The Effects of Job Characteristics and Total Rewards on Employee Innovation Performance in Shanxi Province, China

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Abstract

Innovation is the soul of a nation's progress and the key to winning in the increasingly fierce competition. Innovation is the strategic support for the construction of a modern economic system and the first driving force for economic development. In order to establish and maintain the competitive advantages of enterprises and promote the sustainable development of China's economy, it is urgent for China's economy to shift from external power to internal power and from "factor driven" to "innovation driven".

This paper adopts a combination of qualitative and quantitative research methods. Through a sample survey of 1151 employees of enterprises in Shanxi Province, and in-depth interviews with 20 executives of human resources, R&D departments, front-line innovative employees, and researchers of human resources management theories, data analysis is conducted using NVIVO, SPSS and AMOS software. To verify the correctness of the model and hypothesis. It is

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Keywords: Job Characteristics, Total Rewards, Human Capital Investment, Employee Innovation Performance

Article history:
Received: 03/03/2024
Revised: 08/05/2024
Accepted: 28/05/2024

found that Job Characteristics, Total Rewards and Human Capital Investment have significant positive effects on Employee Innovation Performance. Job Characteristics and Total Rewards have a significant positive impact on Human Capital Investment. Human Capital Investment plays an intermediary role among Job Characteristics, Total Rewards and Employee Innovation Performance.

Introduction

Innovation has always been an important force for the development of a country and a nation, and has always been an important force for the progress of human society. Peter Drucker believes that innovation is the only driver of sustainable and healthy economic development (Davenport et al. 2002). Innovation Performance is a key factor for organizational survival and development (Bank , 2013& Drucker, 1989). Human capital is an important factor of innovation (Zhang Hongru, 2020), and its important role in promoting national and regional economic development has reached a consensus, including that human capital is the driving force and source of technological innovation and economic growth (Le Wenrui, 2019), and the innovation ability based on human capital is conducive to promoting the sustainable development of enterprises and regions. Promote the transformation of enterprises and employees from accepting innovation, needing innovation, to committing to innovation (Glaeser, 2010). Enterprise is the main body of innovation, and the realization of enterprise innovation activities needs employees to realize. The Human Capital Investment of employees to improve Innovation Performance depends on the factors of employees themselves on the one hand, and is also affected by the working environment (such as Job Characteristics) of employees on the other hand (Oldham, 1996; Bai Guiyu et al., 2021). From the perspective of incentive, remuneration is the key variable that affects employees' Human Capital Investment and Innovation Performance improvement (Glaeser, 2010). Based on the above analysis, this paper explores the impact of Job Characteristics and Total Rewards on Employee Innovation Performance. Further analyze the mechanism of Human Capital Investment as an intermediary variable between Job Characteristics, Total Rewards and Employee Innovation Performance. It is expected to provide theoretical support and basis for job redesign and job reshaping, and provide theoretical guidance and practical suggestions

for improving Employee Innovation Performance.

Research Objectives

This paper aims to:

1. To explore the mechanism of Total Rewards affecting Employee Innovation Performance.

2. To Explore the mechanism of Job Characteristics affecting Employee Innovation Performance.

3. To Investigate the mediating role of Human Capital Investment on Employee Innovation Performance.

Literature Review

Job Characteristics and Employee Innovation Performance

Through literature retrieval and review at home and abroad, Yu Haiyun et al. (2019) believe that domestic and foreign scholars tend to study how to improve the Innovation Performance of enterprises from the perspective of external incentives. However, there are few researches on Employee Innovation Performance. According to the studies of Scott and Bruce (1994), Janssen et al. (2004) and Han Yi (2020), Employee Innovation Performance is a combination of outcome theory and process theory. The improvement of Employee Innovation Performance depends not only on the knowledge and skills of employees, but also on the work design of the organization. The Job Characteristics model of Hackman and Oldham (1976) is an important theoretical basis for job design and redesign, which includes skill diversity, task integrity, task importance, job autonomy and feedback. The job content itself has an intrinsic motivation for employees. Oldham and Kulik (1986) found that the five core dimensions of Job Characteristics of data processors can significantly and positively predict their job performance. Wang Fuxiang (2016) found that the Job Characteristics of commercial bank employees can significantly positively affect job performance.

Total Rewards and Employee Innovation Performance

Armen Alchian (1950) argues that “productivity is determined by the rationality of compensation, not by productivity.” The development of Rewards has gone through a

process from monetary rewards to Total Rewards including monetary rewards and non-monetary rewards. In terms of Total Rewards adapted to the Chinese context, Hong Jian et al. (2017) found four dimensions of salary, welfare, work experience and cultural environment. Wang Hongfang's (2019) study replaced work-life balance with work environment. Based on the two-factor theory, the research results of Yang Juran (2022) include four dimensions: wage level, working conditions, work-life balance, and development and career opportunities. Many experts and scholars have not reached a consistent conclusion on the division of the Total Rewards dimension, which needs to be further tested by empirical tests. On the basis of monetary Rewards, Total Rewards pay attention to non-monetary rewards, and realize the organic combination of monetary rewards and non-monetary rewards. From the perspective of R&D personnel and executives, different experts and scholars have proved that compensation incentives have a significant positive impact on the Innovation Performance of enterprises (Wang Jianhua, 2015). Bai Guiyu et al. (2021) believe that good welfare incentives and quality of work and life are conducive to improving employees' job satisfaction, and they recognize that incentive system and training and development are conducive to stimulating employees' initiative, promoting their emotional commitment to the organization, and significantly positively affecting the Innovation Performance of enterprises. From an empirical perspective, Zhang Resheng et al. (2023) argued that the Total Rewards model could better adapt to the situation in China. Therefore, Total Rewards could help internalize employees' external motivation, stimulate employees' subjective initiative, and improve Innovation Performance.

Human Capital Investment and Employee Innovation Performance

Human capital, proposed by Theodore W.Schultz, winner of Nobel Prize in economics, is the capital embodied in workers, formed through investment and composed of workers' knowledge, skills and physical strength. Schultz, Becker and Minsel believe that Human Capital formation involves such activities as education, vocational training, health care and human capital migration. Aro's "dry learning theory" complements the traditional Human Capital Investment theory (Becker, 2016).

Many foreign scholars have shown that the level of human capital is positively correlated with organizational performance (Becker, 1997; Youndt, 2004); Domestic

scholars Sun Wenjie and Shen Kunrong (2019) and Deng Xuefen et al. (2012) believe that human capital has a positive impact on innovation and human capital has a positive impact on high-tech enterprise performance. According to the study of Yao Yao and Zhao Yingjun (2021), the manifestation and activation of human capital is conducive to the transformation of economic growth from factor-driven to innovation-driven.

Job Characteristics and Human Capital Investment

The influence of Job Characteristics on workers has been widely paid attention to. Job design based on Job Characteristics model can mobilize employees' enthusiasm for work and encourage employees to take the initiative to learn and innovate in work with the aim of job enlargement and job enrichment. It further increases the motivational power of the work itself (Hackman & Oldham1976). From the content of Job Characteristics and the factors of individual differences of employees, employees need to actively learn the knowledge, skills and abilities to adapt to the needs of the organization.

Total Rewards and Human Capital Investment

Chen Weitao et al. (2020) believe that the transformation of Chinese economy from "factor-driven to innovation-driven" ultimately depends on the level of human capital that enterprises and employees possess. Through the establishment of a reasonable Human Capital reward mechanism, improve the remuneration of workers, so that employees can get the expected higher income, which is conducive to stimulating the enthusiasm of employees in Human Capital Investment. Luo Pinliang et al. believe that career development (2021) is the recognition of employees' Human Capital accumulation, and individuals will increase their Human Capital Investment in order to achieve their own development and career promotion. However, few people have studied the relationship between Total Rewards and Human Capital Investment.

Human Capital Investment plays a partial mediating role in the influence of Job Characteristics and Total Rewards on Employee Innovation Performance.

Although human capital theory is considered to be an important theoretical basis for the impact of human resource management on enterprise performance, there are wide differences on the mechanism of human capital in the impact of human resource management on enterprise performance. Youndt and Snell (2004) found that human capital plays a partial intermediary role in the process of HRM's impact on enterprise

performance. The study of Chen Yunyun et al. (2022) shows that specialized human capital completely mediates the effect of high-performance human resource management practices on performance. The research of Cheng Dejun and Zhao Shuming (2016) shows that dedicated human capital plays a partial mediating role in the relationship between high participation work system and firm performance.

Youndt and Snell (2004) found that human capital is the intermediary variable between high-performance human resource management system and corporate performance, but the mechanism of human capital in the process of human resource management affecting corporate performance has not been thoroughly studied. And the results are quite mixed. Youndt and Snell (2004) found that human capital plays a partial but not complete mediating role in the process of HRM affecting enterprise performance. Wang Zhaohui et al. (2016) verified that high Performance work system and R&D investment play a partially mediating role in the impact of Innovation Performance from the aspects of dedicated human capital, high-quality human capital and strategic human capital.

Research Hypothesis

H1: Job Characteristics positively affect Employee Innovation Performance.

H2: Total Rewards positively affect Employee Innovation Performance.

H3: Human Capital Investment positively affects Employee Innovation Performance.

H4: Job Characteristics positively affect employees' Human Capital Investment.

H5: Total Rewards positively affect Employee Human Capital Investment.

H6: Human Capital Investment plays a partially mediating role in the influence of Job Characteristics on Employee Innovation Performance.

H7: Human Capital Investment plays a partial mediating role in the impact of Total Rewards on Employee Innovation Performance.

Conceptual Framework

This paper is based on the composition theory of creativity and innovation

(Amabili 1983, 1988,1997), human capital theory (Becker 1972,2004) and self-determination theory (Deci & Ryan 1975,1980,1985). The theoretical research framework is constructed with Job Characteristics and Total Rewards as independent variables, Employee Innovation Performance as dependent variable, and Human Capital Investment as intermediary variable.

For Job Characteristics, refer to Hackman et al. (1975) and Idaszak et al. (1987). It includes five dimensions: Skill diversity (JCA), Task integrity (JCB), Task Importance (JCC), Job autonomy (JCD), and Feedback (JCE). For Total Rewards, refer to the views of Yang Juran (2022). It includes four dimensions: Salary (TR1), welfare (TR2), Performance and work-life balance (TR3) and Recognition & Career Development (TR4). For Human Capital Investment, refer to Becker (1975) and Zhang Yishi et al. (2019). These include Specific Human Capital Investment (HCI1), Universal Human Capital Investment (HCI2), and Innovative Human Capital Investment (HCI3) has three dimensions. For Employee Innovation Performance (CP), referring to Scott&Bruce (1994), Zhou&George (2001), Janssen(2003) and Han Yi (2020), 10 items are included as single-dimensional variables. Therefore, the author summarizes and proposes the following conceptual framework.

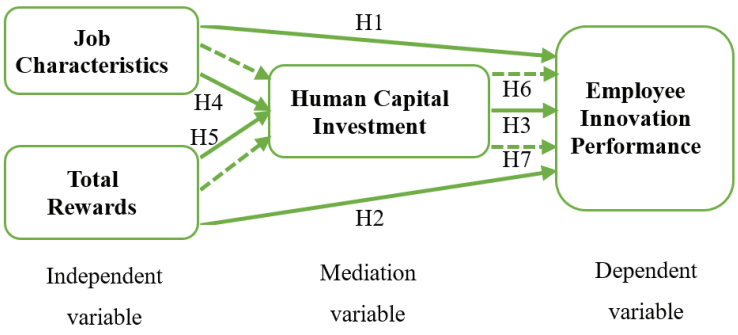

Figure 1 Conceptual Framework

Source Hackman et al. (1975), Idaszak et al. (1987), Yang Julan (2022), Becker (1975), Zhang Yichi et al. (2019), Scott&Bruce(1994), Zhou&George (2001), Janssen(2003), Han Yi (2020) et al

Research Methodology

This study adopts qualitative and quantitative research methods.

Qualitative approach

Using the method of purposeful sampling, we conducted in-depth interviews with 20 HR and R & D department directors, front-line innovation outstanding employees, and HR management theory researchers. Based on grounded theory (Glaser & Strauss, 1967), interview records are encoded by NVIVO software, including open encoding, axial encoding, and selective encoding. After theoretical saturation, reliability and validity tests, the research conceptual model and hypothesis are verified.

Quantitative method

1) Questionnaire survey

The questionnaire is divided into 6 parts. There are 85 questions in Total: title title, personal information of respondents, Job Characteristics scale (Hackman et al.,1975 & Idaszak et al.,1987), Total Rewards scale (Yang Juran, 2022), and Human Capital Investment scale (Zhang Yishi et al., 2019) and Employee Innovation Performance Scale (Janssen,2003 & Han Yi, 2020). All items were scored on a five-level Likert scale, i.e., 1 was strongly inconsistent, 2 was inconsistent, 3 was uncertain, 4 was consistent, and 5 was strongly consistent.

After item objective consistency test (IOC) (Rovinelli & Hambleton, 1977), Cronbach coefficient reliability test and SPSS EFA validity test, a formal scale with good validity and high reliability was formed.

2) Sampling and data collection

In the questionnaire sampling, the method of random sampling was adopted. The target sample characteristics of this study are employees of various types of enterprises in Shanxi Province, China. According to Comrey and Lee (1992), the sample size of 200 is an important baseline, 300 is good, 500 is very good, and 1000 is quite ideal. Gorsuch (1983) argued that the number of test samples should preferably be 5 times of the scale items. If the number of samples is 10 times of the scale items, the results will be more stable. Therefore, a total of 1375 questionnaires were recovered online, 1151 valid questionnaires were recovered, and invalid questionnaires were cancelled (i.e. IP addresses were not IP addresses in Shanxi Province; Answer time less than 15 minutes;

Choose the same option continuously for different questions; The effective recovery rate was 83.71% after missing more than 2/3 of the questionnaire items.

Research Results

Qualitative analysis of interview records, quantitative analysis of questionnaire data, and analysis results are given.

Qualitative analysis results

In the qualitative analysis, based on the open coding and axial coding analysis results of 20 interviewees' interview records, the factors affecting Employee Innovation Performance are identified. Including Job Characteristics, Total Rewards and Human Capital Investment. Through selective coding analysis, it is concluded that Job Characteristics and Total Rewards affect Employee Innovation Performance. Human Capital Investment affects Employee Innovation Performance; Job Characteristics and Total Rewards affect Employee Innovation Performance indirectly through Human Capital Investment.

Quantitative analysis results

SPSS and AMOS were used to build the structural equation model, and the data were tested for reliability and validity, confirmatory factor analysis (CFA), correlation analysis, path analysis and mediation effect analysis.

1) Confidence analysis of the data

In order to test whether the data of each potential variable met the conditions of internal consistency, SPSS.25 was used to calculate Cronbach's Alpha of each dimension.

Table 1 *Reliability analysis of each variable*

Variables	Variables	Items	CITC	Cronbach's Alpha after deletion	Cronbach α coefficient	Cronbach α coefficient
JC	JCA	JC1	0.678	0.732	0.814	0.858
		JC2	0.686	0.724		
		JC3	0.633	0.779		
	JCB	JC4	0.632	0.679	0.777	
		JC5	0.630	0.683		
		JC6	0.580	0.735		
	JCC	JC7	0.646	0.701	0.791	

Variables	Variables	Items	CITC	Cronbach's Alpha after deletion	Cronbach α coefficient	Cronbach α coefficient
		JC8	0.684	0.662		
		JC9	0.571	0.781		
	JCD	JC10	0.661	0.686		
		JC11	0.651	0.697	0.791	
		JC12	0.587	0.765		
	JCE	JC13	0.662	0.700		
		JC14	0.655	0.708	0.797	
		JC15	0.605	0.760		
	TR_1	P1	0.727	0.867		
		P2	0.698	0.872		
		P3	0.710	0.870	0.890	
		P4	0.709	0.870		
		P5	0.718	0.869		
		P6	0.681	0.875		
	TR_2	B1	0.766	0.894		
		B2	0.767	0.894		
		B3	0.765	0.894	0.912	
		B4	0.734	0.898		
		B5	0.750	0.896		
		B6	0.734	0.898		
TR	TR_3	PW1	0.743	0.897		0.915
		PW2	0.677	0.902		
		PW3	0.729	0.898		
		PW4	0.728	0.898	0.911	
		PW5	0.697	0.901		
		PW6	0.722	0.899		
		PW7	0.728	0.898		
		PW8	0.666	0.903		
	TR_4	RD1	0.735	0.894		
		RD2	0.678	0.898		
		RD3	0.694	0.897		
		RD4	0.694	0.897	0.908	
		RD5	0.723	0.895		
		RD6	0.704	0.896		
		RD7	0.702	0.896		
		RD8	0.703	0.896		
	HCI_1	HCI11	0.699	0.817		
		HCI12	0.698	0.816	0.856	
		HCI13	0.716	0.809		
		HCI14	0.682	0.823		
	HCI_2	HCI21	0.663	0.866		
		HCI22	0.717	0.857		
		HCI23	0.713	0.858	0.882	
		HCI24	0.722	0.856		
HCI		HCI25	0.667	0.866		0.900
		HCI26	0.666	0.866		
	HCI_3	HCI31	0.695	0.869		
		HCI32	0.682	0.871		
		HCI33	0.685	0.870		
		HCI34	0.677	0.871	0.887	
		HCI35	0.663	0.873		
		HCI36	0.675	0.872		
		HCI37	0.682	0.871		
		CP1	0.698	0.929		
		CP2	0.747	0.927		
		CP3	0.754	0.927		
		CP4	0.747	0.927		
		CP5	0.764	0.926		
CP		CP6	0.768	0.926	0.934	0.934
		CP7	0.762	0.926		
		CP8	0.730	0.928		
		CP9	0.731	0.928		
		CP10	0.677	0.930		
Total Reliability				0.950		

Cronbach's Alpha of each potential variable was greater than 0.7, and the total reliability was 0.950, indicating that the questionnaire had good reliability.

2) Exploratory factor analysis

Exploratory factor analysis is often used for data dimensionality reduction, with the goal of identifying a few factors that describe the relationship between many indicators or factors.

JC exploratory factor analysis

Table 2 *JC exploratory factor analysis*

Variables		Items	Factor loading					Common factor variance
			1	2	3	4	5	
JC	JCA	JC1	.807					.746
		JC2	.833					.764
		JC3	.770					.676
	JCB	JC4					.805	.724
		JC5					.801	.712
		JC6					.778	.661
	JCC	JC7				.829		.731
		JC8				.820		.755
		JC9				.771		.649
	JCD	JC10			.811			.729
		JC11			.827			.729
		JC12			.782			.661
	JCE	JC13		.821				.734
		JC14		.808				.724
		JC15		.789				.682
Eigenvalue			5.057	1.575	1.482	1.330	1.233	
Variance contribution rate			14.555%	14.301%	14.227%	14.189%	13.907%	
Cumulative contribution rate			14.555%	28.856%	43.083%	57.272%	71.179%	
KMO						.836		
Bartlett's test						6577.545（P=0.000）		
df						105		

② TR exploratory factor analysis

Table 3 *TR Exploratory factor analysis*

Variables		Items	Factor loading				Common factor variance
			1	2	4	5	
TR	TR_1	P1				.805	.673
		P2				.772	.634
		P3				.783	.651
		P4				.784	.647
		P5				.794	.661
		P6				.760	.611
	TR_2	B1			.830		.713
		B2			.829		.713
		B3			.822		.709
		B4			.807		.671
		B5			.812		.689
		B6			.799		.670
	TR_3	PW1	.796				.661
		PW2	.736				.571
		PW3	.777				.643
		PW4	.777				.641
		PW5	.760				.601
		PW6	.769				.634
		PW7	.782				.642
		PW8	.700				.562
		RD1		.773			.651
		RD2		.725			.573
		RD3		.731			.594

TR_4	RD4		.747			.598
	RD5		.774			.638
	RD6		.749			.609
	RD7		.736			.606
	RD8		.751			.609
Eigenvalue		8.584	3.475	3.126	2.692	
Variance contribution rate		17.671%	17.350%	14.898%	13.924%	
Cumulative contribution rate		17.671%	35.022%	49.919%	63.844%	
KMO				.944		
Bartlett's test				17975.111（P=0.000）		
df				378		

③ HCI exploratory factor analysis

Table 4 *HCI exploratory factor analysis*

Variables		Items	Factor loading			Common factor variance
			1	2	3	
	HCI_1	HCI11			.794	.700
		HCI12			.789	.695
		HCI13			.811	.719
		HCI14			.725	.680
HCI	HCI_2	HCI21		.746		.595
		HCI22		.780		.664
		HCI23		.781		.658
		HCI24		.786		.670
		HCI25		.729		.592
		HCI26		.758		.606
	HCI_3	HCI31	.753			.616
		HCI32	.756			.606
		HCI33	.766			.611
		HCI34	.746			.596
		HCI35	.729			.575
		HCI36	.753			.599
		HCI37	.734			.598
Eigenvalue			6.574	2.452	1.753	-
Variance contribution rate			24.577%	22.283%	16.543%	-
Cumulative contribution rate			24.577%	46.861%	63.404%	-
KMO					.927	
Bartlett's test					9461.775(P=0.000)	
df					136	

④ CP exploratory factor analysis

Table 5 *CP exploratory factor analysis*

Variable	Items	Factor loading	Common factor variance
CP	CP1	.758	.574
	CP2	.801	.642
	CP3	.806	.650
	CP4	.801	.641
	CP5	.816	.665
	CP6	.819	.671
	CP7	.814	.662
	CP8	.786	.617
	CP9	.787	.619
	CP10	.738	.545
Eigenvalue		6.287	-
Variance contribution rate		62.867%	-
Cumulative contribution rate		62.867%	-
KMO		.963	
Bartlett's test		7196.034（P=0.000）	
df		45	

KMO values are all higher than the standard 0.70, the significance analysis value is 0.000, and the load of each item is greater than 0.5, which indicates that the observed

variables are aggregated in their respective dimensions, and it is reasonable to divide the research problem into four variables.

3) Confirmatory Factor Analysis

In order to test whether the collected data work according to the predetermined structure, the ability of the theoretical model of the factor to fit the actual data is demonstrated.

1. Structural validity analysis of latent variables

Table 6 *Model fitting metrics*

Indicators	CMIN/DF	GFI	AGFI	RMSEA	TLI	CFI	IFI
Statistical values	2.308	0.964	0.955	0.034	0.972	0.975	0.975
Reference value	<3	>0.9	>0.9	<0.05	>0.9	>0.9	>0.9

All fitting indexes of the model meet the standard, which verifies that the structure of the model is reasonable.

2. Convergent validity test of the variable

Table 7 *Results of the validation analysis of variable*

Variables	Title item	Standardized factor loadings	P	AVE	CR	AVE	CR
JC	JCA	0.799	***	0.640	0.842	0.633	0.896
	JCB	0.786	***	0.618	0.829		
	JCC	0.792	***	0.631	0.836		
	JCD	0.805	***	0.649	0.847		
	JCE	0.796	***	0.634	0.838		
TR	TR1	0.763	***	0.575	0.890	0.582	0.848
	TR2	0.795	***	0.633	0.912		
	TR3	0.750	***	0.563	0.911		
	TR4	0.743	***	0.546	0.906		
HCI	HCI1	0.773	***	0.598	0.856	0.561	0.793
	HCI2	0.745	***	0.566	0.867		
	HCI3	0.728	***	0.531	0.888		
CP	CP1	0.726	***	0.588	0.934	0.588	0.934
	CP2	0.776	***				
	CP3	0.782	***				
	CP4	0.774	***				
	CP5	0.796	***				
	CP6	0.799	***				
	CP7	0.792	***				
	CP8	0.757	***				
	CP9	0.757	***				
	CP10	0.702	***				

The standardized factor load of each item is greater than 0.6, indicating that each item can explain its dimension well. The combined reliability CR is greater than 0.7, indicating that all observations in each latent variable can consistently explain the latent variable. All AVE values are above the standard value 0.5, indicating that the scale in this paper has good convergence validity.

3. Variable discriminant validity

Table 8 *Distinction Validity test of Variable*

Variable	AVE	TR	JC	CHI	CP
TR	0.582	**0.763**			
JC	0.633	0.376	**0.796**		
CHI	0.561	0.352	0.409	**0.749**	
CP	0.588	0.525	0.571	0.596	**0.767**

The AVE of each dimension is greater than 0.5, and the square root of AVE is significantly greater than the correlation coefficient between this variable and other variables, indicating that the differential validity of each variable is good.

4. Structural equation model

Structural equation model is a statistical method to analyze the relationship between variables based on the covariance matrix of variables. The structural equation model was established and the results of estimation were shown in the figure below.

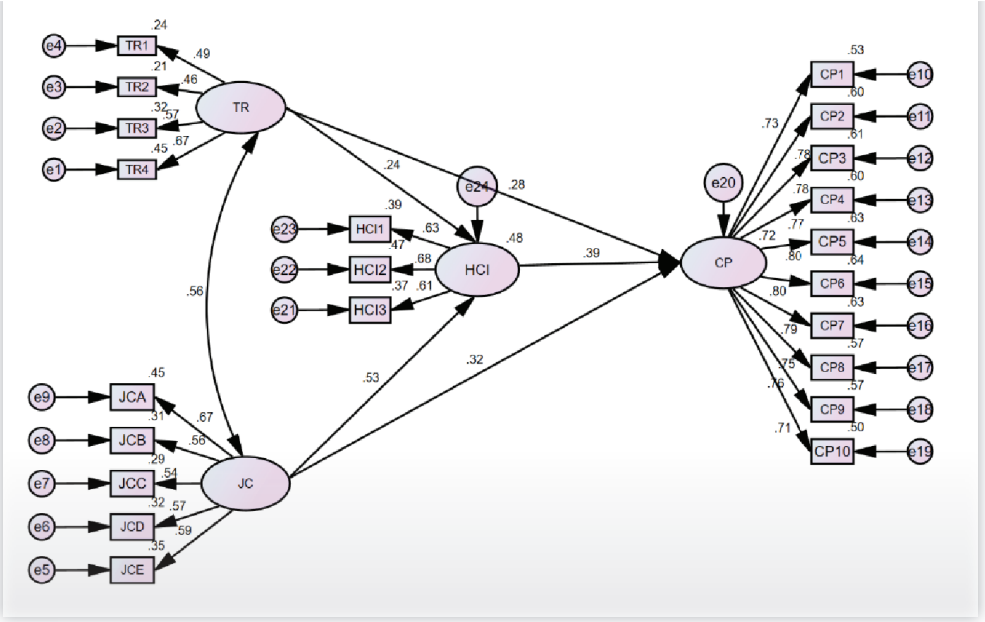

Table 9 *The path coefficients between the variables*

Paths			Standardized path coefficient	S.E.	C.R.	P	Hypothesis Result
HCI	<---	JC	0.528	0.063	8.768	***	Accepted
HCI	<---	TR	0.240	0.056	4.371	***	Accepted
CP	<---	JC	0.322	0.068	6.990	***	Accepted
CP	<---	TR	0.282	0.058	6.902	***	Accepted
CP	<---	HCI	0.389	0.067	8.073	***	Accepted

The path coefficient is used to quantify the direct relationship between variables and represent the path relationship between variables.

JC had a significant positive effect on HCI (β=0.528, P<0.05); TR had a significant positive effect on HCI (β=0.240, P<0.05); JC had a significant positive effect on CP (β=0.322, P<0.05); TR had a significant positive effect on CP (β=0.282, P<0.05); HCI had a significant positive effect on CP (β=0.389, P<0.05).

5 Mediating effect test

The Bootstrap method was run in AMOS 21.0, 5000 replicates were selected with 95% confidence interval criteria, and mediated effects were calculated using AMOS software.

Table 10 *Intermediation effect test*

Paths	Estimate	Lower	Upper	P	Hypothesis Result
JC→HCI→CP(direct effect)	0.322	0.232	0.407	0.000	
JC→HCI→CP(mediating effect)	0.205	0.151	0.277	0.000	Accepted
JC→HCI→CP(total effect)	0.527	0.457	0.593	0.000	
TR→HCI→CP(direct effect)	0.282	0.207	0.353	0.000	
TR→HCI→CP(mediating effect)	0.093	0.049	0.150	0.000	Accepted
TR→HCI→CP(total effect)	0.375	0.301	0.451	0.000	

HCI plays a partial mediating role between JC, TR and CP.

Discussion

The results of this study serve research problems, and fulfill research objectives.

1. Discussion on Qualitative Findings

Based on relevant literature and rooted theories, this paper conducts in-depth interviews with 20 interviewees and uses NViVO software to analyze the interview data. The theoretical model of the influence of Job Characteristics and Total Rewards on Employee Innovation Performance is constructed, and the research hypothesis is proposed.

Qualitative research finds that Employee Innovation Performance is affected by Job Characteristics, Total Rewards and Human Capital Investment. Human Capital Investment plays an intermediary role among Job Characteristics, Total Rewards and Employee Innovation Performance.

2. Discussion on Quantitative Findings

Between Job Characteristics and Employee Innovation Performance, H1 is verified that work content itself has an intrinsic incentive effect on employees. Job Characteristics can significantly positively affect Employee Innovation Performance. This is consistent with the research results of Hackman and Oldham (1976), Oldham and Kulik (1986), Wang Fuxiang (2016) and others.

H2 is verified between Total Rewards and Employee Innovation Performance. Total Rewards can help employees internalize their external motivation, stimulate their subjective initiative, and improve their Innovation Performance. Total Rewards significantly positively affect Employee Innovation Performance. This is consistent with the findings of Wang Jianhua (2015), Bai Guiyu (2021), Zhang Resheng (2023) and others.

Between Human Capital Investment and Employee Innovation Performance, H3 is verified. Human Capital Investment has a significant positive impact on Employee Innovation Performance. This is consistent with the findings of Sun Wenjie and Shen Kunrong (2019), Deng Xuefen et al. (2012), Yao Yao and Zhao Yingjun et al. (2021).

Between Job Characteristics, Total Rewards and Human Capital Investment, H4 and H5 are verified. Job redesign can mobilize the enthusiasm of employees, encourage employees to take the initiative to learn, and increase Human Capital Investment. By improving employee compensation and paying attention to employee's personal career development, employees' Human Capital Investment will be increased. Job Characteristics and Total Rewards have significant positive effects on Human Capital Investment. This is consistent with the research results of Hackman & Oldham (1976), Chen Weitao et al. (2020) and Luo Pinliang et al. (2021).

The empirical results of this paper show that Human Capital Investment partially mediates the effects of Job Characteristics and Total Rewards on Employee Innovation Performance. H6 and H7 were verified. This is consistent with the findings of Youndt and Snell (2004), Chen Yunyun et al. (2022), Cheng Dejun and Zhao Shuming (2016), Wang Zhaohui et al. (2016).

Conclusion and Recommendation

Conclusion

This paper adopts a combination of qualitative and quantitative research methods. Through a sample survey of 1151 employees of enterprises in Shanxi Province, and in-depth interviews with 20 executives of human resources, R&D departments, front-line innovative employees, and researchers of human resources management theories. Job Characteristics have a significant positive impact on Employee Innovation Performance. Total Rewards has a significant positive impact on Employee Innovation Performance. Human Capital Investment significantly affects the Innovation Performance of employees; Human Capital Investment plays a partial mediating role among Job Characteristics, Total Rewards and Employee Innovation Performance.

Recommendation

According to the survey results, enterprises should fully consider the interests of employees, redesign and shape work for the purpose of job enrichment, and mobilize the enthusiasm, initiative and creativity of employees. Pay attention to non-monetary reward incentive, try to explore various forms of incentive systems and policies. Improve the efficiency of Human Capital operation and guide employees to make Human Capital Investment.

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