

# Study on the Influence of Employees' Information Literacy on Innovative Behavior

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## Abstracts

In today's information age, information literacy has a very important impact on individuals and organizations. Many enterprises have obtained a certain amount of data and information, but they may not be able to make good use of this information and bring innovation. Whether information literacy can promote innovative behavior and how to affect innovative behavior are very worthy of discussion. This study holds that information literacy may impact innovative behavior through creative self-efficacy. Therefore, this study takes employees' information literacy as an independent variable, creative self-efficacy as an intermediary variable, and employees' innovative behavior as a dependent variable to explore the relationship among the three. The statistical results show that the four dimensions of information literacy have a significant positive impact on innovative behavior; the three dimensions namely information consciousness, information ability and information ethics have significant positive impacts on creative self-efficacy, while information knowledge has no significant impact on creative self-efficacy; employees' creative self-efficacy has a significant positive impact on innovative behavior; creative self-efficacy mediates the relationship between employees' information literacy and innovative behavior. Enterprises should attach importance to the training and guidance of employees from different aspects of information literacy, so as to more effectively stimulate employees' innovative behavior and improve the innovation performance of enterprises as a whole.

**Keywords:** Employees' Information Literacy; Creative Self-Efficacy; Innovative Behavior

## Introduction

Innovation plays a significant role in social development, scientific progress and national prosperity. At present, great changes have taken place in the survival and development environment of enterprises. The unstable international situations, especially the pandemic of COVID-19, have brought great shocks to the world economy and challenges to many enterprises. If enterprises want to survive and develop in this complex environment with fierce competition, they must have strong innovation. Only when those enterprises keep pace with the times and dare to innovate can they achieve stable and rapid development. The innovation of enterprises lies in the innovation of employees. Therefore, this study selects employees' innovative behavior as the research object.

For the influencing factors of innovative behavior, scholars mainly analyze them from the following three perspectives: one is from the perspective of individual characteristics, the other is from the environmental characteristics, and the third is to comprehensively investigate the impact of the interaction between individual and situational factors on individual innovative behavior. For the individual characteristics, people analyzed them from different aspects such as education level and personality traits. However, researches that take individual information

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literacy as an independent variable on innovative behavior is still very limited.

Information literacy mainly refers to people's literacy and ability to search, analyze and use information. In today's information age, information literacy has a very important impact on individuals and organizations. For the personal level, information literacy is one of the basic qualities that everyone is supposed to have for survival and development in the information society (Suo Xingmei, 2018 : 8). For the organizational level, enterprises need a large number of employees with high information literacy, so as to promote the effective integration and full utilization of existing resources and facilitate the organization's breakthroughs in technology, patents and other fields.

The current fact is that, on the one hand, the employees' information literacy is of great importance for individuals and enterprises. On the other hand, the research on information literacy of enterprise employees is very insufficient. Based on this, this study selects the information literacy of enterprise employees as the starting point.

## Research Objectives

What is the impact mechanism between employees' information literacy and innovative behavior? There are few empirical studies in this area, especially the research taking information literacy as an independent variable is rare. What factors does information literacy promote innovative behavior? What is the impact of each dimension of information literacy on innovative behavior? Therefore, this paper studies the influence mechanism of information literacy on innovative behavior, tries to find out the "bridge" between them, and explores its internal mechanism and action process, so as to enrich the understandings for innovative behavior. Through the study of theory and literature, this study believes that information literacy may affect innovative behavior through creative self-efficacy. Therefore, this study takes employees' information literacy as an independent variable, creative self-efficacy as an intermediary variable and employees' innovative behavior as a dependent variable to explore the impact of the relationship between and among them. Specifically, it has the following research purposes:

1. to summarize the new connotation and elements of employees' information literacy in the new era, and formulate the *Information Literacy Scale of Employees* in present age as an important measuring and judging tool for selecting, investigating and evaluating employees;
2. to explore the direct impact of each dimension of employees' information literacy on innovative behavior;
3. to explore whether the creative self-efficacy has a mediating effect in the relationship between employees' information literacy and innovative behavior, whether it plays a complete mediating effect or a partial mediating effect;
4. to put forward corresponding management strategies to provide enlightenment for enterprises to select, train and evaluate innovative talents, so as to finally promote the innovation performance of enterprises.

## Literature Review

### *Relevant Research on Information Literacy*

The concept of information literacy was first proposed in 1974 by Paul Zurkowski, President of the American Information Industry Association. He believes that people with information literacy are those who can apply information resources to work. These people have the skills to use various information tools and integrate information resources (Suo Xingmei, 2018:8). Some other scholars have analyzed and defined the concept and connotation of information literacy (LV Qingyang and Liu Xiaowen, 2008: 40-42; Zhong Zhixian, 2013: 21-29+95). After reviewing we can find that people's understandings on information literacy have become richer and its constituent elements have become more abundant, as shown in the table below:

Table 1 Elements of Information Literacy

Constituent elements	Specific point of view
One-element theory	use and integrate information
Two-element theory	information awareness; information capability
Three-element theory	information awareness; information knowledge; information capability
	information awareness; information capability; information ethics
Five-element theory	information awareness; information knowledge; information capability; information intelligence; information ethics
Multi-factor theory	aware information; identify sources of information; search information; evaluate information; organize information; integrate information; apply information

The research on Information Literacy Standards started earlier in the United States. In 2000, the American Association of College and Research Libraries (ACRL) released the *Information Literacy Competency Standards for Higher Education* which formulated a comprehensive and detailed framework for information literacy. The standard includes 5 standards and 22 specific evaluation indicators. Since then, Britain, China, Japan and other countries have also constructed information literacy evaluation standards in line with their own national conditions.

At present, there are few researches on the relationship between information literacy and innovative behavior. The existing literature mainly studies the relationship between information literacy and innovative ability or creativity. At present, the relevant research in this field shows two characteristics: firstly, it mainly focuses on the relationship between information literacy and innovative ability or creativity, and there is little research on information literacy and innovative behavior; secondly, the research mainly falls in the educational and medical fields, and there is little research on enterprise employees; thirdly, many studies focus on experience summary or simple correlation analysis, and there are few in-depth empirical studies.

### ***Relevant Research on creative self-efficacy***

Self-efficacy was first proposed in 1977 by Albert Bandura, the founder of social cognitive theory. This term means “the degree of individual confidence in using their own skills to complete a certain task” (Bandura, 1977: 191-215). According to social cognitive theory, self-efficacy determines an individual’s way of thinking and behavior. The concept of self-efficacy was first adopted in the psychological field, and triggered a large number of theoretical exploration and empirical research, which has become an important variable in psychological research. Subsequently, the research on self-efficacy gradually expanded to the field of organizational behavior and other disciplines, and became an important research object for many management scholars and researchers (Liang tao, 2012:12).

An important research branch of self-efficacy is self-efficacy in specific fields. Tierney and farmer put forward the concept of “creative self-efficacy” in 2002 on the basis of self-efficacy research and innovation theory, which means the degree of employees’ confidence in achieving innovative results in the work.

As for the measurement of creative self-efficacy, Tierney and Farmer, while putting forward the concept of creative self-efficacy, developed the creative self-efficacy scale in 2002. The initial scale had only three items. In the follow-up study, they modified the scale, adopted four items and measured with Likert 7 scale. The internal consistency coefficient was 0.76 (Yang jie, 2011:4). Many scholars at home and abroad have adopted the scale compiled by Tierney and Farmer in their researches.

### ***Relevant Research on innovative behavior***

Experts and scholars have different views on the connotation of employees’ innovative behavior. The more representative standpoints are as follows. West & Farr (1989: 15-30) propose that innovative behavior includes the generation and implementation of innovative ideas. Scott & Bruce (1994) believe that innovative behavior refers to the generation, promotion and realization of creative ideas. Amabile (1997: 39-58) believes that innovative behavior means that individuals put forward new ideas or new solutions. Kleysen & Street (2001: 284-296) propose that innovative behavior includes seeking opportunities, generating ideas, evaluating ideas, obtaining support and practicing ideas. After analysis, it is found that the main difference for these views is the division of innovative behavior. To sum up, there are roughly one-stage view, two-stage view, three-stage view, five-stage view, seven-stage view and so on.

As for the scale of innovative behavior, the earliest one is the six item scale developed by Scott and Bruce (1994: 580-607). They believe that innovative behavior is mainly composed of three stages: the generation, promotion and realization of innovative idea. Based on this, they put forward six questions including: keen to seek the innovation of technology, process or product; often put forward innovative ideas; communicate and promote innovative idea; strive for resources for innovative practice; formulate and implement innovation plan; have innovative spirit. George and Zhou (2002: 687–697) designed a 13 item-scale in 2002. Among all the items three of them are taken from the research of Scott and Bruce (1994: 580-607), and the remaining 10 items are compiled by George and Zhou after reviewing the relevant literature. The scale is often applied to the evaluation of managers’ innovative behavior.

### ***Comments on Related Research***

At present, certain achievements have been made in related fields. People’s research perspectives are broader, and their understandings of the problem are deeper. However, there are still many places to be further explored. Firstly, most of the research on information literacy focuses in the field of teaching and medicine, and the authoritative framework or scale is also

mainly aimed at the objects of teachers or students. There is a lack of research on the relationship between employees' information literacy, creative self-efficacy and innovative behavior. Can employees' information literacy enhance their creative self-efficacy and promote innovative behavior? What role can creative self-efficacy play between information literacy and innovative behavior? At present, there is a lack of research on these aspects. Secondly, what is the relationship between information literacy and creative self-efficacy? The relationship is like a black box, and its mechanism needs to be further explored.

## **Methodology**

### ***Literature Research***

The author widely collected and systematically sorted out relevant literature, understood the development trend and shortcomings of existing research, and carried out further research on this foundation. At the same time, the subject words related to information literacy in the literature were extracted as the basis of the connotation research of information literacy.

### ***In depth Interview***

In order to obtain first-hand information, the author entered different enterprises, interviewed managers at certain levels and many kinds of employees in order to further understand the connotation and elements of information literacy. By combining the understandings from literature review and interviews, the author formed a preliminary index system and structural dimension of information literacy.

### ***Questionnaire Survey***

Scientifically design and integrate questionnaires containing independent variables, dependent variables and intermediary variables. After test-investigation, revision and improvement, the author conducted surveys in different enterprises and collected data.

### ***Statistical Analysis***

Factor analysis was used to test the validity of the questionnaire, descriptive statistics was used to understand the basic situation and distribution trend of each variable, regression analysis was used to understand the relationship between and among each variable.

## **Research Framework**

The specific research framework of this paper is as follows: ① analyze the research background, clarify the research purpose and significance; ② carry out literature review, analyze the literature of the three variables, namely “employees’ information literacy”, “creative self-efficacy” and “innovative behavior”, so as to establish a theoretical basis for follow-up research; ③ by means of theoretical deduction, a theoretical model is established for the impact mechanism of employees’ information literacy on innovative behavior, and research hypotheses are put forward; ④ scientifically select the measurement tools of three variables, test the reliability and validity of the complete questionnaire, revise and improve it, and select enterprises to carry out a questionnaire survey; ⑤ conduct basic analysis and multiple linear regression analysis on the collected data, analyze and verify the proposed assumptions, and discuss the research results.

## Results

According to the literature review, interviews and the investigation of reality, this study puts forward the following hypotheses:

H1: employees' information literacy has a significant positive impact on employees' innovative behavior.

H1a: each dimension of employees' information literacy has a significant positive impact on employees' innovative behavior.

H2: employees' information literacy has a significant positive impact on creative self-efficacy.

H2a: each dimension of employees' information literacy has a significant positive impact on creative self-efficacy

H3: employees' creative self-efficacy has a significant positive impact on employees' innovative behavior

H4: creative self-efficacy mediates the relationship between employees' information literacy and innovative behavior

Their relationships are shown in the following figure:

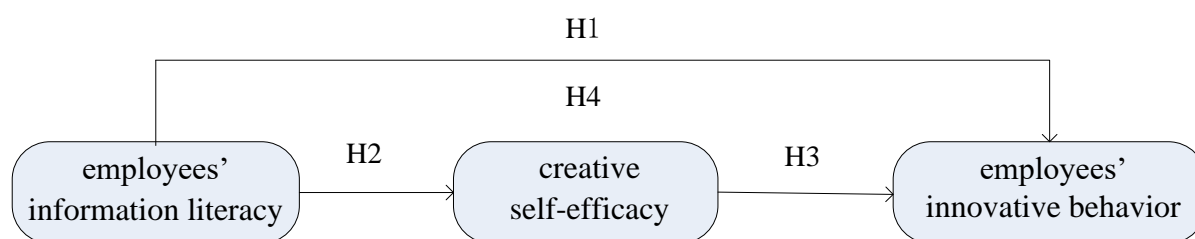


Figure: theoretical model of the research

To verify the model and hypotheses, this study used the self-designed employees' information literacy scale, Tierney and Farmer's creative self-efficacy scale and Scott and Bruce's individual innovative behavior scale to collect data. The questionnaire was delivered and collected by means of Internet tool. Enterprises in different regions are selected. The author contacted the relevant managers of the enterprise, such as the enterprise manager and the manager of the human resources department. The managers helped distribute questionnaires in the enterprise and ask the employees to fill them in. The survey covers many provinces in China, including Guangxi Zhuang Autonomous Region, Guizhou Province, Guangdong Province, Fujian Province, Shanghai and other places. A total of 412 questionnaires were collected. After strict screening, 326 valid questionnaires were finally obtained.

### 1. Descriptive statistical analysis

In the sample, male employees accounted for 35.3% and female employees accounted for 64.7%. In terms of age, 32.2% are aged 20-29, 36.5% are aged 30-39, 29.4% are aged 40-49, and 1.8% are aged over 50. In terms of education level, junior college and below accounted for 46.9%, undergraduate 46%, master 6.1% and doctor 0.9%. In terms of the nature of enterprises, employees of state-owned enterprises account for 29.0%, employees of private enterprises account for 36.2%, employees of foreign-funded enterprises account for 6.1%, and others account for 28.7%. In terms of employees' post, 29.4% of employees are in management posts, 20.2% in technical posts, 12.9% in attendance and support posts and

37.4% in other posts. In terms of length of service, 43.6% of employees have worked for 1-2 years, 25.2% for 3-5 years, 10.7% for 6-10 years and 20.6% for more than 10 years.

The employee information literacy scale adopts the scale developed in the early stage of this study, which has four first-class dimensions: information awareness, information knowledge, information ability and information ethics. Specific descriptive statistics are as follows:

Employees' information literacy	Mean ( $\bar{x}$ )	Standard Deviation	Interpretation
information awareness	4.395	0.727	High
information knowledge	3.980	0.746	High
information ability	4.045	0.744	High
information ethics	4.395	0.701	High

The measurement of creative self-efficacy adopts Tierney and Farmer's scale as the measurement tool, which is a single-dimensional concept with items. To measure employees' innovative behavior, this study adapted the most widely used scale from Scott and Bruce, which measures employees' innovative behavior from three stages: generating ideas, seeking support and implementing innovation. There are 6 items in total, and only one factor is precipitated from the 6 items. Therefore it is also a single-dimensional concept. Specific descriptive statistics are as follows:

Intermediate variable and dependent variable	Mean ( $\bar{x}$ )	Standard Deviation	Interpretation
creative self-efficacy	3.918	0.736	High
innovative behavior	4.027	0.746	High

It can be seen that the mean and standard deviation of the research variables are within a reasonable range. According to the standards suggested by Kline (1998), the sample data can be considered to meet the requirements of later data processing.

## ***2. Test of the influence of employees' information literacy on innovative behavior***

In this study, SPSS 20.0 is used for data analysis. Model 1 discusses the effects of gender, age, education level, enterprise type, post type and service years on employees' innovative behavior; Model 2 discusses the impact of information literacy on innovative behavior on the premise of controlling demographic variables; Model 3 discusses the individual impact of four dimensions of information literacy on innovative behavior on the premise of controlling demographic variables. The statistical results are shown in the figure below:

Table Results of Multiple Regression Analysis

variables	Innovative behavior								
	Model 1			Model 2			Model 3		
	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF
control variables									
gender	-0.084	0.176	1.209	-0.042	0.344	1.212	-0.048	0.288	1.220
age	0.09	0.902	1.604	-0.066	0.204	1.616	-0.080	0.130	1.655
education level	-0.082	0.174	1.138	-0.040	0.360	1.141	-0.033	0.446	1.149
enterprise type	0.032	0.601	1.200	0.082	0.067	1.206	0.089*	0.049	1.219
post type	-0.054	0.407	1.335	-0.064	0.178	1.336	-0.066	0.161	1.350
service years	0.064	0.368	1.603	0.050	0.332	1.603	0.050	0.331	1.612
independent variables									
information literacy				0.694***	0.000	1.027	0.541** *	0.000	7.721
information awareness							0.160** *	0.003	2.147
information knowledge							0.113*	0.053	2.288
information ability							0.334** *	0.000	
information ethics							0.227** *	0.000	3.188
Model index									
constant	4.274** *	0.000		0.534**	0.049		0.392	0.168	
F value	1.106	0.359		42.162***	0.000		29.890***	0.000	
R square	0.021			0.490			0.496		
Adjust R-square	0.002			0.479			0.479		

注：\*P < 0.1, \*\*P < 0.05, \*\*\*P < 0.01



It can be seen from model 1 that the employees' gender, age, education level, enterprise type, post type and service years do not have obvious regression coefficient on employees' innovative behavior. In model 2, information literacy is added, and the regression coefficient is 0.694 ( $P < 0.01$ ). The regression coefficient is obvious, indicating that information literacy has a significant positive impact on innovative behavior. And the R square reaches 49%, indicating that information literacy can explain 49% of the variance of "innovative behavior". Model 3 adds the four dimensions of information literacy, the regression coefficient of information consciousness is 0.160 ( $P < 0.01$ ), the regression coefficient of information knowledge is 0.113 ( $P < 0.1$ ), the regression coefficient of information ability is 0.334 ( $P < 0.01$ ), and the regression coefficient of information ethics is 0.227 ( $P < 0.01$ ), indicating that all the four dimensions of information literacy have a significant positive impact on innovative behavior.

Based on the above analysis, the impact of employees' information literacy on innovative behavior comes to the following conclusions:

H1 Employee information literacy has a significant positive impact on individual innovative behavior;

H1a Employees' information awareness has a significant positive impact on individual innovative behavior;

H1b Employees' information knowledge has a significant positive impact on individual innovative behavior;

H1c Employees' information ability has a significant positive impact on individual innovative behavior;

H1d Employees' information ethics has a significant positive impact on individual innovative behavior.

### ***3. Test of the relationship between employees' information literacy and creative self-efficacy***

Knowledge is a stable individual factor that forms self-efficacy, and the information mastered by individuals is an important part of their knowledge system. Employees with better information literacy will have more opportunities to contact and obtain valuable information, and will have greater confidence in generating new ideas and putting forward new schemes. According to the analysis, this study puts forward hypothesis 2: employees' information literacy has a significant positive impact on creative self-efficacy.

SPSS 20.0 is used for data analysis. Model 4 discusses the effects of gender, age, education level, enterprise type, post type and service years on employees' creative self-efficacy; Model 5 explores the impact of employees' information literacy on creative self-efficacy on the premise of controlling demographic variables; Model 6 explores the impact of four dimensions of employees' information literacy on creative self-efficacy on the premise of controlling demographic variables; The statistical results are shown in the figure below:

Table : Results of Multiple Regression Analysis

variables	creative self-efficacy								
	Model 4			Model 5			Model 6		
	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF
control variable									
gender	-0.095	0.126	1.209	-0.054	0.233	1.212	-0.046	0.306	1.220
age	0.013	0.858	1.604	-0.062	0.231	1.616	-0.041	0.428	1.655
education level	-0.069	0.252	1.138	-0.027	0.537	1.141	-0.034	0.428	1.149
enterprise type	-0.055	0.376	1.200	-0.005	0.914	1.206	-0.010	0.820	1.219
post type	0.022	0.731	1.335	0.013	0.783	1.336	0.016	0.728	1.350
service years	0.053	0.457	1.603	0.039	0.452	1.603	0.045	0.381	1.612
independent variables									
information literacy				<b>0.696***</b>	0.000	1.027	<b>0.962***</b>	0.000	7.721
information awareness							<b>0.129**</b>	0.031	2.147
information knowledge							0.109	0.114	2.888
information ability							<b>0.131**</b>	0.045	3.015
information ethics							<b>0.122*</b>	0.091	3.188
Model index									
constant	4.215***	0.000		0.314	0.265		0.532*	0.070	
F value	0.949	0.460		42.074***	0.000		30.623***	0.000	
R square	0.018			0.490			0.502		
Adjust R-square	-0.001			0.478			0.485		

注：\*P < 0.1，\*\*P < 0.05，\*\*\*P < 0.01

From model 4, it can be seen that employees' gender, age, education level, enterprise type, post type and service years do not have obvious regression coefficients on employees' creative self-efficacy, and there is no significant effect. In model 5, information literacy is added, and the regression coefficient is 0.696 ( $p < 0.01$ ). The regression coefficient is obvious, showing that information literacy has a significant positive impact on creative self-efficacy. And the R square reaches 49%, demonstrating that information literacy can explain 49% variance of "creative self-efficacy". Model 6 adds the four dimensions of information literacy. We can see that the regression coefficient of information awareness is 0.129 ( $p < 0.05$ ), the regression coefficient of information knowledge is 0.109, the regression coefficient of information ability is 0.131 ( $p < 0.05$ ), and the regression coefficient of information ethics is 0.122 ( $p < 0.1$ ), indicating that information awareness, information ability and information ethics have a significant positive impact on creative self-efficacy, and information knowledge does not have significant impact on creative self-efficacy.

Based on the above analysis, hypothesis 2 and most part of its sub hypotheses have been verified, namely:

H2 Employees' information literacy has a significant positive impact on creative self-efficacy;

H2a Employees' information awareness has a significant positive impact on creative self-efficacy;

H2b Employees' information ability has a significant positive impact on creative self-efficacy;

H2c Employees' information ethics has a significant positive impact on creative self-efficacy;

#### 4. Test of the relationship between creative self-efficacy and innovative behavior

SPSS 20.0 is used for data analysis. While the model 1 controls demographic variables, model 7 explores the impact of employees' creative self-efficacy on innovative behavior. The statistical results are shown in the following figure:

Table: Results of Multiple Regression Analysis

variables	innovative behavior					
	Model 1			Model 7		
	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF
independent variables						
gender	-0.084	0.176	1.209	-0.011	0.790	1.218
age	0.009	0.902	1.604	-0.001	0.980	1.605
education level	-0.082	0.174	1.138	-0.029	0.455	1.142
enterprise type	0.032	0.601	1.200	0.075*	0.059	1.203
post type	-0.054	0.407	1.335	-0.071*	0.085	1.336
service years	0.064	0.368	1.603	0.023	0.608	1.606
dependent variables						
creative self-efficacy				0.772***	0.000	1.018
Model index						
constant	4.274***	0.000		1.148***	0.000	
F value	1.106	0.359		67.376***	0.000	
R square	0.021			0.606		
Adjust R-square	0.002			0.597		

\* $P < 0.1$ , \*\* $P < 0.05$ , \*\*\* $P < 0.01$

From model 7, it can be seen that the regression coefficients of employees' gender, age, education level, enterprise type, post type and service years on their innovative behavior are not obvious, and there is no significant impact. The regression coefficient of creative self-efficacy was 0.772 ( $p < 0.01$ ), which was very high, demonstrating that creative self-efficacy had a very significant positive impact on innovative behavior. The R-square reaches 60.6%, which indicates that creative self-efficacy can explain 60.6% variance of innovative behavior. Based on the above analysis, hypothesis 3 is verified, that is:  
H3 Employees' creative self-efficacy has a significant positive impact on innovative behavior.

### 5. Test of creative self-efficacy's mediation effect on the relationship between information literacy and innovative behavior

In order to test the intermediary influence of creative self-efficacy, this study constructs M1, M2 and M8, in which M1 is the influence model of six control variables on knowledge workers' innovative behavior, and M2 is the influence model of information literacy on employees' innovative behavior by adding an independent variable information literacy on the basis of M1; M8 adds the intermediary variable creative self-efficacy on the basis of M2 to test the impact of creative self-efficacy on employees' innovative behavior and the change of the impact of information literacy on employees' innovative behavior. The regression analysis results of the three models are shown in the table below:

Table: Results of Multiple Regression Analysis

variables	creative self-efficacy								
	Model 1			Model 2			Model 8		
	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF	Standard coefficient	Sig.	VIF
control variables									
gender	-0.084	0.176	1.209	-0.042	0.344	1.212	-0.012	0.741	1.218
age	0.009	0.902	1.604	-0.066	0.204	1.616	-0.031	0.471	1.624
education level	-0.082	0.174	1.138	-0.040	0.360	1.141	-0.025	0.493	1.143
enterprise type	0.032	0.601	1.200	0.082	0.067	1.206	0.085**	0.023	1.206
post type	-0.054	0.407	1.335	-0.064	0.178	1.336	-0.071*	0.070	1.336
service years	0.064	0.368	1.603	0.050	0.332	1.603	0.028	0.510	1.606
independent variable									
information literacy				0.694***	0.000	1.027	0.302***	0.000	1.975

creative self-efficacy							0.563***	0.000	1.959
	Model index								
constant	4.274***	0.000		0.534**	0.049		0.365	0.104	
F value	1.106	0.359		42.162***	0.000		71.650***	0.000	
R square	0.021			0.490			0.652		
Adjust R-square	0.002			0.479			0.643		

注: \* $P < 0.1$ , \*\* $P < 0.05$ , \*\*\* $P < 0.01$

According to the results of M2 regression analysis, the regression coefficient of information literacy on employees' innovative behavior is 0.694 ( $P < 0.001$ ), and the regression coefficient is significant. It can be considered that information literacy has a significant positive impact on employees' innovative behavior. Secondly, from the M8 regression analysis results, it can be seen that the regression coefficient of creative self-efficacy on employees' innovative behavior is 0.563 ( $P < 0.001$ ), and the regression coefficient is significant. It can be considered that the sense of creative self-efficacy has a significant positive impact on employees' innovative behavior. Comparing the regression coefficients of information literacy on employees' innovative behavior in M8 and M2, it can be seen that after adding the intermediary variable of creative self-efficacy, the regression coefficient of information literacy in M8 is 0.302, which is significantly lower than the previous 0.694, and the significance level ( $P < 0.001$ ) meets the requirements. Finally, we need to test whether the relationship between information literacy and creative self-efficacy is established. From the regression analysis results of M5 above, it can be seen that the regression coefficient of information literacy on creative self-efficacy is 0.696 ( $P < 0.001$ ), and the regression coefficient is significant, indicating that information literacy has a significant impact on creative self-efficacy.

Based on the above analysis, we can draw a conclusion that the intermediary effect of creative self-efficacy between information literacy and innovative behavior is established. Creative self-efficacy is a partial mediation. The hypothesis H4 proposed in this study has been verified:

H4 Creative self-efficacy mediates the relationship between employees' information literacy and innovative behavior.

## Discussion and Conclusion

### *Analysis on the influence mechanism of employees' information literacy on innovative behavior*

From the data analysis, it can be seen that all the four dimensions of information literacy have a significant positive impact on innovative behavior. According to the regression coefficient from high to low, they are information ability, information ethics, information consciousness and information knowledge. The first three dimensions have three-star significant ( $P < 0.01$ ), and information knowledge has only one star significant ( $P < 0.1$ ).

Information ability has the most obvious effect on innovative behavior. This is similar to some previous research results. For example, Zhang Jing (2014:7) explored the impact of various modules of postgraduates' information literacy on their scientific research and innovation ability, and found that information acquisition ability, information analysis and utilization ability have significant correlation with their scientific research and innovation ability. Some other researches also have similar findings. From this we can see that information ability is the core of information literacy. Employees with information ability can use appropriate methods to retrieve and obtain information, understand information more accurately, use new information to enrich their knowledge system. By the means of information self-construction and mutual communication, they are good at generating new ideas, proposing new solutions and solving practical problems.

It is worth noting that information knowledge has the weakest impact on innovative behavior. There may be two reasons for the analysis. One is that the questionnaire filled in by some respondents deviates from the actual situation due to social approval factor; second, the effect of information knowledge itself is limited. Only by transforming information knowledge into information ability and other elements can it have a greater impact.

Enterprises should attach importance to the training and guidance of employees from the aspects of information consciousness, knowledge, ability and ethics. In particular they are supposed to try to transfer the employees' information knowledge into practical ability. Through these measures, the enterprises are expected to stimulate employees' innovative behavior more effectively and improve the innovation performance of enterprises.

#### ***Analysis on the influence mechanism of employees' information literacy on creative self-efficacy***

From the data analysis, we can see that the regression coefficient of information literacy is 0.696, and the regression coefficient is obvious, indicating that information literacy has a significant positive impact on creative self-efficacy, and the R square reaches 49%, indicating that information literacy can explain 49% of the variance of "creative self-efficacy".

Among the four dimensions of information literacy, information consciousness, information ability and information ethics have a significant positive impact on creative self-efficacy. The regression coefficients ranking from high to low are: information ability, information consciousness and information ethics.

Among the three sub dimensions with impacts, the regression coefficient of information ethics is the lowest, and the sig value is only 0.091, indicating that the impact of information ethics on creative self-efficacy is not high.

Information knowledge has no significant impact on innovative behavior. This is similar to some research results. For example, Zhu Yongwu (2013: 117-120) analyzed the relationship between each dimension of information literacy and the work performance of knowledge-based employees. He found that among the four dimensions of information literacy, information knowledge did not enter the regression equation and would not have a significant impact on work performance. This shows that only having information knowledge still lacks practical influence on creative self-efficacy. Only when knowledge is transformed into ability, consciousness and other factors can it promote self-efficacy. This can give managers some enlightenment. They need to consider how to translate employees' knowledge into ability and behavior by various means.

***Analysis of the influence mechanism of creative self-efficacy on innovative behavior***

The data results show that the regression coefficient of creative self-efficacy is 0.772, and the regression coefficient is very high, indicating that creative self-efficacy has a very significant positive impact on innovative behavior. And the R-square reaches 60.6%, illustrating that creative self-efficacy can explain 60.6% of the variance of innovative behavior.

Employees with a high sense of creative self-efficacy will have a more positive thinking mode, have greater confidence in the effectiveness of their innovation activities, and are more likely to set challenging goals. They often have the spirit of challenge, persistence and endurance, and are willing to try innovative behavior; they will also take the initiative to obtain knowledge related to work tasks and actively participate in various activities, which can increase their knowledge, develop ability and finally bring innovative behavior.

***Analysis of the creative self-efficacy's mediating effect between information literacy and innovative behavior***

The statistical results show that after adding the intermediary variable of creative self-efficacy, the regression coefficient of independent variable information literacy in the model is 0.302, which is significantly lower than the previous 0.694, and the significance level ( $P < 0.001$ ) meets the requirements. The intermediary effect of creative self-efficacy between information literacy and innovative behavior exists, which is partial intermediary.

Information literacy is an individual characteristic. On the basis of having some individual characteristics, the generation of behavior also needs cognitive factors such as motivation and attitude. Enterprises should attach importance to the factor of creative self-efficacy and use certain strategies to fully transform employees' information literacy into innovative behavior. To sum up, this study has formulated the employees' information literacy scale in new era, clarified the specific impact of each dimension of employees' information literacy on innovation behavior, and found that the creative self-efficacy plays a partial mediation effect in the relationship between employees' information literacy and innovation behavior. Finally, it proposes corresponding management strategies to provide tools and inspiration for enterprises to select, train and evaluate innovative talents, so as to promote the innovation performance of enterprises.

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