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A Research on the Effect of Individual Help-Seeking Behavior on Scientific Research Innovation Performance

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Abstract:
This paper analyzes the effect of individual help-seeking behavior on creative behavior of college student and promote their scientific research innovation performance. Applying random sample from universities across the country, verify the correlations between college student's individual help-seeking behavior and scientific research innovation performance by using structural equation model. Research shows that individual help-seeking behavior affect scientific research innovation performance through three paths: (1) individual help-seeking behavior to interpersonal citizenship behavior of helper to scientific research innovation performance, (2) individual help-seeking behavior to interpersonal citizenship behavior of caller to scientific research innovation performance, (3) individual help-seeking behavior to interpersonal citizenship behavior of helper to interpersonal citizenship behavior of caller to scientific research innovation performance. This paper also points out that interpersonal citizenship behavior of helper and caller acting a fully mediating effect on the relationship between individual help-seeking behavior and scientific research innovation performance.

Keywords: Individual help-seeking behavior, interpersonal citizenship behavior, scientific research innovation performance, structural equation model

1. Introduction

With the increasingly complex of work content and information technology, mutual aid behaviors among individuals in organizations, such as help-seeking, feedback-seeking, and information-seeking are gradually concerned by scholars. Previous research has focused on the impact of the helper's helping behavior on performance, and has paid little attention to the role of help-seeking behavior in innovation activities. A few scholars like Mueller & Kamdar (2010) have shown that help-seeking behavior among organization can make a significant impact on individual's creativity and well-being, and even on the overall performance of the organization (Hofmann, 2009). Jennifer (2011) pointed out that help-seeking behavior is positively related to individual creativity in his research and effectively manage the relationship between internal motivation and creativity. The role of help-seeking behavior in organizational performance and technological innovation performance is different, and so does the impact path and intermediary mechanism. A large amount of literature focuses on exploring the relationship between help-seeking behavior and organizational performance. As one of the mainstays of national innovation, colleges and universities' innovation ability greatly determines the level of innovative capabilities in a nation. As a source of creative thinking, individual students' ability to innovate and the strength of innovation have a direct impact on the overall research and innovation performance of colleges. Research on the relationship between help-seeking behavior and technological innovation performance at the group level is of great significance to the improvement of university's innovation level. Studies have shown that informal communication between individuals is conducive to improve innovation efficiency. Research shows that informal communication among individuals help improve the efficiency of innovation, help-seeking behavior is sought as one of ways of seeking resource is the most commonly used problem-solving strategies in the group context. In the Chinese context, individuals tend to follow the basic principles of reciprocity in the process of interpersonal communication. DeNisi (1984) believes that interpersonal citizenship behavior directly and indirectly affects individual work performance, and the interaction between help behavior and help-seeking behavior can enhance employees' ability to work and the ability to access opportunities and resources in turn have an impact on job performance. Learning is kind of organizing-and-structuring activity, different individuals must exchange knowledge and ideas, seek creative solutions from others or obtain help-seeking feedback, and establish a common understanding among individuals. Therefore, this paper draws on the research of the relationship between help-seeking behavior and innovation performance at the enterprise level, it combines the theory of help-seeking behavior and the perspective of interpersonal relationship based on literature analysis and qualitative research to expand the research on the influencing factors of scientific research innovation performance, provides the necessary theoretical guidance for students' technological innovation performance.

2. Theory and Assumptions

2.1. Individual Help-Seeking Behaviour

Help-seeking behavior refers to people's initiative to request assistance, advice or support from others (Lee, 1997). The help-seeking behavior must have some problems or difficulties that need to be solved. There exists closely link between help-seeking behavior and help behavior in the Chinese context, the help-seeker plays a more important role in the mutual aid relationship (Bacharach, 2000; Flynn, 2005). Wills & DePaulo (1991) argue that help-seeking behavior is a complex process of dynamic change, influenced by multiple factors include individual and environmental factors. Influential factors at the individual level of help-seeking behavior include gender (Gross & McMullen, 1982), age (Lieberman & Tobin, 1983), and self-esteem (Weiss & Knight, 1980). The environmental factors include the nature of the problem (Lee, 2002) and the helper (Nadler, 2003), background environment (Bacharach, 1994) and so on. Nadler (1991) argues that help is a concept that involves three key elements: the person who needs help, the source of help, and specific help needs. Help-seeking behavior can produce benefits in four ways. First, help-seeking behavior can improve an individual's ability to solve problems (Ellis & Tire, 2001; Nadler, 1991); second, help-seeking behavior can promote individuals to form good social capital; third, wealth of information and expertise can be gained by individual through help-seeking behavior (Morrison, 1993); fourth, help-seeking behavior can improve task performance (Nadler, Ellis & Bar, 2003; Weiss & Knight, 1980). Depending on the purpose and content of the help, the individual will implement different help-seeking behaviors. Karabenick & Knapp (1988) divided help-seeking behavior into executive help and instrumental help. Nadler (1998) further divided help-seeking behavior into autonomous help-seeking, dependent help-seeking, and avoidance-seeking behavior. According to the nature of the help-seeking matters, Bamberger (2009) divides the help-seeking behavior into tool-based help, information-based help, and emotional help. Amabile (1996) identified the role of help-seeking behavior in the process of creative problem-solving. Based on the results of previous studies, this study further explores how help-seeking behaviors can be applied to intermediaries through help-seeking behavior and help behavior then generate significantly effect on technological innovation performance.

2.2. The Relationship between Individual Help-Seeking Behaviour and Scientific and Technological Innovation Performance
The concept of innovation first appeared in 1912 and was proposed by American economist Schumpeter in "Introduction to Economic Development." Drucker (1985) argues that innovation is "giving resources the ability to create wealth and making resources a real resource." Swinter recognize innovation as "the currently change of decision rules. Performance as one of the important output indicators of innovation is an important indicator of test innovation effectiveness and management effectiveness. Bernardin (1984) argues that performance is a record of the outcome of a work or activity, and that the work and activities in such point have characters of time and content range. Mumford believes that the company's innovation performance refers to the knowledge discovery, innovation process, working atmosphere and innovative products and technologies that employees achieved in the process of achieving their innovation goals. The concept of innovation performance is related to various disciplines of academia. Domestic and foreign scholars pay more attention to the innovation performance at the enterprise level, they believe that the innovation performance of enterprises is the impact of innovation activities of enterprises on production and management, and there are few studies on the innovation performance especially technological innovation performance at the individual level. Damanpour pointed out that there is a huge difference between the performance of scientific research innovation and enterprises. Zhu Wenzao believes that scientific and technological innovation performance means that with the formulation of scientific research and innovation management system, using enrich resources in university's scientific and technological innovation, organizing scientific and technological development teams to carry out scientific and technological innovation activities, producing high-level scientific research and innovation achievements, and making economic and social sense to universities and related social organization. Li Zhihong believes that university research innovation is the output stage of knowledge, and it can measure scientific research performance through knowledge innovation ability and knowledge innovation behavior. Individual and environmental factors in the organization both generate impact on innovation performance. Service&Boockholdt (1998) believes that factors affecting innovation performance include innovation practitioners, organizational culture and atmosphere, and innovation characteristics. Hansen pointed out that due to the homogeneity between individuals, the knowledge spillover of informal communication is more conducive to promoting knowledge exchange and is conducive to improving individual innovation efficiency. Blau (1964) pointed out that individuals often follow the basic principle of reciprocity in the process of interpersonal communication. DeNisi (1984) believes that interpersonal citizenship behavior can directly and indirectly affects individual work performance, and the interaction between help-seeking behavior and help behavior can enhance employee's ability to work and the ability to access opportunities and resources in turn have an impact on job performance. Cronin & Weingart (1972) argues that help-seekers solving problems creatively by using problem representations, mental structures etc., to simplify the path of problem solving. In the process of asking for help, the help-seekers are more inclined to accept new ideas and innovative solutions different from the past, breaking the persuasion limits and fixed thinking patterns of the help-seekers, and improving the individual's innovation performance (Amabile, 1988). In addition, the help-seeking behavior indirectly conveys information that was not feasible in the traditional way.

The help-seekers are more expecting novel ways to solve the problem, and expect the helper to disclose information that the help-seeker did not know before that, so he can integrate the opinions and ideas of others, finally improve the individual's Innovation performance (Bohns & Flynn, 2010; Lee, 2002; Stasser, Stewart & Wittenbaum, 1995). In the process of scientific research and innovation in colleges and universities, the individual help-seeking behavior of college students helps them to acquire new knowledge and ideas, and draws on the innovative ideas of others to create greater possibilities for the improvement of scientific and technological innovation performance. Based on this, this study proposes the following assumptions:

- H1: There is a correlation between individual help-seeking behavior and scientific and technological innovation performance.

2.3. The Relationship between Interpersonal Citizenship Behaviour and Scientific and Technological Innovation Performance

Interpersonal citizenship behavior as a specific manifestation of organizational citizenship behavior, refers to the helping behavior of colleagues in situations where non-work needs (Smith, 1983). Graham (1994) replaces altruism with the concept of interpersonal help, which helps when colleagues need it. Settoon & Mossholder believes that interpersonal citizenship occurs when colleagues help each other when they are not following work requests, along with the improvement of their individual work performance directly or indirectly and ultimately promote the operation of the team and organization. Based on Fan Jingli's research, Wu Zhiming found that mutual help behavior has a positive impact on team performance and the satisfaction of all participants. Tang Zhen believes that team psychological security acts on team innovation through the intermediary variable of interpersonal citizenship behavior. Bolwer & Brass (2006) believes that mutual help behavior in the team plays an important role in improving individual and team productivity, resource utilization, and creating a good team atmosphere. Podsakoff's (2000) study shows that interpersonal citizenship behavior has a significant relationship with the quality and quantity of innovation performance. Therefore, when college students encounter problems in the process of innovation and obtain interpersonal citizenship behaviors of others through the implementation of help-seeking behavior, they can make a significant impact on their own scientific and technological innovation performance.

Clark&Gotay's (1974) research and theory point out that help-seekers' help-seeking behavior increases the rewards of the helper by giving help. Sociology research argues that most social relationships are defined by mutual benefit disciplines. Helping is an exchange of resources that can bring reciprocal expectations unless assistance is given to repay debts in the past (Cohen & Wills, 1985; Flynn Et al, 2006; Parris, 2003). The interpersonal citizenship behavior obtained by the help-seeker has a significant impact on the innovation performance. The help and help-seeking behavior is a two-way process of the subject, but few scholars pay attention to the reverse interpersonal citizenship behavior, and the help-seeker can get the help of others when needed, when confront with others help-seeking behavior, they will weigh their advantages and disadvantages and take both aspects into consideration to implement interpersonal citizenship behavior. The interpersonal citizenship behavior that the help-seeker implements for help-seeking behavior will also have an impact on the individual's scientific and technological innovation performance. Parker & Axtell (2001) argues that in the process of creative problem solving, individual's interpersonal citizenship behavior can expand the horizon of knowledge, increases the frequency of social interactions between different peoples, can understand the way of thinking of the individuals they help, promote the fusion of opinions and visions of different individuals, and indirectly expand the knowledge range of the helpers. In the task environment where the current division of labor is clear, the interpersonal citizenship behavior of the help-seeker can exert the cognitive and emotional dimensions beyond the boundary, complete the task requirements from a broader perspective, and indirectly promote the innovation performance (Perlow, 1998; Tepper, 2001; Bolino & Turnley, 2005). In a complex innovation environment, the interpersonal citizenship behavior of individual college students involves sharing innovative experiences, generating empathy effects and role exchanges, forming a new systematic perspective on the basis of other people's relevant insights about a certain problem, and expanding the knowledge interface , under the conditions of strong learning ability and absorptive capacity by the way of digestion and transformation reach a higher academic level, which has a positive impact on the cultivation of innovation consciousness and the improvement of scientific research innovation performance. Based on this, this study proposes the following assumptions:

- H2: There is a positive correlation between the interpersonal citizenship behavior of the help-seekers acquired in the process of seeking help and the individual scientific and technological innovation performance.
- H3: There is a positive correlation between interpersonal citizenship behavior that the helper performs in order to implement the help-seeking behavior and individual scientific and technological innovation performance t.

2.4. Individual Help-Seeking Behaviour, Interpersonal Citizenship Behaviour and Scientific and Technological Innovation Performance

Gouldner (1960) put forward the concept of reciprocity based on the functional theory in the field of sociology. He believes that if reciprocity is Party A provide Party B with positive functions, Party B will provide corresponding returns according to Party A's positive function. The theoretical basis of interpersonal citizenship behavior arises from the theory of social exchange. In the Chinese context, interpersonal communication emphasizes the principle of mutual benefit. In the process of social exchange, for the behavioral subject, when the cost is less than the income, the individual will generate a return motivation. Reciprocity usually refers to a set of socially accepted rules for the party that provides resources to the other party and at the same time require the other party to give back (Wu JB, 2006). Eisenberger & Cotterell (1987) shows that individuals will help another person to ensure future help-seeking efforts to be realized, the helper can increase the ability to obtain the required resources by helping others in the same team. Therefore, there is a significant correlation between the individual's help-seeking behavior and the interpersonal citizenship behavior of the helper. Blakely (2005) believes that interpersonal citizenship behavior creates a good interpersonal atmosphere, which has a positive effect on both organizational performance and individual performance. Interpersonal citizenship behavior of employees leads to friendly coordination between individuals, improving organizational adaptability and job satisfaction (Koys, 2006; Podsakoff & MacKenzie, 1994). Turnipseed's (2013) study shows that individual interpersonal citizenship behavior is significantly associated with individual creativity. In order to make ensure that help-seeking behavior will be responded, help-seekers need to implement interpersonal citizenship behaviors to fulfill basic social

obligations (Flynn, 2003). Interpersonal citizenship behavior of help-seekers can produce empathic effects and innovative ways of solving problems (Underwood & Moore, 1982). Therefore, in the process of scientific research and innovation, in order to obtain the help of others in their own difficulties, individual students by implementing interpersonal citizenship behavior to control the results of help-seeking behavior, through the implementation of interpersonal citizenship behavior to expand their own thinking dimension, use creative ways to solve scientific research problems for others has a significant impact on their own research and innovation performance.

Helpers who implement help-seeking behavior will consider the results of feedback, and positive feedback can enhance the positive effect of help-seeking behavior on innovation performance. Zhou & George (2001) found that there is a significant positive relationship between interpersonal citizenship behavior and employee creativity. Interpersonal citizenship behavior gives help seekers the opportunity to gain knowledge and skills from others (Hoegl & Wagner, 2005), to generate intimate relationships in the perception of help-seekers (Seers, 1995), interpersonal citizenship behavior builds the foundation of creative ideas among helpers and granters, which promotes creative thinking of employees (Amabile & Gryskiewicz, 1989). Organ (1988) argues that interpersonal citizenship behavior increases employee proficiency and thus impacts job performance. Help-seeking behavior leads to interpersonal citizenship behavior, the interaction between them promotes the development of interpersonal communication and the intersection of ideas, which can increase potential creativity and improve individual innovation performance in the organization's support atmosphere (Perry & Smith, 2003). Therefore, in the process of scientific research, the individual help-seeking behavior of college students is rewarded by the interpersonal citizenship behavior expressed by others. On the basis of self-knowledge and experience, the insights, theories and method paths of others are integrated, the tasks are completed within the expected scope and the skill of others has been used to make up the shortcomings of knowledge and has a significant impact on the performance of scientific research innovation. Based on this, this paper proposes the following assumptions:

- H4: The interpersonal citizenship behavior of the help-seeker plays a mediating role between the help-seeking behavior of the help-seeker and the individual's scientific and technological innovation performance.
- H5: The interpersonal citizenship behavior of the helper plays a mediating role between the help-seeker's help-seeking behavior and the individual's scientific and technological innovation performance.
- H6: The interpersonal citizenship behavior of the help-seeker and helper play a chain intermediary role between the individual help-seeking behavior and the scientific research innovation performance.

Based on the above assumptions, draw the hypothetical model diagram shown in Figure 1:
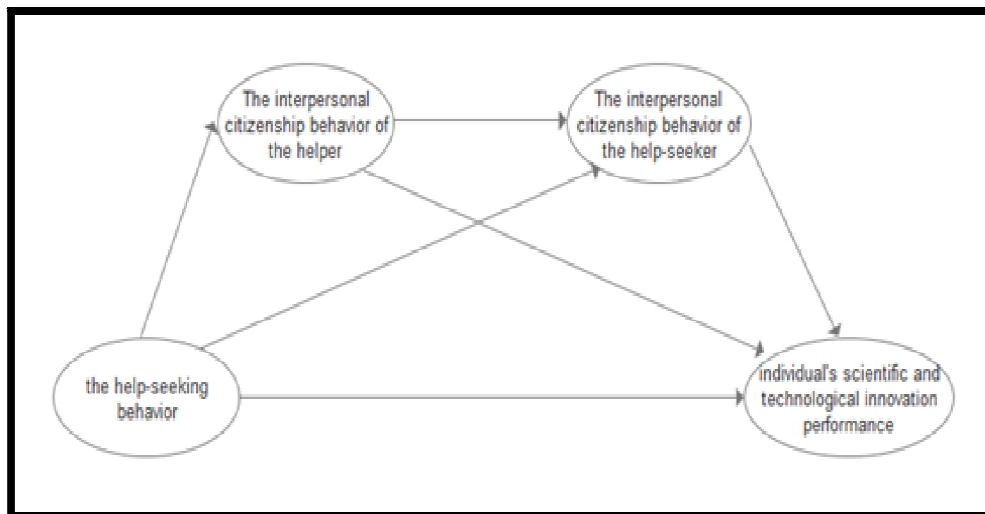

Figure 1: Hypothetical Model

3. Research Methods and Measurements

3.1. Data Collection Process and Sample Description

Based on the needs of research, this paper designs a questionnaire for the impact of individual help-seeking behavior on research innovation performance. The index system in the questionnaire is revised by the author on the basis of the domestic and foreign scholars' measurement methods, and is revised according to the pre-investigation results. The questionnaire uses a Level 5 Likert scale, where "1" stands for "completely disagree", 2-4 means that the degree of consent increases, and "5" stands for "completely agree".

The data collection process of this study is divided into two phases. The first stage was carried out in Shaanxi Province. 50 college students from Shaanxi universities were selected for questionnaire survey, which pre-tested and applied measures for the applicability of mediation variables of the study and the scale of innovation performance. The second phase is carried out nationwide, mainly through the questionnaire star platform, and the prepared questionnaires are distributed to specific groups and recycled. The questionnaire of this study mainly measures four types of college students' help-seeking behavior types, feedback mechanism, interpersonal citizenship behavior and innovation performance. A total of 400 questionnaires were distributed and 324 were recovered. The recovery rate was 81%. The

blank items and consecutive questionnaires with the same items up to 2/3 or more were excluded. The remaining valid questionnaires were 314, and the effective rate was 78.5%, all within a reasonable range. Among them, from the perspective of gender, women (50.64%) are more than men (49.36%); from the academic point of view, undergraduates (62.42%) are more than graduate students (37.58%), from the perspective of their universities, 211 institutions (84.08%), 985 colleges (3.18%) and ordinary colleges (5.41%) are less; from the age point of view, 20-25 years old (89.49%) have the largest number of people, 26 years old and above (5.41%) And less than 20 years old (5.10%).

Variable	Type	Sample size	Percentage（%）
Gender	male	155	49.36%
	female	159	50.64%
Age	Under the age of 20	16	5.10%
	20-25 years old	281	89.49%
	Older than 26	17	5.41%
Levels of education	undergraduates	196	62.42%
	Graduate students	118	37.58%
Universities	Second tier schools	23	7.32%
	First tier schools	17	5.41%
	211 institutions	264	84.08%
	985 colleges	10	3.18%

Table 1: Sample information

3.2. Measurement Tools

Individual help-seeking behavior: based on the scale proposed by Anderson and Williams (1996), combined with the application of domestic scales, there are 15 items, 4 dimensions, including avoidance-type help for 3 items, emotional help for 4 items, 4 items for equity-based help, 4 items for master-type help, and grade by the Likert-5 (Cronbach α values are all above 0.7). Among the avoidance-type help items are "I always avoid those problems that cannot be solved"; the items included in emotionally help-seeking dimension, such as "When the innovation environment is disturbed, I will seek help from others"; the equity-based help items such as "When personal interests are impaired, I will ask for help from others". The mastery-seeking questions such as "When I encounter problems in the process of innovation, I will solve problems on my way based on the opinions of others".

Interpersonal citizenship behavior of help-seeker: refer to the scales of Nadler (1991), Stella (1996) and Settoon (2002), including the two dimensions of equity and sentiment, total of 11 items with high reliability (Cranbach α values are respectively 0.892 and 0.913). The interpersonal citizenship behavior of helper is based on Randall (2002) and Williams (1996) and has been pre-tested and revised. It includes two dimensions: interpersonal orientation and task orientation. There are 11 items (Cranbach α values respectively are 0.912 and 0.929).

Innovative performance: Based on the research of Tang (1998), Albaladejo (2002) and Shalley (2004), and pre-tested revised scale, a total of 11 items with high reliability (Cranbach α value of 0.945).

Control variables: In order to ensure the accuracy of the survey results, this study used the subject's gender, age, education level and colleges and universities as control variables. Previous studies of help-seeking behavior have shown that these demographic variables have an impact on the results of the study (Geller et al, 2012), so it is necessary to control these variables. Since Gough's (1979) initiative personality scale indicates that help-seeking behavior is significantly associated with active personality, in Amabile's (1996) study where active personality affects individual creativity, so active personality is used in this study as control variables.

4. Research Results

4.1. Descriptive Statistics and Correlation Analysis

Descriptive statistics and correlation analysis were performed on the variables in the conceptual model of this study. The mean, standard deviation and correlation coefficient of each variable are shown in Table 2. It is generally believed that the α coefficient is equal to or higher than 0.5 is an acceptable level of the reliability analysis result. Therefore, the measurement scale conforms to the reliability requirement and has high reliability.

Variable	Mean	Standard Error	1	2	3	4
Help-seeking behavior	3.17	0.50	（0.823）			
The ICB of helper	3.40	0.78	.537**	(0.91)		
The ICB of help-seeker	3.47	0.71	.544**	.628**	(0.927)	
Scientific and technological innovation performance	3.33	0.67	.416**	.462**	.633**	(0.921)

Table 2: Mean, STD, Pearson Correlation and Cronbach's A of All Variables (N=314)
Note: ** Indicates P<0.01, and * Indicates P<0.05 the Cronbach a Value of This Variable Is Reported on the Diagonal

It can be seen from Table 2 that there is a significant correlation between the two dimensions of help-seeking behavior and individual innovation performance. There is also a significant positive correlation among median variable

feedback mechanism and interpersonal citizenship behavior and individual innovation performance. In addition, the correlation coefficient between each variable is less than 0.7, which indicates that there is no collinearity problem to some extent. The above results provide initial support for testing research hypotheses.

Validity analysis uses factor analysis to verify the theoretical validity of the measurement scale. Sample KMO measurements and Bartlett spherical tests were first performed. The results are shown in Table 3.

Variable	KMO point	Bartlett Test of Sphericity
Help-seeking behavior	0.868	0.000
The ICB of helper	0.908	0.000
The ICB of help-seeker	0.926	0.000
Scientific and technological innovation performance	0.927	0.000

Table 3: Measurement of KMO Samples and Results of Bartlett Test of Sphericity

It can be seen from the above table that the KMO values are all close to 1, which indicates that the correlation between the variables is strong, and the original variables are suitable for factor analysis.

4.2. Structural Equation Model Analysis and Hypothesis Verification

After testing the reliability and validity of the model, we use Amos 23.0 structural equation software to detect and verify the conceptual relationships in the model. Studies have shown that the coefficient product test and stepwise regression method cannot accurately measure the path coefficient and causal relationship of the model. Therefore, the approved Bootstrap method is used to test the path coefficient, and the initial model is appropriate according to the degree of fitting of the model. Corrected to get the best interpretation of the data.

Initial structural model: According to the hypothesis, the path set by the initial model is analyzed. The path coefficient is shown in Figure 3. By analyzing the model results, it is shown that Hypothesis 1 is not supported. The path coefficient of individual help-seeking behavior and innovation performance is 0.142, and the P value is 0.184, indicating that individual help-seeking behavior does not directly affect individual research innovation performance; Hypothesis 2 has been supported. It indicates that the feedback obtained by the individual in the process of seeking help will promote the improvement of scientific research innovation performance; hypothesis 3 is supported, indicating that there is a significant positive correlation between the interpersonal citizenship behavior of the individual in the process of seeking help and the innovation performance of scientific research; hypothesis 4 received support indicates that individuals have gained feedback in the process of seeking help and played an important intermediary role between help-seeking behavior and scientific research innovation performance; hypothesis 5 has received support, indicating that interpersonal citizenship behaviors implemented by individuals in the process of seeking help are plays a full intermediary role in help-seeking behavior and research Innovation performance; Hypothesis 6 is supported, indicating that the individual's feedback in the process of seeking help can significantly promote their interpersonal citizenship behavior, and ultimately affect the performance of scientific and technological innovation performance.
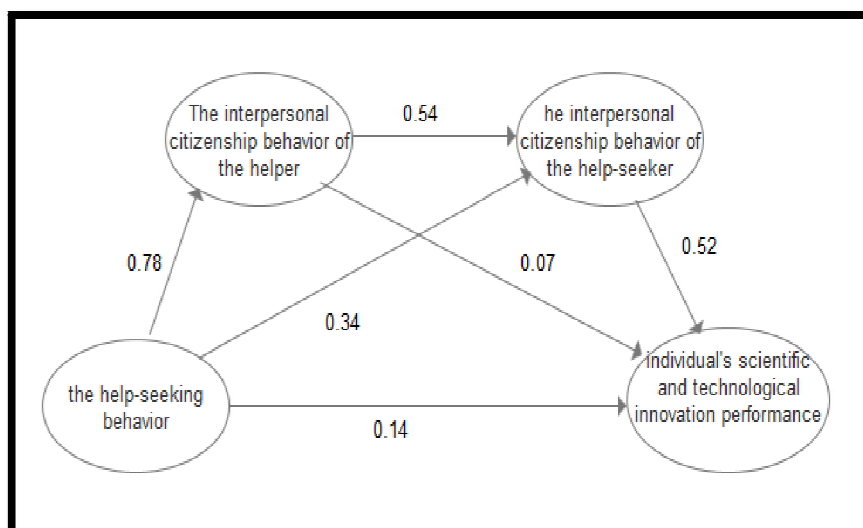

Figure 2: Initial Regression Results of Structural Equation Modeling

Modification and verification of the model: Based on the analysis of the initial model, the model 2 is further proposed as an improved model for in-depth analysis. According to the analyzation of mediation effect of Baron and Kenny (1986) and Wen Zhonglin (2014), after adding the mediator variable, the direct influence of the independent variable and the dependent variable is 0, which is a complete mediating effect. In Model 2, the direct influence path of individual help-seeking behavior on innovation performance is eliminated, and the full mediating role of feedback mechanism and interpersonal citizenship behavior is examined. The results show that the path coefficient of the fully

mediation model is significantly improved compared to the partial mediation model. Therefore, the full mediation model making the causal relationship between variables more topical.
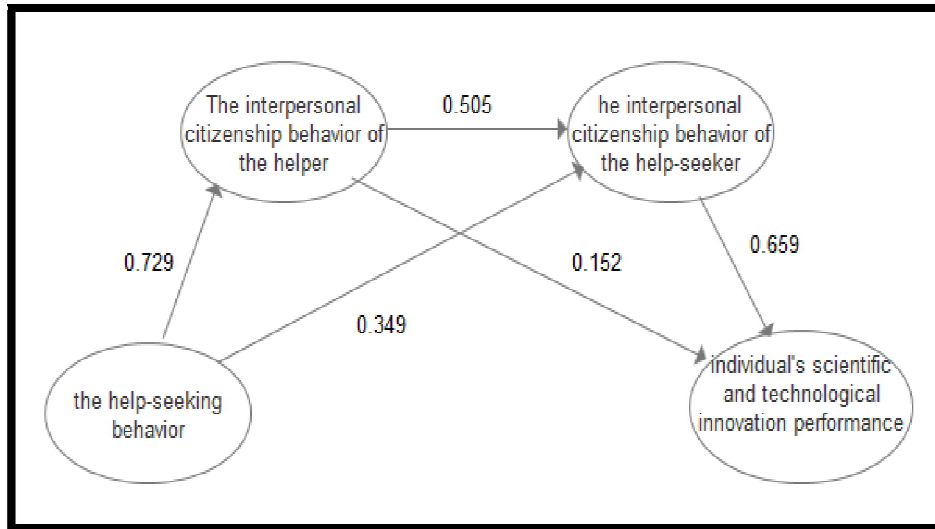

Figure 3: Structural Equation Model Modified Regression Results

Hypothesis	Standardized Path Coefficient	C.R.	P
ICB of helper◄—IHB	0.729	9.603	***
ICB of help-seeker◄—IHB	0.349	5.015	***
STIP◄— ICB of helper	0.152	2.081	*
STIP◄— ICB of help-seeker	0.659	7.517	***
ICB of helper◄— ICB of help-seeker	0.505	7.233	***

Table 4: The Analysis Results of Modified Model
*Note: *** Indicates P < 0.001, and * Indicates P < 0.05*
IHB-Interpersonal Help-Seeking Behavior
STIP-Scientific and Technological Innovation Performance

It can be seen from the path coefficient of model 2 that the CR values corresponding to the path coefficients of all endogenous latent variables and exogenous latent variables in the study are greater than 1.96, at least statistically significant at the level of P=0.05, and the modified model has improved compared to the initial model and no further corrections are necessary. The model shows the path of individual help-seeking behavior——ICB of help-seeker——the scientific research innovation performance (0.729×0.152) is smaller than the path of individual help-seeking behavior——ICB of helper——the scientific research innovation performance (0.349×0.659), indicating the individual scientific research innovation performance is more rooted from the interpersonal citizenship behavior of the one, the standardized path coefficient of individual help-seeking behavior——interpersonal citizenship behavior—— the scientific research innovation performance (0.729×0.505×0.659) is the largest, indicating the individual's accepted help feedback and help individuals means when the interpersonal citizenship behavior is implemented simultaneously, it contributes the most to the innovation performance of scientific research. The structural equation model analysis shows that all hypotheses except for 1 are validated.

It is assumed that the possible reason for the failure of H1 is that the relationship between help-seeking behavior and scientific research innovation performance is not a simple linear relationship. College students as a representative of the new innovation group have a higher concept of self-esteem, and the perceived value of different individuals for help-seeking behavior leads to differences among the results of scientific research innovation performance. This conclusion confirms the study by Karabenick (1998) that there is a curve-related relationship between different perceptions of help-seeking behavior and research innovation performance.

5. Study Conclusions

5.1. Theoretical Significance

The research reveals the relationship between help-seeking behavior and scientific research innovation performance in the process of scientific innovation of college students. Different from the research on corporate employees' help-seeking behavior and innovation performance, there is no direct correlation between individual help-seeking behavior and innovation performance in the research group. Nadler et al. (2003) have shown that the impact of help-seeking behavior on individual performance has an important premise that the help-seeker must be able to provide

meaningful help to another help-seeker. Helpers can only have a significant impact on job performance if they seek help from experienced helpers. Individual college students will receive a large amount of knowledge information in the process of seeking help. If the individual's knowledge level and processing ability fail to make efficient use of the information obtained by the help, the individual's help-seeking behavior cannot have a significant impact on his creativity. In academic research, the difference between the knowledge level of college students and the helper will lead to the failure of the help-seeking behavior to achieve the desired effect. Whether the helper can provide useful information resources and the different levels of feedback from the helper will affect the mechanism of individual innovation performance. Therefore, the results of the study show that individual implementation of help-seeking behavior can not directly affect the performance of scientific research innovation.

The study validates the positive correlation between the help feedback obtained by individuals in help-seeking behavior and the performance of scientific research innovation. When individual students encounter problems in the process of scientific research, the help feedback obtained by implementing mastery or equity assistance can directly promote the resolution of individual scientific research problems and have a significant impact on the performance of scientific research innovation. Emotion is an important factor affecting work efficiency. The problems encountered by college students in the process of scientific research may be substantive problems or emotional obstacles. The help feedback obtained by emotional help can help the individual students adjust their emotions and actively participate to carrying out scientific research and innovation, creating a scientific research environment that helps each other and helping each other, indirectly, has an indirect effect on the improvement of innovation performance. In the Chinese context, humanity and mutual benefit are important principles of interpersonal communication. Interpersonal citizenship is one of the most prominent forms of interpersonal coordination and integration. Help-seeker need to pave the way for subsequent assistance through interpersonal citizenship. The interpersonal citizenship behavior that the helper implements in the process of seeking help can expand the scope of the helper's perspective. In the process of providing help, the individual can creatively help others solve the problem by collecting and absorbing the information to produce creative results. The implementation of interpersonal citizenship behavior enables individuals to obtain information and professional knowledge to solve problems raised by others, and to maximize the use of new knowledge and new skills learned to enhance problem-solving ability, thereby promoting the overall improvement of individual innovation efficiency. Therefore, in the process of scientific and technological innovation, the interpersonal citizenship behavior implemented by the helpers will have a significant positive impact on the performance of scientific research innovation. Helpers need to consider the cost of rejection when they implement help-seeking behavior. Therefore, most help-seekers choose avoidance-type help when they encounter problems, but the helper needs to consider the cost of rejection when accepting help-seekers. Research shows that most time the proportion of respondents' responses is underestimated. When individual students seek help in the process of innovation, they will lead to higher feedback in the context of interpersonal communication in China. The interpersonal-oriented help and task-oriented help provided by the helper can generate the task completion and emotional experience of the help-seeker. The role of a good academic innovation atmosphere and interpersonal environment has a significant positive impact on innovation performance. The interaction between help-seeking behavior and help-being can create a harmonious teamwork atmosphere. The interpersonal citizenship behavior of the help-seekers based on the principle of mutual benefit can encourage them to accept new perspectives and viewpoints in the process of creative problem-solving, and conduct academic research with creative thinking. Brainstorming of helpers and help-seekers have a significant effect on the improvement of scientific research innovation performance. Therefore, the study validates the full mediation of the interpersonal citizenship behavior of the individual college students between the help-seeking behavior and the scientific research innovation performance.

5.2. Practical Significance

This study is helpful to understand the relationship between college students' help-seeking behavior and scientific research innovation performance in the process of scientific research innovation, and it also provides a new perspective for exploring individual research innovation performance in practice. At present, the academic community mainly emphasizes improving the performance of scientific research innovation by improving the external environment and tapping individual initiative personality, but neglects the mechanism of individual help-seeking behavior and interpersonal citizenship behavior in the innovation process. The role of individual help-seeking behavior in scientific research innovation and enterprise innovation performance is different. Individual students only by implementing help-seeking behavior in the process of scientific research and innovation does not necessarily lead to the improvement of scientific research innovation performance. The improvement of scientific research quality and achievements in universities needs to create a good academic mutual help atmosphere, grasping the important role of help feedback and interpersonal citizenship behavior in the process of scientific research and innovation, using the characteristics of active thinking and accepting ability of college students, promoting the cross-integration of innovative ideas among different individuals, on the basis of brainstorming and learning from each other, improve the innovation performance of both the helper and the helper. Different types of help-seeking individuals will have different results. University research institutions need to encourage college students to implement mastery-seeking help and emotional help behavior, avoid avoidance-type help, and form new solutions based on the creative thinking of others. At the same time, improve the knowledge level and innovative ability of individual college students in the process of help-seeking, they can eliminate redundant information independently, absorb effective information and learn from others' innovative ability, and actively contact new things and improve the proportion of return for help by helping others solve problems has a positive impact on research and innovation performance.

5.3. Conclusion

This paper studies the important role that individual help-seeking behavior plays in the process of achieving scientific research innovation performance. Different from the study of the single path, this paper empirically studies the relationship between individual help-seeking behavior in one way and through interpersonal citizenship behavior and scientific research innovation performance. The results show that individual help-seeking behavior can not directly affect the innovation performance of scientific research. The interpersonal citizenship behavior of the helper plays a mediating role between individual help-seeking behavior and scientific research innovation performance. The interpersonal citizenship behavior of the help-seeker plays a mediating role between individual help-seeking behavior and scientific research innovation performance. At the same time, individual help-seeking behavior affects the interpersonal citizenship behavior of the help-seeker through the interpersonal citizenship behavior of the helper and under the role of this chain intermediary, it has an impact on the innovation performance of scientific research. The results of the study provide an inspiration for how individual college students can improve their scientific and technological innovation performance through help-seeking behavior.

At the same time, this paper has certain limitations: ① For the measurement of individual help-seeking behavior and interpersonal citizenship behavior, method of self-reporting is adopted. However, in practice, there is a certain difference between individual true help-seeking behavior and interpersonal citizenship behavior and expectation. ②This paper studies the relationship between individual help-seeking behavior and scientific research innovation performance, without considering the role of other external factors, such as team atmosphere, leadership model, etc. Future research can take the above factors into account and make the research model more complete.

Therefore, in the future research, the conclusions can be further verified by the combination of questionnaires and scenario experiments. At the same time, if the circumstances allowed, more attention should be paid to the actual help-seeking behavior of college students in order to obtain authentic and reliable research data to improve the validity and accuracy of scientific research conclusions.

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