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Vocational interests and informal learning in the workplace: The mediating role of goal orientation

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Abstract: We used the social cognitive career theory to investigate how vocational interests affect informal learning behavior in the workplace by building a model with three different dimensions of vocational interests as independent variables and different goal orientation dimensions as mediating variables. Using a sample of 211 Chinese employees from different industries, results showed that investigative and enterprising vocational interests had positive effects, whereas realistic interests had a negative effect, on informal learning. Results also indicated that learning and performance-prove goal orientations positively affected informal learning, whereas performance-avoid goal orientations negatively affected informal learning. Further, each dimension of the goal orientation played a mediating role in the influence of vocational interests on informal learning. Findings of this study enhanced our understanding of the mechanism surrounding of how vocational interests influence informal learning and provided important new evidence for the theoretical and practical development of the relationships among interests, goals, and behaviors in the social cognitive career theory.

Keywords: vocational interests; goal orientation; informal learning; social cognitive career theory
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1 Introduction

The competitive environment faced by today's organizations is becoming increasingly fierce. Chinese enterprises are facing both increasing opportunities and challenges at the same time. The talent constitutes an important resource for Chinese enterprises to use in dealing with these international and domestic market competitive pressures. As such, the development of the quality of an enterprise's talents is a critical issue that must be addressed. Encouraging employees to learn actively is one of the most efficient and cost-effective methods of developing talents[1], particularly for small companies and new ventures that must grow and develop rapidly to survive. Learning behavior of employees plays an essential role in the development of these enterprises[2]. As the smallest unit of organizational learning, the individual employee learning behavior has a significant influence on the learning ability of the entire organization[3]. Informal learning behaviors are particularly important because they are largely volitional and account for over 75% of employees' learning behaviors in the organization[4]. For organizations, informal learning, as a way of continuous learning, improves the quality of employees' performance, thereby resulting in an overall improvement in organizational performance[5]. For employees, informal learning helps employees improve their working skills, enables them to adapt to the complex and ever-changing working environment, and ultimately contributes to their long-term career development[6]. Owing to different personal characteristics of the employees, their informal learning behaviors will be quite different[7].

Current research on informal learning has focused on the theory and model development as well as on the descriptive research. Some scholars have proposed that the antecedents of informal learning require additional focus[8]. Sociodemographic, personal and job characteristics are important antecedents of informal learning at the individual level[9]. Among all of the factors that affect informal learning, personal traits and job characteristics are the most important antecedents[9,10]. For enterprises, selecting employees who tend to have informal learning behaviors during the recruitment and training process will have an important effect on the company's long-term development. Therefore, exploring the role of employees' personal characteristics on their informal learning behavior in the

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workplace is highly valuable and is worthy of additional research. Personal characteristics, motivation to learn, perception of learning, and attitude showed significant influence on informal learning behaviors in previous studies[9]. Previous studies examining personal characteristics have focused on individual general learning motivations and other characteristics, such as the perceived needs of informal learning and learning goal orientations[11,12]. Although learning goal orientations has been shown to be positively correlated with informal learning behavior in the empirical research[12], other dimensions of goal orientations have been ignored. The present research filled the gap in the goal orientation part of informal learning research. We explore the relationship between the different dimensions of goal orientations and informal learning. In doing so, we discuss the three dimensions of goal orientations: learning, performance-prove, and performance-avoid goal orientations. Goal orientations have been shown to affect employees' learning motivations and other psychological states[13]. In organizational research, the goal orientation is related to the adoption of learning strategies and the time spent practicing a task[14]. With respect to informal learning, scholars have only found a positive correlation between the learning goal orientation dimension and informal learning behavior[11]. The relationships between other types of goal orientations and informal learning have yet to be examined. Given that empirical research shows that employees with different goal orientations have different preferences for learning behavior at work[15], this article assumes that these three goal orientations may also have different effects on informal learning behaviors.

Other personal traits and job characteristics also affect informal learning, such as the Big Five personality traits, generalized self-efficacy, career motivations and interest in profession[7,9]. Among them, career motivations and interest in professional as job characteristics have shown significant influence on informal learning behaviors in previous studies[9]. As a stable personal trait, vocational interest also has a significant effect on career motivations and attitudes in the workplace[16]. However, the importance of vocational interests has been seriously underestimated in past research, because vocational interests themselves will lead to behavioral preferences in the work-related activities of individuals[17,18]. Of particular importance is the finding that vocational interests were also found to be relevant in predicting personal learning behaviors[19]. Research on the effects of vocational interests on employees' learning behaviors has looked at their congruence (i.e., the extent that individuals' interests match their work environments) as well as on the learning tendency of different vocational interests[16,17]. Furthermore, current research on the relationship between vocational interests and employee learning behavior tends to focus on their overall effects[20], with few studies exploring the effects of various dimensions of vocational interests on the employee's learning behavior. We add to the literature on the role of vocational interests in informal learning research by addressing the relationship among three dimensions of vocational interests, namely, investigative, enterprising, and realistic interests, with informal learning. Past studies have confirmed that different dimensions of vocational interests cause employees to have different preferences for learning-related activities[21]. We chose these three dimensions of vocational interests because in previous studies, these three dimensions are shown to be correlated with learning behaviors[22], whereas other dimensions have rarely shown a significant relationship with learning behaviors in the workplace[20].

The present study further reveals the mechanism linking vocational interest to informal learning. The social cognitive career theory was proposed to understand how certain aspects of an individual (e.g., personal or sociodemographic characteristics) were related to a career-relevant learning experience and subsequent behavior choice. The theory proposed an "interest-goal-action" chain of logic. It proposed that vocational interests may affect learning choice actions through choice goals[23]. On the basis of the "interest-goal-action" chain of logic, we suggest that vocational interests are associated with personal goals, in turn connecting to learning behaviors. According to the definition of goal orientations, they are different types of personal choices of goals[24]. Thus the present research used goal orientations as a mediator to study how vocational interests were distally related to informal learning behaviors. The social cognitive career theory has been used in various studies related to behaviors based on this logic. For example, some researchers used the social cognitive career theory as the theoretical framework to apply the logical chain of "interests, intentions and actions" to the development of retirees' career planning model[25]. Other researchers applied this logic to the study of career choices to explore the influencing factors of career choice behaviors[26].

According to the definition of vocational interests, employees with different vocational interests may have different motivations[19]. Previous studies have confirmed that employees with different vocational interests may tend to have different goal orientations[22]. For example, employees with investigative interests are more likely to have the intention to learn. Thus they may be more likely to have learning goal orientations. Employees with enterprising interests have the intention

to improve their performance so they may be more likely to have performance-prove goal orientations. Therefore, a one-to-one correspondence may occur between vocational interests and goal orientation, that is, vocational interests may further affect employees' informal learning behaviors through specific goal orientations. Thus, the present research mainly investigates employees' informal learning behaviors based on a mechanism underlying relationship proposed by social cognitive career theory and focuses on the one-to-one correlations between vocational interests and goal orientation. The present study explores the mediating role of goal orientations on the relationship between vocational interests and informal learning based on the social cognitive career theory. Although this theory puts forward a reasonable hypothesis on the principle of how interests influence an individual's behavior, no relevant literature explores the specific mechanism underlying the effect of vocational interests on informal learning[27]. Therefore, this article assumes that vocational interests influence personal informal learning behaviors through goal orientations. Considering that employees with different vocational interests tend to have different goal orientations[28], each dimension of vocational interests may have a one-to-one correspondence with goal orientation.

To sum up, this paper focuses on three dimensions of goal orientations as well as three dimensions of vocational interests: investigative, enterprising, and realistic interests, and their effects on informal learning. Drawing on the social cognitive career theory, we theorize and test the relationship between vocational interests and informal learning, which supplements the literature on antecedents of informal learning. Moreover, the current study further reveals the underlying mechanism linking vocational interests and informal learning by introducing goal orientations as mediators as shown in Figure 1. Practically, this study provides new insights on personnel selections, and also indicates the ways to improve employees' informal learning behaviors.

2 Hypotheses development

2.1 Informal learning and vocational interests

The definition of informal learning used in the present research was proposed by Tannenbaum et al in 2010 that has been widely used in many studies. Informal learning is a type of learning behavior that is actively initiated by learners, as needed, based on a development intention. Informal learning includes the action and reflection of the learner and does not occur in the formal classroom environment (or via formal training)[8]. Informal learning is not just a certain behavior, but deeply embedded in the daily work of learners in various types of learning methods related to active learning activities[9]. For organizations, informal learning is an important method for employees to update their knowledge and competences so that they can adapt to the changing work environment and adopt new technologies to provide customers with high-quality services[6]. Furthermore, for employees informal learning is essential to the success of today's careers without boundaries. It requires employees to use active learning behaviors to improve their personal skills in addition to the formal training provided by employers[29]. Informal learning is influenced by employee personal characteristics, such as general learning motivations, personal inclinations, and personality traits[11]. The vocational interest is another personal trait that may also have an impact on informal learning as both vocational interests and informal learning involve personal behavior motivations and learning tendencies[30].

Vocational interests affect individual behavior by motivating employees to invest their time and effort in conducting specific tasks and activities[25]. This prompts employees to choose the knowledge and skills that are needed to complete their tasks[31], as evidenced by the fact that vocational interests have a high correlation with job-related knowledge and skills as well as training performance[16]. This indicates that vocational interests may be particularly important for employee learning

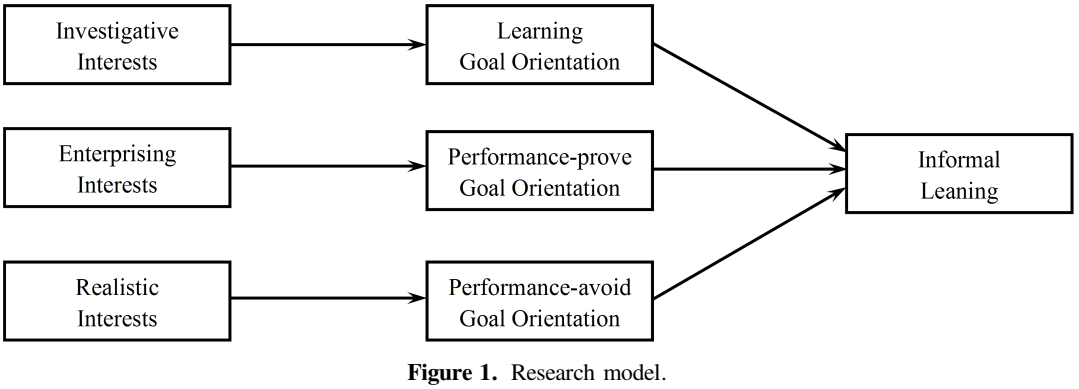

Figure 1. Research model.

behaviors related to knowledge and skills in the workplace, an idea that has received the empirical support[7].

Holland's vocational interest theory divides individual interests into six dimensions, each related to specific interests and abilities[25]. As noted earlier, this paper focuses on the three dimensions of vocational interests that have been found to be most closely related to learning behaviors: Investigative, enterprising, and realistic vocational interests. Employees with investigative interests show learning behavior tendencies that are related to the inclination to seek knowledge. That is, they are motivated to explore and pursue knowledge. They are also curious about new things making them suitable for careers involving scientific research and experimentation[32]. Employees with enterprising interests tend to have learning behaviors related to competition. They prefer competitive activities and are often seen as suitable to become leaders of the industrial departments[17]. Employees with realistic vocational interests tend to avoid acquiring and analyzing new knowledge. They have strong practical abilities but possess poor communication skills, making them more suitable for engineering and technical work[25].

If an individual's interests match the knowledge and skills required by the job, then the employee will become more active in acquiring those particular skills and knowledge[19]. For example, if a job contains numerous enterprise type tasks (e.g., publicity and selling goods), then employees with enterprising interests are more likely to take the initiative to learn the knowledge and skills required to complete those tasks. In a work environment with constantly changing demands, the relationship between vocational interests and the acquisition of knowledge and skills becomes particularly obvious[33], because employees with different interests will have different responses to the tasks that comprise their work.

Specifically, employees with investigative interests have a tendency to seek scientific knowledge, prefer to collect information, and analyze and interpret data[21]. The concept of investigative vocational interests features a strong knowledge seeking and high education expectation[22]. The empirical research has confirmed that investigative interests have a high correlation with various knowledge learning activities[17] and are related to active learning behaviors[19]. This demonstrates that people with investigative interests have the internal drive to increase knowledge and explore problems. Therefore, the following hypothesis is presented:

Hypothesis 1a Investigative interests will be positively related to informal learning.

Employees with enterprising vocational interests tend to pursue political and economic achievements but also show a dislike for research activities[21]. They are considered to have the highest professional ambitions and often seek positions of authority and leadership[21]. Such aggressive employees are also more likely to participate in various learning activities[21]. Although they may not have a strong internal interest in learning activities, such as those with investigative interests, these employees have a strong external drive. The incentives of a salary increase, promotion, or better work are what lead them to engage in learning behaviors designed to improve their professional qualifications[21]. Therefore, the following hypothesis is presented:

Hypothesis 1b Enterprising interests will be positively related to informal learning.

Employees with realistic vocational interests prefer mechanical and physical work[21]. They tend to solve specific problems and dislike abstract questions[21]. They can repeat the same tasks mechanically and are not flexible enough to change and innovate[21]. Realistic interest is the type of vocational interest with the lowest desire for education and achievement and employees holding realistic vocational interests rarely generate learning behaviors spontaneously[32]. According to the empirical research, realistic interests are negatively associated with professional knowledge related to continuing learning[22]. Therefore, the following hypothesis is presented:

Hypothesis 1c Realistic interests will be negatively related to informal learning.

2.2 Informal learning and goal orientation

The goal orientation is a motivational concept that deals with the individual's disposition to pursue goals in situations in order to achieve their accomplishments[34]. Initially goal orientation scholars divided goal orientations into two dimensions; a learning goal orientation and a performance goal orientation[35]. Individuals with a learning goal orientation tend to develop their abilities and focus more on learning new knowledge[34]. They will understand and develop new skills to become familiar with and adapt to their environment[34]. Individuals who have performance goal orientations, on the other hand, are more likely to prove their competence by managing other people's impressions of their abilities[34]. Generally speaking, learning goal orientations is more conducive to the organizational development than is a performance goal orientation[34]. However, further research on goal orientation concluded that having a performance goal orientation does not necessarily only bring negative results. It may also bring positive results, such as encouraging employees to use learning strategies and improved motivations[34]. Later research revealed that a performance goal orientation may have two different

meanings: the desire to prove their ability to others or to avoid others' negative evaluations of their ability[13]. Therefore, in 1997, Van de Walle proposed for the first time that goal orientations can be divided into three dimensions: learning, performance-prove, and performance-avoid goal orientations[15]. Subsequent studies confirmed that it is feasible to divide goal orientation into these three dimensions[27], and current research is following this line of research.

The present study also focuses on these three dimensions of goal orientations. People with a high learning goal orientation tend to improve their knowledge and skills in order to enhance their ability to solve present problems or prepare for the future[34]. People with a high performance-prove goal orientation have a desire to prove their personal abilities and obtain good evaluations from others[34]. They are more likely to focus on performance. In comparison, people with a high performance-avoid goal orientation tend to focus on avoiding failure and the negative evaluation of others[34]. In other words, they also focus on performance, but their main focus is to avoid failure[15]. The three dimensions of goal orientation are relatively independent and each is considered a stable personality trait that will not change with changes in environmental factors over the short term[15]. Given that employees with varying goal orientations set different goals for themselves at work, they may show different behavioral tendencies[36].

Specifically, learning goal orientation has a positive correlation with the behavior of hard work and proactive exposure to new knowledge and skills[15]. Employees with a high learning goal orientation tend to become more active in learning the relevant knowledge needed at work[14,37], and they are more inclined to participate in activities that allow them to acquire knowledge or improve personal vocational skills at work[27]. Previous empirical studies have confirmed that learning goal orientations is positively correlated with informal learning[12]. Therefore, the following hypothesis is presented:

Hypothesis 2a Learning goal orientation will be positively related to informal learning.

People with a high performance-prove goal orientation have a greater desire to achieve higher performance and higher evaluations from others; thus, they are more inclined to actively acquire professional knowledge when participating in tasks[13,37]. Performance-prove goal orientation is also related to positive learning outcomes[27]. People with a performance-prove goal orientation are more likely to take the initiative to learn knowledge and skills that can help them improve their job performance[27]. Therefore, the following hypothesis is proposed:

Hypothesis 2b Performance-prove goal orientations will be positively related to informal learning.

In contrast, employees with a performance-avoid goal orientation are fearful of mistakes that may occur in their work. They are also likely to reject learning activities, such as training, to avoid making mistakes[34]. Thus, they may try to avoid participating in job-related activities[37,38]. Further, a performance-avoid goal orientation has also been shown to be negatively related to some training processes and results, such as the willingness to participate in training and apply training knowledge in performing work tasks[13]. Employees with a performance-avoid goal orientation may avoid participating in vocational learning activities or acquiring new knowledge. Therefore, the following hypothesis is proposed:

Hypothesis 2c Performance-avoid goal orientation will be negatively related to informal learning.

2.3 Mediating effect of goal orientation

Employees with different vocational interests may have different inclination towards informal learning behaviors, but they may be more likely to actually apply those behaviors at work due to an indirect process. According to social cognitive theory, goals play an important role in the regulation of self-behaviors. Although environmental events and personal history can help shape people's behaviors, human beings are not considered mechanical responders to external forces but rather as agents who can further organize and guide their behaviors by setting goals[36]. In the model proposed by the social cognitive career theory, which is developed based on social cognitive theory, goals are regarded as important mediators between personal interests and their behavior choices. For example, employees with investigative interests may be more likely to generate intentions for active learning, but they may be more likely to take these intentions to actual learning behaviors if they have learning goal orientations.

Specifically, employees with investigative vocational interests have a strong intention to learn and explore knowledge themselves[21]. Their interests in acquiring knowledge will lead them to be more inclined toward a learning goal orientation, which in turn, will further motivate them to actively generate learning behaviors to help them improve their performance. For example, employees with investigative interests may prefer to learn more knowledge thus they are more inclined to take consistent learning as their goal. They may have informal learning behaviors such as actively reading professional magazines or searching for work-related knowledge on the Internet. Therefore, the following hypothesis is proposed:

Hypothesis 3a The relationship between investigative vocational interests and informal learning

behavior will be mediated by a learning goal orientation.

Employees with enterprising vocational interests hope to further develop their vocational skills. For utilitarian reasons, they will strive to learn as much as possible about work-related knowledge for better career development[21]. Because they are more interested in improving their performance, they are more inclined to have a performance-prove goal orientation. In turn, such an orientation will further lead employees with enterprising interests to actively produce learning behaviors that help improve performance. For example, employees with enterprising interests prefer to improve their job performance and they are more likely to take high performance as their goal. They may have informal learning behaviors such as actively thinking about how to improve their performance and trying new ways of work. Therefore, the following hypothesis is proposed:

Hypothesis 3b The relationship between enterprising interests and informal learning behaviors will be mediated by a performance-prove goal orientation.

Employees with realistic interests tend to repeat their work mechanically; they do not like to acquire new knowledge or work methods[21]. Luzadis and Gerhardt found that individuals with low-level idealism are more likely to have learning-related goal orientations[28]. We expect that employees with realistic interests are more likely to have a performance-avoid goal orientation, which will further reduce their participation in training activities and knowledge application[37]. For example, employees with realistic interests hope that their work can be mechanical and unchanging. They tend to avoid changeable or innovative work environment so they are more likely to have goals that allow them to avoid changing. They may avoid informal learning behaviors such as trying new ways of working or actively communicating with supervisors or colleagues. Therefore, the following hypothesis is proposed:

Hypothesis 3c The relationship between realistic interests and informal learning behaviors will be mediated by a performance-avoid goal orientation.

3 Method

3.1 Study design

The present study used questionnaires to collect data from six companies in different industries. After communicating with the person in charge of human resources or the leader of each enterprise, a paper version of the questionnaire was randomly distributed to their employees. In order to mobilize the enthusiasm of employees to fill out the questionnaire and ensure its quality, the filling process was supervised by the leaders of the department. We encouraged employees to participate in study by promising that every participant would receive 20 RMB when they finished the entire survey. In addition, the employees filled in the questionnaire anonymously and were told that the questionnaire data was only used for scientific research. It eliminated the respondents' worries about how to use the data, thus reducing the motivation to respond in a favorable way. The distribution time of the questionnaire was selected by the team leader, and the employees were required to complete the questionnaire uniformly and take it back on the spot. A total of 278 questionnaires were distributed and 245 were actually collected, with a recovery rate of 88.1%. After eliminating the invalid questionnaires, 211 valid data samples were obtained, representing an effective rate of 86.1%.

The sample consisted of 50.7% men and 49.3% women, indicating balanced proportions across genders. The age of the sample ranged from 18 to 58 years, but the age group of 21 to 40 years old accounted for 93.4% of the sample. In terms of the distribution of respondents across industries (Internet, education, medicine, chemical, manufacturing, and others), there were no major differences in the number of respondents. Finally, four levels of academic qualifications were represented in the sample: college and below, undergraduate, master, and doctorate degrees. Employees with a Bachelor's degree accounted for the largest proportion of the sample ,50.7%.

3.2 Measures

Each of the variables included in the questionnaire was measured using an established scale. All scales used a 5-point Likert response format. The sample items of all scales are listed in Table 1.

Dependent variables: a 9-item scale developed by Noe et al[7] was used to assess informal learning.

Independent variables: Armstrong et al's[39] scale was used to measure vocational interests. This instrument consists of 24 items with 8 items devoted to each of the three dimensions of vocational interests, namely investigative, enterprising and realistic interests.

Mediating variables: Van de Walle et al's[40] measure was used to assess goal orientations. The learning goal orientation, performance-prove goal orientation, and performance-avoid goal orientation were assessed using 5, 4, and 4 items, respectively.

4 Results and discussion

4.1 Reliability and validity

The present study used SPSS 24.0 and Mplus 8.0 to analyze the data. The Cronbach's α coefficients of the three dimensions of vocational interests, namely investigative, enterprising, and realistic interests were

0.919, 0.789, and 0.924, respectively. The Cronbach's α coefficients of the three subscales of goal orientation (i.e., learning, performance-prove, and performance-avoid orientations) were 0.894, 0.756, and 0.877, respectively. Finally, the Cronbach's α coefficient of the informal learning behavior measure was 0.878. The coefficient α of each scale was greater than 0.700, suggesting that each variable had high internal consistency.

To ensure the validity of the scales, we used the confirmatory factor analysis (CFA) to examine the structural validity of our model. The CFA model evaluation results showed that the chi-square degree of freedom ratio (χ^2/df) was 1.760, which was less than the standard value of 3.000; the root mean square error (RMSEA) was 0.060, which was less than the standard value of 0.080; and the comparative fit index (CFI) was 0.956, which was greater than the standard value of 0.900. The above results showed that the model fits well.

The results of the test of convergence validity are shown in Table 1. As can be seen, the standardized factor loading of each variable measurement item was greater than 0.500, and the z value corresponding to the standardized factor loading was greater than 1.960, indicating that the measurement of each variable had sufficient convergence validity. To test for discriminative validity, we compared the square root of the AVE value of each variable with the absolute value of the correlation coefficient among variables. The test results are shown in Table 2. As can be seen, the values on the diagonal (the square root of each potential variable AVE) were greater than the absolute value of the correlation coefficient among the variables; thus, discriminant validity was established. We also use the Harman's single-factor method to test for common method bias. The results showed that 22 factors had an initial eigenvalue greater than 1. The variance explained by the first factor was 22.744%. This was much lower than the critical value of 40%, indicating that the common method bias was not obvious in this study[41]. The variance inflation factor of the variables is all less than 10, which means that there is no multicollinearity.

Table 1. Convergence validity test results.

Variable	Dimension	Item	Standardized factor load	*Z* value
Vocational interests	Realistic	1. Perform lawn care services.	0.791	–
		2. Repair household appliances.	0.771	12.231
		3. Build kitchen cabinets.	0.834	13.551
		4. Guard money in an armored car.	0.744	11.682
		5. Operate a machine on a production line.	0.771	12.233
		6. Repair and install locks.	0.796	12.733
		7. Set up and operate machines to make products.	0.762	12.045
		8. Build a brick walkway.	0.746	11.727
	Investigative	1. Study ways to reduce water pollution.	0.698	–
		2. Study the movement of planets.	0.650	6.949
		3. Examine blood samples using a microscope.	0.747	8.740
		4. Study genetics.	0.845	9.479
		5. Determine the infection rate of a new disease.	0.887	9.767
		6. Diagnose and treat sick animals.	0.827	9.347
		7. Do laboratory tests to identify diseases.	0.870	9.648
		8. Develop a new medicine.	0.785	9.035
	Enterprising	1. Sell newspaper advertisements.	0.644	–
		2. Sell a soft drink product line to stores and restaurants.	0.625	6.565
		3. Give a presentation about a product you are selling.	0.707	7.045
		4. Sell hair-care products to stores and salons.	0.678	6.244
		5. Negotiate contracts for professional athletes.	0.629	6.590
		6. Manage a retail store.	0.745	6.004
		7. Start your own business.	0.660	4.377
		8. Market a new line of clothing.	0.671	6.193

Continued Table 1

Variable	Dimension	Item	Standardized factor load	*Z* value
Goal orientation	Learning	1. I am willing to select a challenging work assignment that I can learn a lot from.	0.821	–
		2. I often look for opportunities to develop new skills and knowledge.	0.812	13.485
		3. I enjoy challenging and difficult tasks at work where I'll learn new skills.	0.880	15.039
		4. For me, development of my work ability is important enough to take risks.	0.708	11.218
		5. I prefer to work in situations that require a highlevel of ability and talent.	0.749	12.094
	Performance-prove	1. I'm concerned with showing that I can perform better than my coworkers.	0.708	–
		2. I try to figure out what it takes to prove my ability to others at work.	0.732	12.231
		3. I enjoy it when others at work are aware of how well I am doing.	0.761	13.551
		4. I prefer to work on projects where I can prove my ability to others.	0.743	11.682
	Performance-avoid	1. I would avoid taking on a new task if there was a chance that I would rather to others.	0.702	–
		2. Avoiding a show of low ability is more important to me than learning a new skill.	0.656	6.877
		3. I'm concerned about taking on a task at work if my performance would reveal that I had low ability.	0.709	5.811
		4. I prefer to avoid situations at work where I might perform poorly.	0.773	5.477
Informal learning	IL	1. Reflecting about how to improve my performance.	0.635	–
		2. Experimenting with new ways of performing my work.	0.707	8.635
		3. Using trial and error strategies to learn and better perform.	0.655	8.125
		4. Interacting with a mentor.	0.642	7.996
		5. Interacting with my supervisors.	0.712	8.679
		6. Interacting with my peers.	0.751	7.029
		7. Reading professional magazines and vendor. publications	0.663	8.202
		8. Searching the internet for job relevant information.	0.718	8.732
		9. Reading management books.	0.718	8.734

Table 2. Descriptive statistics and correlations for study variables.

Variable		*M*	SD	1	2	3	4	5	6	7	8	9	10	11
Demographics	1. Gender	30.42	0.51	—										
	2. Age	0.51	6.33	0.137	—									
	3. Degree	2.94	0.95	0.227*	−0.084	—								
	4. Tenure	6.76	5.98	0.207*	0.283*	−0.141*	—							
Vocational interests	5. Investigative	3.17	0.94	0.133	−0.033	0.124	0.040	(0.607)						
	6. Enterprising	3.02	0.89	0.048	0.043	0.057	0.048	−0.287**	(0.599)					
	7. Realistic	2.33	0.99	−0.090	−0.022	−0.023	−0.033	−0.199**	0.317**	(0.533)				
Goal orientation	8. Learning	3.37	1.06	0.037	0.043	0.039	0.015	−0.175*	0.394**	0.223**	(0.634)			
	9. Performance-prove	3.19	1.04	0.096	−0.030	0.035	−0.018	−0.141*	0.280**	0.450**	0.194**	(0.556)		
	10. Performance-avoid	2.30	1.00	−0.103	−0.007	−0.062	−0.029	0.290**	−0.209**	−0.205**	−0.247**	−0.220**	(0.545)	
	11. Informal learning	3.25	1.02	0.056	0.019	0.057	0.018	−0.394**	0.389**	0.491**	0.525**	0.410**	−0.400**	(0.552)

[Note] $n=211$. The value of square root of AVE are reported on the diagonal. * $P<0.05$, ** $P<0.01$

Table 3. Main path analysis.

Hypothesis	Hypothesis path	Standardized path coefficient	Est./S. E.	*P* value	Conclusion
H1a	Investigative interests→Informal learning	0.142	3.661	0.000	support
H1b	Enterprising interests→Informal learning	0.273	6.634	0.000	support
H1c	Realistic interests→Informal learning	−0.145	−2.908	0.004	support
H2a	Learning GO→Informal learning	0.220	5.123	0.000	support
H2b	Performance-prove GO→Informal learning	0.175	3.972	0.000	support
H2c	Performance-avoid GO→Informal learning	−0.159	−3.115	0.002	support

[Note] GO is goal orientation. For simplicity, the table does not show the results of the control variables.

4.2 Main path analysis

The model was built in Mplus 8.0 and loaded for data analysis. The evaluation results of the model showed that the χ^2/df was 1.760, which was less than the standard value of 3.0; RMSEA was 0.06, which was less than the standard value of 0.08; and CFI was 0.934, which was greater than the standard 0.9. The standardized residual root mean square (SRMR) was 0.065, which was less than the standard value of 0.08. The above results showed that the degree of fit for the model was high. The main path analysis results are shown in Table 3. As can be seen, investigative vocational interest was positively correlated with informal learning behaviors (β=0.142, $P\leqslant$0.001), enterprising vocational interest was positively correlated with informal learning (β = 0.273, $P\leqslant$0.001), and realistic vocational interest was negatively associated with informal learning (β = −0.145, $P\leqslant$0.01). Thus, Hypotheses 1a, 1b, and 1c were supported, respectively. Learning goal orientation positively related to informal learning (β=0.220, $P\leqslant$ 0.001), performance-prove goal orientation positively related to informal learning (β=0.175, $P\leqslant$0.001), and performance-avoid goal orientation negatively related to informal learning (β=−0.159, $P\leqslant$0.01). Thus, Hypotheses 2a, 2b, and 2c were supported, respectively.

4.3 Mediation test

Researchers typically used the stepwise regression proposed by Baron et al[42] to test for mediating effects. However, the above method has shortcomings and requires sample data to fully meet the assumptions of standard error estimations. Therefore, in recent years, researchers have adopted the sampling distribution Bootstrap method to test for mediating effects. Hence, the Bootstrap method and Mplus 8.0 were used in the present study. Referring to the verification method of Preacher et al[43], the current research selected the non-parametric percentile method with a sample size of 5000 and a 95% confidence interval (CI) deviation correction. The test results of the mediation effect are shown in Table 4. As can be seen, the indirect effects coefficients of the learning, performance-prove and performance-avoid goal orientations were 0.168, 0.142, and −0.146, respectively, and the corresponding p-values were all less than 0.005. Bootstrap's running results showed that the CI values of learning as well as performance-prove and performance-avoid goal orientations on the indirect effects of informal learning were [0.105, 0.239], [0.074, 0.213], and [−0.235, −0.052], respectively. The fact that 0 was not included in these CIs, means that the mediating effects of these three variables were all significant. In summary, Hypotheses 3a, 3b, and 3c were all supported. We also test other possible mediation effects, and the results showed that only the proposed mediation effects are significant.

The data analysis results showed that the hypotheses in this paper have been strongly supported, and the model proposed in this paper was also well fitted. Our findings contribute to the previous research in three aspects: First of all, we confirmed that different goal orientations had different effects on informal learning behaviors. Previous research only verified that learning goal orientation had a positive impact on informal learning behaviors. The results of current research confirmed that performance-prove goal orientation also had a positive impact on informal learning, but performance-avoid goal orientation had a negative impact on informal learning. Secondly, we confirmed that various dimensions of vocational interests had different impacts on informal learning behaviors. Thirdly, the existence of an "interest-goal-action" chain of logic proposed by the social cognitive career theory is confirmed in the model proposed in this paper. We examined this logic chain using different goal orientations as mediating variables which further confirmed that vocational interests were distally related to informal learning behaviors.

Table 4. Mediation effect.

Mediator	Effect type	Effect coefficient	*P* value	Bias-corrected 95% confidence interval	
				LLCI	ULCI
Learning GO	Total effect	0.310	0.000	0.210	0.405
	Direct effect	0.142	0.000	0.063	0.216
	Indirect effect	0.168	0.000	0.105	0.239
Performance-prove GO	Total effect	0.415	0.000	0.318	0.510
	Direct effect	0.273	0.000	0.192	0.353
	Indirect effect	0.142	0.000	0.074	0.213
Performance- avoid GO	Total effect	−0.292	0.000	−0.358	−0.225
	Direct effect	−0.145	0.004	−0.247	−0.049
	Indirect effect	−0.146	0.002	−0.235	−0.052

[Note] GO is goal orientation.

5 Conclusion

To explain the mechanism underlying the relationship between vocational interests and informal learning behaviors, the present study constructed a model using goal orientation dimensions as mediators. The proposed model, which is based on the social cognitive career theory and vocational interest theory, introduces three sets of hypotheses accordingly. After analyzing the survey data from employees in different industries, the following conclusions were drawn. First, different dimensions of vocational interests have varying effects on employees' informal learning behaviors. Among them, both investigative and enterprising vocational interests positively influence employees' informal learning behaviors, whereas realistic interests negatively influence employees' informal learning behaviors. Current research on vocational interests has tended to focus on the congruence between one's interests and their work environment[16]. In relation to this, the results of the present research confirm the idea that different vocational interests themselves can affect the learning behavior of employees. Research has been carried out on vocational interests, but mostly at the overall level[17]. Those scholars who have carried out studies on the different dimensions of vocational interests have done so only in specific industries[22]. The present research considers this issue and conducts research on employees in different industries, which complements previous studies and generalizes their findings.

Second, our results show that different goal orientations have varying effects on employees' informal learning behaviors. Among them, learning and performance-prove goal orientations exert positive influence on employees' informal learning behavior, whereas performance-avoid goal orientations exert negative influence on employees' informal learning behaviors. This conclusion confirms the idea that different goal orientations have varying influences on employees' informal learning behaviors. As a stable individual trait, goal orientations can serve as an important basis for enterprises to judge employees' future goals and behavior choices.

Third, we found the relationship between vocational interests and informal learning behaviors to be mediated by goal orientations. Specifically, the relationship between investigative vocational interests and informal learning behaviors is mediated by learning goal orientations and the relationship between enterprising vocational interests and informal learning behaviors is mediated by performance-prove goal orientations. The relationship between realistic vocational interests and informal learning behaviors is mediated by performance-avoid goal orientations. The conclusion confirms the logical chain of "interest-goal-behavior" proposed in the social cognitive career theory[23]. The current study verifies goal orientation as the specific process through which vocational interests affect employees' learning behaviors. At present, few scholars have combined different dimensions of vocational interests with different goal orientations in their research and those who have combined them did so in specific industries[22]. The present research makes up for this deficiency.

Our results have implications for the management of talents in enterprises. Primarily, as stable individual characteristics, vocational interests and goal orientation can be used as important bases upon which enterprises can judge employees' follow-up behaviors. Because employees' self-learning behaviors are vital to the development of an enterprise, it is very important to

have the means to judge whether employees are more inclined to learning behaviors. It is especially important for enterprises, considering that personal characteristics are less affected by the environment in the short term, they should consider assessing the relevant characteristics of employees when recruiting and selecting talents and classifying employees' vocational interests and goal orientation in order to better judge their future learning behavior tendencies. New ventures, for example, should select potential employees with greater informal learning behavior tendencies to ensure that the enterprise can grow rapidly in a highly dynamic environment. For innovative enterprises that are selecting talents for positions related to knowledge learning, such as research and development, applicant vocational interests and goal orientations can be important information in the selection process. In this way, the enterprise can ensure the match between talents and positions so that they can reduce the management cost of the company and improve its operating efficiency.

Secondly, employees with low learning intentions, such as those who have performance-avoid orientations, are unwilling to actively produce informal learning behaviors due to their fear of failure and of being negatively evaluated by others. Enterprises can establish a complete evaluation system that can encourage such employees to try various learning activities, while also reducing the cost of trial and error for employees. For employees with a high willingness to learn, this method can also further encourage them to acquire more spontaneous learning behaviors in their future work.

There are still some deficiencies in the present study that must be addressed. First, although the sample covers multiple industries, the number of employees surveyed in each industry is relatively small. Therefore, when future research involves a specific industry, larger samples may be required. Second, the data were self-reported and cross-sectional, which might lead to common method bias. Future research can further test the model with a time-lag research design. Some researchers have presented a conceptual framework proposing that dynamic process of person-environment interaction may make a certain interest more intense[32]. The goal orientation is a relatively stable personal trait which is unlikely to change with the environment[34]. Therefore, we speculate that the results of a long-term data research should be consistent with this paper.

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Conflict of interest

The authors declare no conflict of interest.

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职业兴趣与工作场所中的非正式学习行为
——基于目标导向的中介作用

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摘要: 针对职业兴趣影响工作场所中非正式学习行为的问题,以社会认知职业理论为基础,构建了一种以职业兴趣三个不同子维度为自变量、以目标导向的不同维度为中介变量的理论模型. 基于分布在不同行业公司的 211 名员工作为样本的实证研究结果表明,职业兴趣的三个子维度会对非正式学习产生不同影响,研究型和企业型职业兴趣对非正式学习行为的产生有积极影响,而现实型职业兴趣则对非正式学习行为的产生有负面影响. 目标导向的各个维度也会对非正式学习行为产生不同影响. 其中,学习目标导向、绩效目标导向都对非正式学习行为有正面影响,但绩效回避目标导向对非正式学习则呈现出负面影响;目标导向的三个维度在职业兴趣对非正式学习行为的影响中起到了不同的中介作用. 研究结论深化了对职业兴趣影响非正式学习行为的内在机理的理解,也为社会认知职业理论中兴趣、目标和行为关系的相关理论与实践发展提供了新的重要证据.

关键词: 职业兴趣;目标导向;非正式学习;社会认知职业理论