 2. In the sample of non-state-owned enterprises, the influence coefficient corresponding to knowledge sharing and workplace friendship is still significantly positive, indicating that the improvement of knowledge sharing within the organization is indeed conducive to significantly improving the level of creativity generation of employees, while the improvement of workplace friendship is indeed conducive to promoting the implementation of employees' creativity.

## 5 CONCLUSION

The internal social network has great influence on individual creativity. Individual innovation behavior includes two specific stages: creative production and creative implementation. In this paper, data were collected by questionnaire survey, Harman single factor method was used to conduct common method bias test on the topics involved, and finally STATA software was used for regression analysis, and least square method (OLS) was used for estimation, and statistical test was performed on the hypotheses proposed. The empirical results show that the knowledge sharing relationship has a significant positive impact on individual creativity in the initial stage of the project; In the project

implementation stage, emotional friendship relationship has a significant positive impact on individual creative implementation. Through social network relationships, individuals can obtain knowledge supplement and spiritual comfort from different members, make up for their own shortcomings, further enrich their knowledge, enhance cognitive ability and stabilize the willpower to work, and thus enhance their creativity. This study further enriches the empirical research data in this field and provides management suggestions for stage decision making to enhance individual creativity in business practice. Due to the limitations of the research samples in this study, it is necessary to further expand the research samples in the future to improve the universality of the theoretical framework.

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## COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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