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Work Attitude, Innovation Ability and Innovation Performance of Employees in Chinese Manufacturing Enterprises

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Abstract*:The effect of work attitude and innovation ability on employee innovation performance is of great significance for improving the innovation ability of manufacturing enterprises and building an "Innovative Country" in China.This article theoretical analysis was conducted on the mechanism by which the work attitude of employees in manufacturing enterprises affects innovation performance and the mediating mechanism of innovation ability. Based on data from Chinese manufacturing enterprises, empirical analysis was conducted using SEM models. Research has found that the positive effect of organizational commitment on innovation performance is not significant,job involvement has a significant positive effect on innovation performance,job satisfaction only has a significant positive effect on the performance of incremental innovation,job satisfaction and job involvement have a greater impact on incremental innovation performance, while organizational commitment has a greater impact on mutant innovation performance. Innovation ability has a significant positive mediating effect, which is mainly reflected in the role of job involvement on incremental innovation performance. Therefore, manufacturing enterprises can take measures to improve employee innovation performance from the perspectives of job involvement, work environment and employee needs.*

Keywords*: manufacturing enterprise employees; work attitude; innovation ability; innovation performance; China*

JEL Classification*: M51*

I. Introduction

The global economic competition is becoming increasingly fierce, and the innovation system of the manufacturing industry is rapidly changing. The innovation construction of the manufacturing industry in developed countries is constantly accelerating. In order to further shorten the distance between public research institutions and related industries, France launched the "Carnot Plan" in 2006 to accelerate the process of technological transformation. The United States launched a manufacturing innovation network construction program in 2012 to gradually transform its manufacturing technology into productivity. In 2017, Japan proposed a comprehensive innovation strategy to build a "super intelligent society 5.0" to enhance the intelligence level of its manufacturing industry and the national economic growth rate. China is also actively promoting the development of its manufacturing industry towards high-quality direction, with the aim of promoting rapid innovation through manufacturing innovation, achieving the transformation from a manufacturing powerhouse to a manufacturing powerhouse, and providing policy support in top-level design. Since 2015, the Chinese government has successively issued several guiding documents, including the Implementation Guidelines for the Construction of Manufacturing Innovation Centers (2016-2020), the Guiding Opinions on Improving the

Manufacturing Innovation System and Promoting the Construction of Manufacturing Innovation Centers, and the Outline of the National Innovation Driven Development Strategy, which have identified manufacturing innovation as an important strategy for future national innovation, In order to enhance the innovation capability and market competitiveness of China's manufacturing industry, and promote the in-depth development of the Chinese economy.

As an important component of the economic system, enterprises are one of the most important contributors to economic innovation and bear an unshakable responsibility for the construction of China's "Innovative Country". Employees are the main force of enterprise innovation and play a crucial role in the core competitiveness of the enterprise. Work attitude is the emotion and concept formed by employees in the work environment, which includes subjective feelings, ideals, and perceptions. The work attitude of employees determines their willingness to innovate, as well as their subjective recognition and acceptance of innovation activities, which in turn affects their innovation performance. The innovation performance of enterprise employees refers to the new achievements obtained by enterprise employees through learning and applying new technologies and methods. Employee innovation ability refers to the ability of enterprise employees to learn and apply new knowledge and technology, which is a necessary condition for employees to carry out innovative activities. At the same time, innovation ability is also a concentrated reflection of employees' personal innovation level, which is influenced by subjective attitudes. So innovation ability is an important mediating factor between employees' work attitude and innovation performance. The same innovation ability will have different degrees of utilization due to differences in work attitude, which has a differentiated impact on innovation performance.

In the context of the "Innovative Country" strategy, the innovation performance of employees not only determines the innovation level and market competitiveness of manufacturing enterprise, but also has important significance for improving the comprehensive innovation level and sustainable economic developmentofChina. It has received high attention from the theoretical community, and scholars have conducted research on the innovation performance of enterprise employees from multiple perspectives. For example, Wan (2010), Wang (2014) and Cui (2021) have studied influencing factors of employee innovation performance, believing that subjective attitudes andwillingness are important factors that affect employees' innovation performance. Lin (2012), He (2020) and Zhang (2021) evaluated the innovation of employees in different types of enterprises in China, emphasizing the importance of employee innovation in enhancing innovation capabilities in China. They believe that the innovation performance of employees in Chinese enterprises is not high, but in the process of rapid improvement. Wu (2018), Shang (2020) and Shao (2022) summarized and evaluated the innovation models of current Chinese enterprise employees. Although some scholars have also paid attention to the relationship between work attitude, innovation ability and innovation performance of enterprise employees, there is very little targeted research on the effect of subjective attitude on innovation performance. It is even rarer to include employee innovation ability in the research framework and explore the mechanism of work attitude, innovation ability and innovation performance. This article uses a SEM model and based on research data from manufacturing enterprises in China, and studies on the effect of employees' work attitude on innovation performance, taking into account the mediating mechanism of innovation ability. While compensating for the current lack of theoretical research, it also has high practical value for formulating innovation incentive policies from the perspective of employees' work attitude.

II. Hypothesis

2.1 Direct impact mechanism and hypothesis

Scholars have a generally consistent view on the composition of work attitude among employees in enterprises. Scholars generally divide employee work attitude into three dimensions: job satisfaction, organizational commitment and job involvement, such as Jex (2003), Conte (2005), Xie (2011), etc. This article draws on existing research and also divides them accordingly. Job satisfaction refers to the comprehensive psychological feelings of employees towards various factors related to work, such as job content, work environment, interpersonal relationships, etc. Organizational commitment refers to the level of employee identification and participation in the organization, and is a type of "psychological contract". Job involvement is the state in which employees combine themselves with their work roles through self-control.

Job satisfaction is the comprehensive psychological feeling of employees towards their own work, and improving employee job satisfaction is an important mean for enterprises to attract and retain talents. If employees' actual income exceeds their expected income, they will inevitably have an extremely significant sense of satisfaction for their position, and are willing to stay in the company and make higher contributions,at this point, their work efficiency will also increase. The intrinsic relationship between job satisfaction and work efficiency of enterprise employees has long been a concern of the academic circle. As early as the 1920s, the Hawthorne's experimental found that higher job satisfaction can bring higher production efficiency (Xiong, 2018). Herzberg (1959) regarded employee satisfaction as an important standard of production efficiency and proposed the Two-factor theory, believing that higher job satisfaction can stimulate the work enthusiasm and willingness of employees in enterprises, thereby achieving higher work efficiency (Ceicalia and Dedy, 2012). After entering the 21st century, scholars' research has also reached basically consistent conclusions. Goodman et al. (2001) found a significant correlation between job satisfaction and innovation performance among enterprise employees. Culibrk et al. (2018) stated that if employees have more ideal organizational satisfaction, they are often more willing to actively participate in work, and innovation performance can significantly improve. Based on the above analysis, this article proposes the following assumptions:

Hypothesis 1: Job satisfaction has a significant positive impact on the innovation performance of manufacturing enterprise employees.

In the knowledge economy environment, to maintain and enhance core competitiveness, enterprises must scientifically manage their employees and cultivate their loyalty to the enterprise. Organizational commitment is the employees' self identification attitude towards the enterprise, the psychological bond connecting them with the enterprise, and the determining factor of employee loyalty. Ling et al. (2000) proposed a five dimensional organizational commitment model that includes emotional commitment, normative commitment, ideal commitment, economic commitment and opportunity commitment. They believe that each dimension can to some extent enhance employees' psychological dependence on the enterprise and have a positive impact on their work performance. Goodman et al. (2001) believe that there is a close relationship between organizational commitment and job performance of enterprise employees. Xiang (2017) explored the mechanism by which organizational commitment affects employee job performance, emphasizing that organizational commitment is an important factor in the occupational safety and loyalty of employees, which can help improve employee job performance. Li (2022) believes that organizational commitment has a positive stimulating effect on employees' innovative behavior, and high organizational commitment can promote employees to achieve high innovation results. Therefore, the following assumptions are proposed:

Hypothesis 2: The organizational commitment has a significant positive impact on innovation performance of manufacturing enterprise employees.

The work efficiency of employees is closely related to their emotional engagement. If employees are willing to devote their energy to work tasks and are willing to receive higher satisfaction and sense of

achievement in the enterprise, their work performance will improve. On the contrary, if the employee's work engagement is low, they are already tired of dealing with their work, and their work performance will also stagnate. At the same time, if employees have a positive and upward mental state and a high level of work engagement, they can quickly adapt to the needs of the new position and actively cultivate abilities they do not have. They are more willing to learning and strive to improve work efficiency. Schaufeli (2002) pointed out that work engagement can reflect the work level, organizational identity, and focus of employees in a company, with characteristics of persistence and dispersion. Cropanzano et al. (2006) argue that high work engagement can essentially be seen as a positive work attitude that can to some extent enhance and improve innovation performance. Li et al. (2015) empirically studied the impact of work engagement on job performance of R&D employees in high-tech enterprises, and pointed out that the work engagement of R&D employees is an important positive factor affecting innovation efficiency. Based on the above analysis, this article proposes the following assumptions:

Hypothesis 3: Job engagement has a significant positive impact on innovation performance of manufacturing enterprise employees

2.2 The Mediating Mechanism of Innovation Ability and Hypothesis

The relationship between work attitude and innovation performance of employees is not simply one-on-one. Whether an employee does or does not do a certain job, whether they do it well or poorly, whether they do it seriously or carelessly, depends on their attitude. Employees will subjectively do not work hard and will fail to complete tasks that they are unwilling to do, indicating poor work ability. On the contrary, when employees have positive work attitude, they will work hard subjectively, and always able to complete their work well, demonstrating excellent work abilities. Li et al. (2006) studied the relationship between work attitude and professional competence of medical staff, and found that there is a positive correlation between employees' work attitude and professional competence. Xiang et al. (2021) used enterprise asset appraisers as an example to study the impact path between employees' professional abilities and work attitudes,the conclusion emphasizes that employees' work attitudes have a positive effect on the improvement of their professional skills.

The theory of creativity components points out that as the foundation and driving force of individual innovation behavior, the innovation ability will directly affect innovation behavior and have a significant impact on innovation performance. For the innovation process of employees, innovation performance is external, while innovation ability is internal. Employees with higher innovation performance often have higher innovation ability, while employees with stronger innovation ability generally perform well in innovation performance. Some scholars' research also supports this viewpoint, such as theresearch of Li and Wu (2014) based on SET theory, which pointed out that employees' work ability is an important positive influencing factor of work performance. Ge (2021) conducted a study using major technological infrastructure as an example and pointed out that the work ability of technological personnel is directly related to their innovation level.

Therefore, the innovation ability of employees lies in the intermediary link between work attitude and innovation performance. While conveying the impact of work attitude on innovation performance, it can further strengthen the effect of work attitude on innovation performance.

Based on the above analysis, this article proposes the following assumptions:

Hypothesis 4: The innovation ability of manufacturing enterprise employees has a positive mediating effect on the impact of job satisfaction on innovation performance.

Hypothesis 5: The innovation ability of manufacturing enterprise employees has a positive mediating effect on the impact of organizational commitment on innovation performance.

Hypothesis 6: The innovation ability of manufacturing enterprise employees has a positive mediating effect

on the process of work engagement affecting innovation performance.

III. Questionnaire and data

3.1 Questionnaire design

This article collects data through a 5-level scale, which includes employees' work attitude, innovation performance and innovation ability, which includes several dimensions, and the total score of each item under the same dimension is calculated as the score of that dimension. One dimension represents a variable. The respondents rate each question item based on their actual situation, and the alternative score is an integer between 1 and 5, the higher the score, the higher the respondents' recognition of the item.

3.1.1 Work attitude measurement items

This article draws on existing research and sets measurement items from the three dimensions of work attitude (Table 1). The Job Satisfaction Scale sets items (Goodman, 2001; Ceicalia, 2012; Culibrk, 2018) from three aspects: job nature, employee supervisor and colleague relationships. Organizational commitment includes five aspects: emotional commitment, responsibility commitment, ideal commitment, opportunity commitment, and economic treatment commitment (Xiang, 2017; Li, 2022). Work engagement measurement items include items such as the energy, time, and emotions invested by employees (Schaufeli, 2002; Zhang, 2005; Li, 2015).

Table 1 Work Attitude Measurement Items

Dimension	Questions	Reference
Job satisfaction	X1 Satisfaction with specific job content X2 Satisfaction with the soft and hard work environment X3 Satisfaction with relationships between colleagues and leaders	Goodman et al. (2001), Ceicalia (2012), Xiong et al. (2018),
Organizational commitment	X4 Having a deep affection for the current unit X5 Must be responsible for the current unit X6 Being able to better achieve your ideals in the current unit X7 If you can find a better job, you will consider leaving X8 You did not resign because of the benefits provided by your current employer	Xiang (2017), Li (2022)
Job Involvement	X9 Having abundant energy in work X10 Being able to persevere in the face of difficulties in work X11 Being able to devote yourself wholeheartedly to work X12 Willing to accept challenges in the workplace X13 You always feel like time flies at work	Schaufeli (2002), Zhang (2005), Li et al. (2015)

3.1.2 Innovation Performance Measurement Items

According to the nature of innovation, employees' innovation performance can be divided into mutant innovation performance and incremental innovation performance. Mutant innovation performance refers to the performance brought about by a company's rapid, extensive and short duration innovation, which is more manifested in the qualitative innovation performance of the company's technology, production processes, and other aspects. Incremental innovation is a slow and long-lasting innovation approach, mainly manifested in the quantitative innovation performance of enterprise technology, production processes, etc. In order to gain a deeper understanding of the impact of employees' work attitude of manufacturing enterpriseson innovation

performance, this article divides innovation performance into two dimensions in empirical analysis: mutant innovation performance and incremental innovation performance. In the current study, Han et al. (2007) designed a job performance scale that includes 8 innovation performance items, and used the 5-point scoring method to measure employees' innovation willingness, actions and results. Ruan (2015) measured the innovation performance of enterprise employees by setting six items in terms of new product research and development, sales and other aspects. Zhang (2021) designed an innovation performance scale for enterprise employees from four aspects: basic conditions, investment, innovation activities, and influencing factors, and measured the innovation performance of enterprise employees in EU countries. This article draws on existing scales and designs employee innovation performance items from two dimensions: mutant innovation performance and incremental innovation performance (Table 2).

Table 2 Innovation Performance Measurement Items

Dimension	Questions	Reference
Mutant innovation performance	Y1 Helping enterprises launch new products	Han (2007), Ruan (2015), Zhang (2021)
	Y2 Helping enterprises explore new markets	
	Y3 Helping the enterprise develop new projects	
	Y4 Helping enterprises break through technological bottlenecks	
Incremental Innovation Performance	Y5 Helping enterprises improve product quality	
	Y6 Helping enterprises reduce product costs	
	Y7 Helping enterprises consolidate their existing market	
	Y8 Helping businesses enrich their product offerings	

3.1.3 Innovation ability measurement items

The innovation ability discussed in this article belongs to individual innovation ability, which refers to the overall performance of employees in mastering and applying new methods and technologies in innovation activities. Drawing on the research results of Li et al. (2006), Li (2014) and Mei (2019), a self-assessment method was used to measure employees' innovation ability (Table 3).

Table 3 Measurementitems of innovation ability

Questions	Reference
K1 Trying to learn new methods and technologies in work	Li et al. (2006) , Li (2014) , Mei (2019)
K2 Mastering new methods and technologies related to work	
K3 Attempting to adopt new methods and technologies in work	

3.2 Questionnaire reliability and validity testing

In order to ensure the reliability and validity of the designed questionnaire, the author distributed test questionnaires to professional R&D employees, technical employees, and management employees of three manufacturing enterprises in Anhui province China through WeChat. The distribution of test questionnaires lasted for nearly a month, from early February 2022 to the end of March 2022. A total of 150 test questionnaires were distributed, and 118 available questionnaires were collected, with an effective recovery rate of 78.7%.

Drawing on the methods proposed by existing scholars, the reliability and validity of each item in the questionnaire were tested using five indicators: theCronbach's α value, the extreme group comparison value, the correlation coefficient with the total score, commonality, and factor load (Zhang, 2005; Chai, 2010; Ke, 2020).

The evaluation criteria for each indicator are 0.7, 3, 0.4, 0.2 and 0.45 respectively. When the number of non compliant indicators for a certain question item is greater than or equal to 3, it is considered that the setting of the item is unreasonable and deleted. The calculation results show (Table 4) that there are 3 failed test indicators for X10 in the work attitude measurement item, so X10 is deleted. In addition, the number of non compliant indicators for all other items is 2 or less.

Table 4 Evaluation Table for Initial Items

Items	The extreme group comparison value	The correlation coefficient with the total score	Cronbach's α value	Comm onality	Factor load	Non compliant indicators	Judgment conclusion
Work Attitude Measurement Items							
X1	3.73	0.34	0.76	0.35	0.42	2	Reserve
X2	3.66	0.51	0.68	0.41	0.62	0	Reserve
X3	4.37	0.62	0.70	0.33	0.58	0	Reserve
X4	3.32	0.43	0.65	0.19	0.38	2	Reserve
X5	6.02	0.71	0.72	0.26	0.51	0	Reserve
X6	3.08	0.49	0.62	0.50	0.63	0	Reserve
X7	2.18	0.46	0.68	0.23	0.40	2	Reserve
X8	3.08	0.48	0.81	0.37	0.48	1	Reserve
X9	4.55	0.56	0.64	0.22	0.47	0	Reserve
X10	3.51	0.35	0.77	0.29	0.36	3	Delete
X11	4.88	0.56	0.71	0.33	0.57	0	Reserve
X12	2.95	0.37	0.72	0.26	0.53	2	Reserve
Criteria	≥3.00	≥0.40	≤0.70	≥0.20	≥0.45		
Innovation Performance Measurement Items							
Y1	4.61	0.51	0.67	0.33	0.60	0	Reserve
Y2	2.75	0.58	0.73	0.29	0.42	2	Reserve
Y3	3.79	0.37	0.70	0.17	0.42	3	Reserve
Y4	4.11	0.55	0.70	0.38	0.51	0	Reserve
Y5	2.93	0.46	0.71	0.28	0.42	2	Reserve
Y6	3.85	0.53	0.69	0.34	0.54	0	Reserve
Y7	3.08	0.46	0.72	0.25	0.59	0	Reserve
Y8	4.55	0.42	0.71	0.42	0.58	0	Reserve
Criteria	≥3.00	≥0.40	≤0.70	≥0.20	≥0.45		
Innovation Ability Measurement Items							
K1	2.67	0.57	0.70	0.25	0.51	1	Reserve
K2	2.83	0.55	0.76	0.34	0.41	2	Reserve
K3	3.18	0.61	0.73	0.35	0.50	0	Reserve
Criteria	≥3.00	≥0.40	≤0.70	≥0.20	≥0.45		

3.3 Data Collection

Based on the adjusted questionnaire, the author conducted a formal survey with the help of course team members and relevant industry experts. Distribute survey questionnaires to employees in relevant positions in 52

various manufacturing enterprises (most of which are private network enterprises) in the Yangtze River Delta region of China through WeChat. This questionnaire survey lasted for nearly 2 months, from mid April 2022 to mid June 2022. A total of 1783 questionnaires were distributed and 1366 valid questionnaires were collected, with an effective recovery rate of 76.6%. The scope of formal questionnaire distribution covers employees of different genders, age groups, educational backgrounds, and positions in manufacturing enterprises of different sizes. The survey subjects cover a wide range and are highly representative, as shown in Table 5.

Table 5 Basic Information of Survey Samples

employee attributes			Enterprise attributes		
Attributes	Categories	Proportion（%）	Attributes	Categories	Proportion（%）
Gender	male	62.4	Annual sales revenue	Less than RMB 10 million	8.3
	female	37.6		RMB 10-50 million	20.5
Age	Under 30 years old	15.3		RMB 50 million to 100 million yuan	23.8
	30-39 years old	40.6		RMB 100 to 500 million	20.9
	40-49 years old	32.5		RMB 500 to 1 billion	17.2
	50 years old and above	11.6		Above RMB 1 billion	9.3
Education	Junior college or below	6.8	Number of employees	299 and below	10.9
	undergraduate	33.4		300-999	32.8
	postgraduate	59.8		1000-2999	35.6
Post	Professional R&D position	28.2		3000 and above	20.7
	Department Technical Post	31.8	Industry	Advanced manufacturing	52.6
	Senior management position	18.6		Traditional manufacturing industry	47.4
	Middle and grassroots management positions	16.3			
	other	5.1			

IV. Empirical testing

4.1 Canonical Correlation analysis

There are several dimensions (variables) for work attitude and innovation performance,to understand the correlation between work attitude and innovation performance, the canonical correlation analysis method was used to calculate six pairs of canonical correlation coefficients between the two variables of work attitude and innovation performance (Table 6). It can be seen that there are 4 pairs of canonical variables that are

significantly positively correlated at the 0.05 level, while all 6 pairs of canonical variables are significantly positively correlated at the 0.1 level. The correlation coefficient values are all above 0.4, with the highest reaching 0.832. There is a varying degree of positive correlation between employees' work attitude and various variables under innovation performance.

Table 6Canonical Correlation Test Table

Canonical correlation		Significance test indicators				
			Wilk's	Chi-SQ	DF	Sig.
1	0.832	1	0.058	584.831	233.000	0.000
2	0.603	2	0.187	367.503	182.000	0.000
3	0.586	3	0.381	272.563	168.000	0.000
4	0.531	4	0.496	166.581	133.000	0.003
5	0.422	5	0.625	146.773	125.000	0.076
6	0.488	6	0.682	93.518	92.000	0.091

4.2 Confirmatory factor analysis

Before constructing the Structural Equation Model (SEM), a confirmatory factor analysis was conducted on the variables of work attitude and innovation performance in each dimension (as innovation ability only has one dimension, there is no need to do so). Confirmatory factor analysis belongs to the sub model of SEM and is a special application of SEM. Taking each measurement item as a specific indicator (factor), the initial work attitude factor model includes all the items in the scale, and the overall fitting effect of the model is poor. Except for PGFI, PNFI and PCFI passing the fitting standard, all other test statistics did not meet the fitting standard. Subsequently, confirmatory factor analysis was conducted, and the overall effectiveness of the model was significantly improved, with most fitting indicators meeting or approaching the adaptation standards. After correcting the covariation relationship between the added error variables, the model fitting effect reached a relatively ideal state, and all test indicators met the adaptation standards. By calculating the path coefficients between the first-order factor construct and each factor as standardized regression coefficients, all path coefficients reached a significance level of 0.01, and the factor load was above 0.35, most of which were above 0.5. Each factor can effectively reflect its desired construct trait. The factor loadings of the three first-order factor constructs (job satisfaction, organizational commitment, job engagement) are 0.91, 0.87, and 0.85 respectively, indicating that these three factors aggregate into the same factor at a higher level, namely work attitude.

The initial factor analysis model for innovation performance also has poor overall fitting performance, and most of the test statistics do not meet the fitness criteria. After conducting confirmatory factor analysis again, the overall fitting effect of the model has been significantly improved, and most of the test statistics are close to or meet the adaptation standards. After further modifying the model and adding the covariation relationship between error variables, the fitting effect of the model is relatively ideal. The path coefficients between the first-order factor construct and each factor all reach a significance level of 0.01, and each factor can effectively reflect its measured construct traits. The factor load of the two first-order factor constructs (mutant innovation performance and incremental innovation performance) is high, mostly above 0.58. These two factors aggregate into the same factor at a higher order, namely innovation performance.

4.3 Construction and Analysis of SEM

4.3.1 Construction of SEM

Building an initial SEM between work attitude and innovation performance based on confirmatory factor analysis, which includes 23 error variables and 3 residual variables. In the initial SEM, only 4 out of 16 adaptation indicators met the adaptation criteria (PGFI, PNFI, PCFI, and CAIC), and the adaptability between the initial SEM and actual observation data needs to be improved. Further testing of the specific path revealed that the p-value of the "Job satisfaction → Mutant innovation performance" path was significantly higher than the significance level of 0.1 (p-value 0.381), while other paths were significant at the 0.1 level. Therefore, this path was removed to correct the model. After testing, the modified SEM performed well in terms of fitness. In the absolute fitness index at the 0.1 level, except for the chi-square p-value that did not pass the test, all other test indicators reached the fitness level. In the value-added fitness index, only the NFI and RFI did not reach the fitness level, and in the simplified fitness index, only the CN and AIC did not reach the fitness level.

4.3.2 SEM fitting and analysis

The fitting results of the path coefficients of the modified SEM are shown in Table 7. It can be seen that the standard error (S.E.) of the fitting coefficient values for each path is relatively small, and the confidence interval constructed based on this is relatively small. From the perspective of significance level, except for the two paths of "Organizational commitment → Mutant innovation performance" and "Organizational commitment → Incremental innovation performance", the fitting coefficient values of all other paths pass the 0.1 level, and the significance level of the two paths that do not pass is only slightly higher than 0.1, so the internal quality of the model is good. Among the fitness indicators of the model, 10 have met the fitness standards, and the external quality of the model is also good. So the modified SEM has a good comprehensive fitting effect.

Table 7 Fitting Results of Path Coefficients of SEM

Path			Coefficient	S.E.	C.R.	P-value
Job satisfaction	→	Innovation ability	0.091	0.038	2.103	0.033
Job involvement	→	Innovation ability	0.274	0.041	1.859	0.000
Organizational commitment	→	Innovation ability	0.105	0.074	1.206	0.021
Innovation ability	→	Incremental innovation performance	0.537	0.138	3.144	0.000
Innovation ability	→	Mutant innovation performance	0.132	0.305	1.545	0.069
Job satisfaction	→	Incremental innovation performance	0.388	0.115	2.033	0.023
Job involvement	→	Incremental innovation performance	0.411	0.237	2.002	0.010
Job involvement	→	Mutant innovation performance	0.108	0.067	2.103	0.023
Organizational commitment	→	Incremental innovation performance	0.075	0.134	1.255	0.148
Organizational commitment	→	Mutant innovation performance	0.332	0.026	0.612	0.129

From the fitting coefficient values of each path in Table 7, it can be seen that the coefficient value of "Job

satisfaction → Incremental innovation performance" is 0.388, which have passed the significance level of 0.05, job satisfaction has a significant positive effect on incremental innovation performance. Due to the failure of the "Job satisfaction → Mutant innovation performance" path in the previous text, the absence of this path indicates that job satisfaction does not have a significant effect on mutant innovation performance, so the hypothesis 1 is not valid. Although the coefficient values of "Organizational Commitment → Incrementalinnovation performance" and "Organizational Commitment → Mutantinnovation performance" are both positive, their significance levels have not reached the level of 0.1. Although organizational commitment has a positive effect on incremental and mutant innovation performance, it is not significant, so hypothesis 2 is not valid. The coefficient values of the two paths of "Job Involvement → Incremental innovation performance" and "Job Involvement → Mutant innovation performance" are 0.411 and 0.108, respectively, and the significance level is lower than 0.05. Work engagement has a significant positive effect on both progressive innovation performance and sudden innovation performance, and the previous hypothesis 3 is valid.

From the perspective of mediating variable, the three dimensions of work attitude have positive path coefficients for innovation ability, and all have passed the significance level of 0.05. The path coefficients for innovation ability on incremental and mutant innovation performance are also positive, and are significant at the 0.1 level. Innovation ability plays a positive mediating role between various dimensions of work attitude and innovation performance, and can transmit the positive force of work attitude to innovation performance. Therefore, hypothesis 4, hypothesis 5 and hypothesis 6 are all valid.

Further comparing the coefficient values of each path, in terms of the direct impact mechanism, there are differences in the impact of the three dimensions of work attitude on innovation performance. The effect of job satisfaction and job involvement on innovation performance is more evident in the direction of incremental innovation performance. The path of job satisfaction on mutant innovation performance does not exist, and the coefficient value of job involvement on mutant innovation performance is much smaller than the coefficient value of the path of incremental change innovation performance. The path coefficient value of "Organizational Commitment → Incremental Innovation Performance" is only 0.075, which is much smaller than 0.332 of "Organizational Commitment → Mutant Innovation Performance". The effect of organizational commitment on innovation performance is mainly manifested in the direction of mutantinnovation performance.

The mediating effect of innovation ability is also different in different work attitude dimensions and different innovation performance dimensions. The coefficient of "Job involvement → Innovation ability" is 0.274, which is much higher than the coefficient of the other two work attitude variables on innovation ability. The coefficient of innovation ability on incremental innovation performance is 0.537, which is much higher than the coefficient of innovation ability on mutant innovation performance. This shows that the mediating effect of innovation ability is mainly focused on the role of job involvement on incremental innovation performance, while in the process of the role of job satisfaction and organizational commitment on incremental or mutant innovation performance, although there is also a positive mediating effect, it is very small.

V. Conclusions and suggestions

5.1 Conclusions

This paper sets up a questionnaire scale from three directions of manufacturing enterprisesemployees' work attitude, innovation performance and innovation capability, and Obtained data through a questionnaire survey of 1783 employees of 52 manufacturing enterprises in the Yangtze River Delta China. It constructs a SEM and conducts an empirical analysis of the effect of manufacturing enterprises employees' work attitude on innovation performance and the mediating effect of innovation ability. The main conclusions are as follows:

(1) Manufacturing enterprisesemployees' work attitude has a positive effect on their innovation performance, among which job satisfaction has a significant positive effect on their incremental innovation performance, while it does not have a significant effect on mutant innovation performance. Although organizational commitment has a positive effect on the performance of incremental and mutant innovation, it is not significant. Job involvement has a significant positive effect on both incremental and mutant innovation performance.

(2) There are differences in the impact of dimensions of work attitude on innovation performance, with job satisfaction and job involvement having a greater impact on incremental innovation performance, and organizational commitment having a greater impact on mutant innovation performance.

(3) There is a positive mediating effect of innovation ability in the effect of manufacturing enterprisesemployees' work attitude on their innovation performance, which can transmit the positive force of job attitude to innovation performance.

(4) The mediating effect of innovation ability is mainly reflected in the effect of job involvement on incremental innovation performance. Although there is a positive mediating effect in the effect of job satisfaction and organizational commitment on incremental or mutant innovation performance, the effect is very small.

5.2 Suggestions

(1) Optimize work content and drive manufacturing enterprisesemployees to increase job involvement.

Employees often prefer challenging work, and they hope to maximize their potential. So enriching manufacturing enterprisesemployees' work content, improving their previous routine and dull work state, providing more opportunities and possibilities for their innovation, and effectively promoting employees to be more actively involved in their work. For example, methods such as job rotation, providing research topics and multi-party cooperation can be adopted to create and experiment with different job contents for employees, stimulating their innovation enthusiasm. In addition, it is also necessary to set reasonable work goals for employees and motivate them to work through goal based incentives, which can not only ensure the achievement of organizational goals but also improve the quality of employees' work. For example, setting work goals that are more tailored to the age, professional title, family situation and personal preferences of employees. For younger employees who have higher demands for higher professional titles and are willing to accept challenges, they can set R&D and innovation goals that are shorter in time, higher in quality, and more challenging. For employees who have a heavier family burden and require more flexible time to take care of their families, they can set work goals that are more relaxed in time and generally challenging.

(2) Improve the working environment of the manufacturing enterprises and stimulate employees to increase their job involvement.

A good organizational environment can improve the quality of work and life for employees, prompting them to voluntarily invest more time and energy in their work. Manufacturingenterprises can improve their hardware environment based on their actual situation, such as setting up work and rest areas to facilitate employees' relaxation and communication during work breaks, introducing advanced work equipment, and placing flowers, green plants, etc. in the work area. In addition, it is necessary to strengthen team building, democratic management and other soft environment construction. Manufacturingenterprises gather employees together through team building, achieving complementary advantages and leveraging the strengths of team members while continuously learning from the strengths of other team members. Strengthen democratic management in both management decision-making and authorization. For some important decisions, especially those closely related to employee interests, it is necessary to listen more to employees' opinions and give them

more opportunities to directly participate or delegate participation. Provide employees with more trust and work autonomy, allowing them to feel the trust and affirmation of the company towards themselves, while also being able to arrange research and innovation work more flexibly and flexibly.

(3) Diversify to meet employees' needs and improve employee satisfaction.

In addition to improving the salary and welfare system, effectively developing employee skill training systems, and other conventional methods to improve employee satisfaction, it is also necessary to timely grasp and meet the diverse and personalized work needs of manufacturing enterprises employees to effectively improve employee job satisfaction. Manufacturing nterprises can use methods such as mobile interviews, questionnaire surveys, symposiums and open days to understand employees' needs. Analyze and classify the work needs of employees, and actively organize resources to meet their legitimate work needs as much as possible. If possible, specific timelines can be proposed to demonstrate the importance and determination to complete the work. When the proposed work needs exceed the scope that the organization can provide, managers should also respond to employees, calm their emotions, and patiently explain why they cannot meet this requirement, what obstacles exist, and what plans they have for the future.

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