

THE MEDIATING EFFECT OF COLLEGE MANAGEMENT SYSTEM ON RELATIONSHIP BETWEEN
VOCATIONAL EDUCATION POLICIES AND COLLEGE-ENTERPRISE PARTICIPATION FACTORS ON THE
COLLEGE-ENTERPRISE COOPERATION IN ZHENG ZHOU CITY UNDER HENAN PROVINCE

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ABSTRACT

The objectives of this research were: (1) To explore the component of the college enterprise cooperation of vocational colleges in Zhengzhou city under Henan Province; (2) To develop the model factors affecting colleges enterprise cooperation of vocational education policies, colleges enterprise participation and colleges management system factors in Zhengzhou city under Henan Province; and (3) To verify the mediating effect of colleges management system on the relationship between vocational education policies and enterprise participation on the colleges enterprise cooperation.

This research was quantitative research which conducted a survey on teachers from 12 vocational colleges in Zhengzhou city, Henan Province. The sample size determined by G*power software, totaling 600 teachers. and used stratified random sampling method. Data collection by a 5 rating score questionnaires which validity of item between 0.60 - 1.00, reliability of each component between .80 - .99 and data analysis by CFA and SEM.

The research results showed that: (1) The components of the colleges enterprise cooperation were 3 components namely: profitability, sustainability, and satisfaction. There were at high level among vocational college in Zhengzhou city, Henan province; (2) The model of factors affecting college enterprise cooperation fit well with empirical data. (DF=55、CMIN=136.33、CMIN/DF=2.479、GFI=0.967、CFI=0.971、RMSEA=0.050), The composite reliability (CR) value of model was between .75-.81, validity of Model (AVE) was between .50-.52; and (3) The vocational education policies and enterprise participation had positive direct

effect and indirect effect on colleges enterprise cooperation via colleges management system with statistically significance ($p < .05$). The colleges management system was mediator and could reduce effect on the relationship between vocational education policies and enterprise participation on the colleges enterprise cooperation.

Keywords: College enterprise cooperation, Vocational education policies, Mediating effect

1. Introduction

The requirements of developed countries and the construction of modern vocational education systems and the construction of an educational power, there are still many problems in China's vocational education, such as inadequate systems, the need to strengthen the construction of vocational skills training bases, insufficient motivation for enterprises to participate in running colleges, uneven quality of running colleges and personnel training levels. (Chen Fuzhi, 2022). Vocational colleges in Zhengzhou, Henan Province started relatively late and the primary problem they face is how to ensure that the trained talents meet the needs of enterprises. At present, the communication and exchange platform in school enterprise cooperation in Zhengzhou is not yet perfect, and the respective positions, and roles of universities and enterprises in cooperation are also unclear (Yu Qiangbo and Jia Zhicheng, 2014). Through data investigation and statistical analysis, it is found that there are the following main problems in school enterprise cooperation in Henan Province: firstly, at the government policy level, the government still lacks effective support for universities and enterprises in terms of policy and regulatory environment (WuChenyong, 2019). Secondly, at the university level, college students generally have a lower awareness and enthusiasm for school enterprise cooperation, a lower level of understanding of school enterprise cooperation projects, and a lower level of participation in school enterprise cooperation courses or activities. (Wu Chenying, 2019). Once again, at the corporate level, the inherent demand and motivation for scientific research cooperation between enterprises and universities are insufficient (Cui Miao and Wang Zhenmin, 2015).

In summary, although the concept of college-enterprise cooperation in Henan Province has been put forward for more than ten years, there are many issues in college-enterprise cooperation, such as low development rate, low depth, low satisfaction, low efficiency, and low sustainability. The resolution of these issues has a strong supporting role in improving the

effectiveness and sustainable development of college-enterprise cooperation in Henan Province.

Finally, researcher would provide suggestions for all parties involved in school enterprise cooperation and point out the direction for future research.

2. Research Questions

1. What are components of the college-enterprise cooperation of Vocational College in Zhengzhou city under Henan Province? 2. What is the model of factors influence to the college-enterprise cooperation of Vocational College in Zhengzhou city under Henan Province? 3. What are the mediating effect on relationship between the Vocational Education Policies and Enterprise Participation Factors on The College-Enterprise Cooperation in Vocational College in Zhengzhou city under Henan Province?

3. Research Objectives

1. To find out the components of college-enterprise cooperation in Vocational College in Zhengzhou city under He Nan Province. 2. To develop the model of factors affecting college-enterprise cooperation in Vocational College in Zhengzhou city under Henan Province. 3. To verify the mediating effect of college management system on relationship between the Vocational Education Policies and Enterprise Participation Factors on The College-Enterprise Cooperation in Vocational College in Zhengzhou city under Henan Province.

4. Research Hypothesis

H1: Government vocational education policy (VEP) factors have a positive direct effect on the college-enterprise cooperation (COE) in Zhengzhou Vocational College under Henan Province. H2: Government vocational education policy (VEP) factors have a positive direct effect on the management system of vocational colleges (CM) in Zhengzhou City, under Henan Province. H3: The factor of enterprise participation (EP) has a positive direct effect on the college management system (CM) of Zhengzhou Vocational College in Zheng Zhou city under He Nan Province. H4: The factor of enterprise participation (EP) has a direct positive effect on the college-enterprise cooperation (COE) in vocational colleges in Zhengzhou City under Henan Province. H5: College management system (CM) factors have a positive direct effect on the college-enterprise cooperation (COE) in Zhengzhou Vocational College under Henan Province. H6: Government vocational education policy (VEP) factors had a positive effect on

the college-enterprise cooperation (COE) through the college management system (CM), which as mediating effect. H7: The factor of enterprise participation (EP) can have a positive effect on the college-enterprise cooperation (COE) through the college management system (CM), which as mediating effect.

5. Conceptual Framework

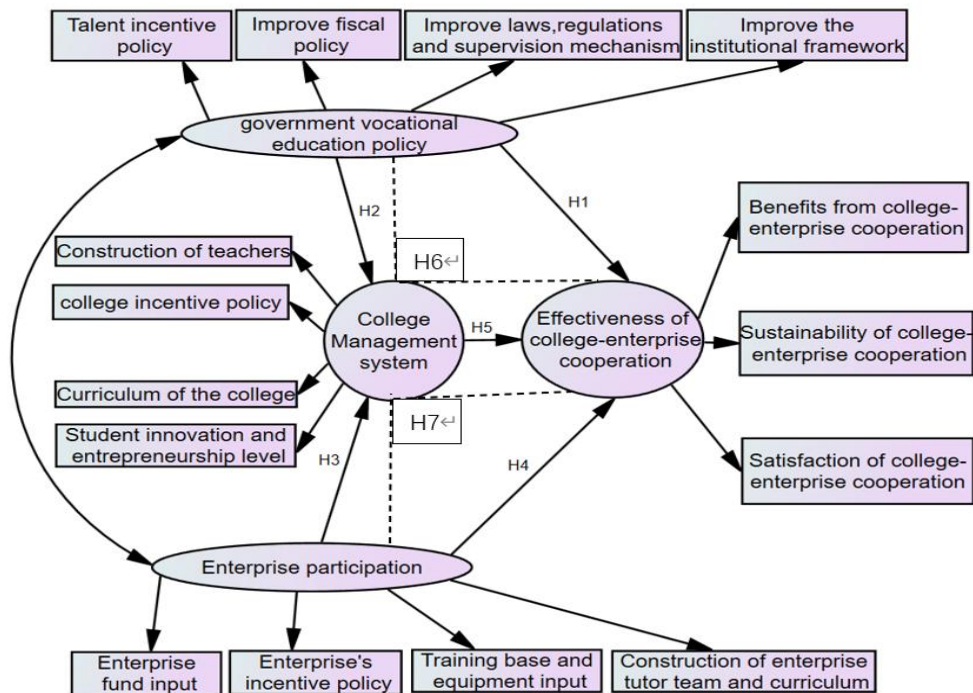


Figure 1 Conceptual framework of this research

6. Methodology

This research adopted quantitative research. There were three processes involved in research: research plan preparation (planning stage), research procedures, and research reports. Details were as follows:

Part One: Research the constituent elements of the college-enterprise cooperation in Vocational college and the factors that affect on college-enterprise cooperation in Zhengzhou city, Henan province. In this section, the researcher identified the constituent elements of the college-enterprise cooperation in Vocational college in Zhengzhou city through extensive literature review and content analysis, and researched the influencing factors of the college-enterprise cooperation in vocational colleges, including government education policy factors, CM, and enterprise participation.

Part Two: Construct and develop model for the college-enterprise cooperation in Henan Vocational based on government education policy factors, college governance capabilities, and enterprise participation. In this section, the researcher conducted research on the influencing factors of the college enterprise cooperation based on the first part, identified the factor model that affecting the college enterprise cooperation in vocational colleges, and established a data collection tool.

Part Three: Decompose the factors that affect on the college enterprise cooperation in Vocational college, namely the impact of government education policy factors and college-enterprise participation on the college-enterprise cooperation, which had college management system as mediating. The researcher researched the factors that affecting the college-enterprise cooperation by decomposing the effect of factor on direct and indirect effect.

7. Population and sample

The survey subjects were teachers from 12 vocational colleges located in Zhengzhou City, Henan Province. Total number of teachers: 1530. The samples size was 600 people calculate by G*power program at power of test.90 and using stratified random sampling method.

8. The creation of research instruments

The researchers employed a three-part questionnaire; Part I: Demographic variables (checklist), Part II: Relevant variables (including COE, VEP, EP, CM) question responses (five-point rating scale), Part Three: Acknowledgements. The instrument starts from step (1) as a questionnaire. The quality of the questionnaire was evaluated by content validity and reliability. For content validity, it was checked by 5 experts and analyzed using item-objective consistency (IOC). The value of the item value is ≥ 0.50 . For reliability, it was analyzed by Cronbach's alpha at 0.80.

9. Data Collection

The researchers sent Likert (5-point) rating scale questionnaires to the respondents. This article taked 600 teachers from 12 vocational colleges in Zhengzhou as research samples and collected data through online questionnaire distribution. Questionnaires were sent online.

10. Data analysis

The researchers sent Likert (5-point) rating scale questionnaires to the respondents. Data for demographic variables were analyzed using descriptive statistics; frequencies and percentages. Each variable was analyzed using descriptive statistics; mean, standard deviation (S.D.), etc.

Statistical methods used in data analysis included confirmatory factor analysis (CFA), and structural equation modeling (SEM). Through final quantitative data analysis, model fit was validated by confirmatory factor analysis in combination with path coefficients, P-values, and model fit criteria. All the indicators of the measurement model meet the standard, The model of college enterprise cooperation fit well with empirical data. There were indicators as follows: GFI, CFI, RMSEA and so on.

11. Results

Table 1: Table summary of the results of analysis about Business owners' opinions
Demographic Information

Level	Frequency	Percentage	Cumulative Percent
Gender:			
Male	268	44.7	44.7
Female	332	55.3	100.0
Age:			
<35	88	14.7	14.7
35-40	172	28.7	43.4
41-50	171	28.4	71.8
51-60	163	27.1	98.9
>60	6	0.01	100.0
Education:			
Undergraduate	146	24.4	24.4
Master	300	50	74.4
Doctor	120	20	94.4
Post-Doctoral	34	5.6	100.0

Level	Frequency	Percentage	Cumulative Percent
Professional title:			
Junior title	40	6.7	6.7
Intermediate title	140	23.3	30.0
Deputy senior title	293	48.9	78.9
Senior Title	127	21.1	100.0
Total	600	100.0	100.0

From Table 1, it was summarized that there were 268 male teachers, accounting for 44.7% of the sample size. There were 332 female teachers, accounting for 55.3% of the total.

Table 2 The intra correlation of indicators of each factor as follows :

Correlations															
	CO E1	CO E2	CO E3	VEP 1	VEP 2	VEP 3	VEP 4	CM 1	CM 2	CM 3	CM 4				E P 4
CO E1	1														
CO E2	.56 1**	1													
CO E3	.47 0**	.46 1**	1												
VE P1	.43 2**	.37 1**	.38 7**	1											
VE P2	.33 7**	.36 8**	.23 9**	.52 0**	1										
VE P3	.25 7**	.24 3**	.27 4**	.53 4**	.45 7**	1									
VE P4	.17 9**	.17 3**	.19 8**	.42 5**	.35 7**	.47 1**	1								

CM	.33	.27	.32	.34	.21	.29	.17	1							
1	1**	5**	8**	8**	6**	2**	6**								
CM	.27	.20	.22	.40	.28	.35	.32	.52	1						
2	9**	5**	2**	1**	3**	5**	2**	2**							
CM	.27	.27	.29	.29	.24	.37	.24	.46	.52	1					
3	3**	8**	5**	6**	2**	4**	0**	3**	8**						
CM	.38	.39	.36	.42	.29	.29	.33	.41	.50	.48	1				
4	4**	1**	4**	1**	0**	6**	5**	2**	3**	2**					
EP	.38	.28	.29	.45	.33	.20	.27	.34	.31	.28	.38	1			
1	2**	1**	8**	1**	3**	0**	3**	8**	1**	2**	6**				
EP	.42	.29	.33	.45	.40	.28	.34	.37	.40	.33	.37	.51	1		
2	2**	2**	3**	3**	9**	1**	0**	7**	0**	2**	5**	0**			
EP	.37	.29	.34	.39	.32	.27	.28	.31	.32	.33	.38	.48	.55	1	
3	9**	2**	9**	0**	6**	7**	9**	3**	6**	6**	6**	7**	9**		
EP	.37	.26	.29	.38	.30	.20	.27	.27	.27	.31	.41	.49	.50	.53	1
4	6**	6**	8**	0**	7**	5**	6**	0**	7**	7**	7**	4**	9**	1**	

** . Correlation is significant at the 0.01 level (2-tailed).

From Table 2, it can be seen that the correlation between variables is significant through the correlation analysis of 15 items, more variables showed moderate correlation (0.3-0.7 as the standard), while few variables showed weak correlation.

12. Model specification

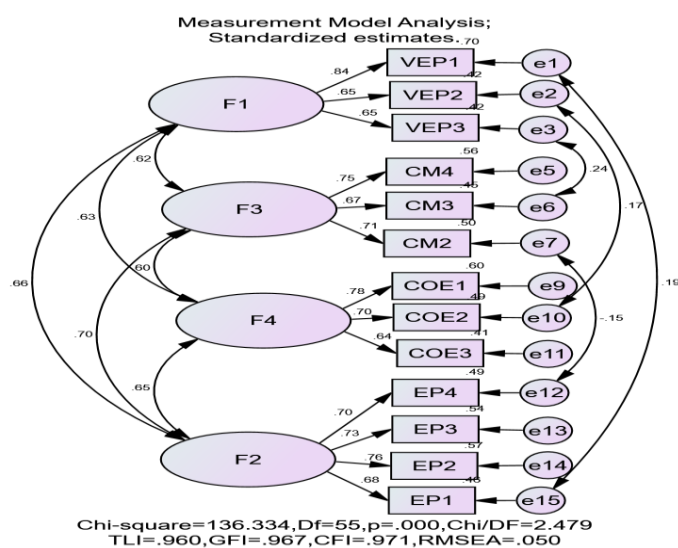


Figure 2 Confirmatory factor model(standardized)

From The figure 2, it shows about the criterions for the measurements model fit well with the empirical data as the table 3.

Table 3: Measurement Model: Chi-square test, degrees of freedom, relative chi-square, Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA).

Measure	Estimate	Threshold	Interpretation
CMIN	136.334	--	--
DF	55	--	--
CMIN/DF	2.479	1-3 Excellent, 3-5 Acceptable	Excellent
CFI	0.971	>0.95 Excellent, >0.9 Acceptable	Excellent
GFI	0.967	>0.95 Excellent, >0.9 Acceptable	Excellent
TLI	0.960	>0.8 Acceptable	Acceptable
RMSEA	0.050	<0.05 Excellent, <0.08 Acceptable	Excellent
P-Close	0.502	>0.05	Excellent

*Note: Hu and Bentler (1999, "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives") recommend combinations of measures : CFI>0.95 and SRMR<0.08.

From Table 3, the Chi-square (CMIN) of test statistics used to test the difference between the hypothesis model and the empirical data was 136.334 and the DF was 55. The relative chi-square (CMIN/DF) was 2.479 which less than 5. The comparative fit index (CFI) was 0.971 which more than 0.95. RMSEA is 0.050, less than 0.08. They were acceptable. According to the standard of model fitting index, the fitting indexes of the model meet the requirements, so the model was fit well with the empirical data.

Table 4 Discriminative validity analysis test

	CR	AVE	MSV	MaxR(H)	F1(VEP)	F2(EP)	F3(CM)	F4(COE)
F1(VEP)	0.758	0.514	0.437	0.791	0.717			
F2(EP)	0.809	0.515	0.496	0.811	0.661***	0.717		
F3(CM)	0.751	0.502	0.496	0.754	0.625***	0.704	0.708	
F4(COE)	0.751	0.503	0.418	0.762	0.635***	0.646	0.604***	0.709

Note: The value in bold in the upper right corner is the square root of the AVE value.
(Fornell and Lacker 1981)

1. Composite Reliability : From Table 4, it was summarized that the composite reliability (CR) of 4 factors ranged from 0.751 to 0.809 which were over 0.7. So, it pointed that all factors had acceptable.

2. Validity

1) Convergent validity : From Table 4.4, it was summarized that the average variance extracted (AVE) of 4 factors ranged from 0.502 to 0.515 which were over 0.5. As a result, it pointed out all factors had convergent validity, and the measure model had quality in term of contents validity.

2) Discriminant validity : Because the AVE value of each prospective construct should be higher than the matching Maximum shared variance (MSV), the initial strategy is to use it (Adedeji, Abdulkabir N. et al,2017). Table 4.4's data analysis reveals that the AVE of F1(VEP), F2(EP), F3(CM), and F4(COE) were, respectively, 0.514,0.515,0.502 and 0.503, which were all more than the matching MSV.

13. Structural Equation Models

Structural equation model fitting test

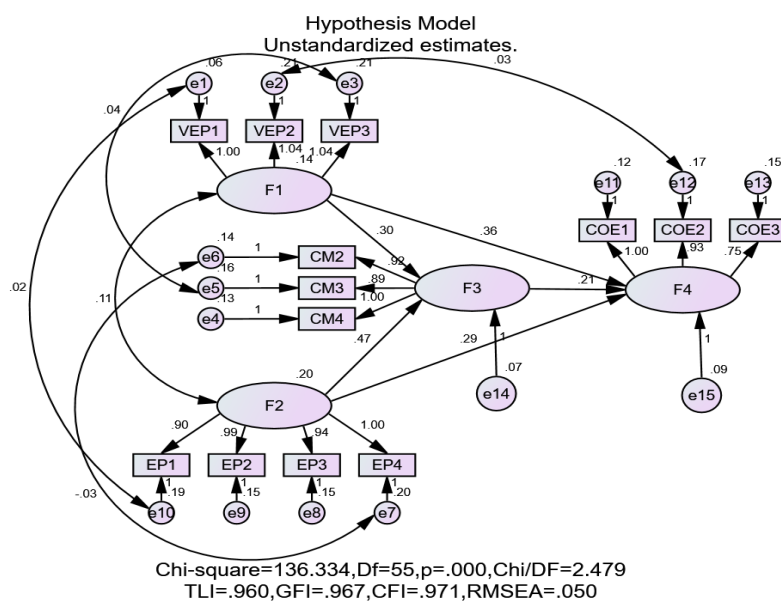


Figure 3. Running results of structural equation model graph (unstandardized)

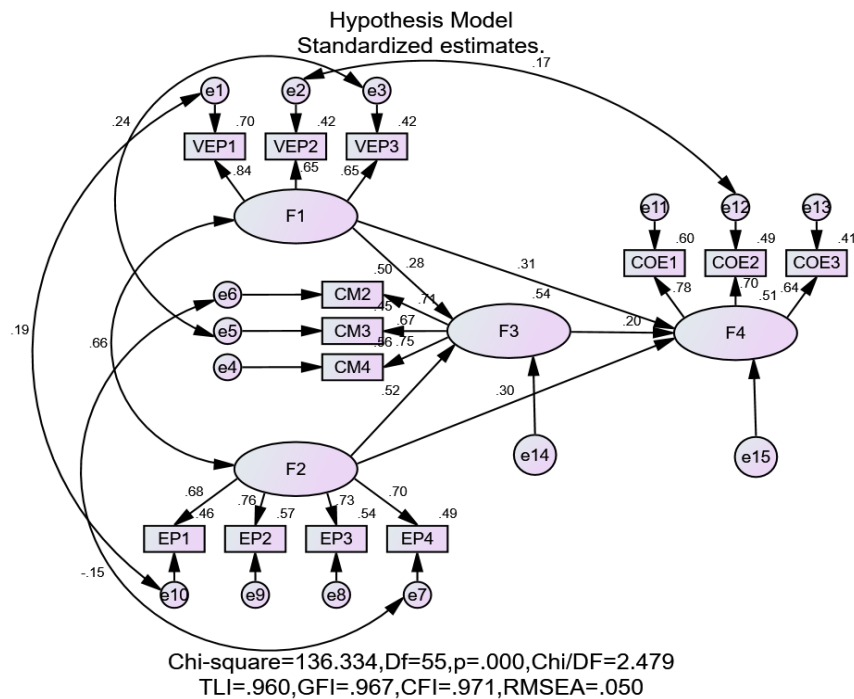


Figure 4. Running results of structural equation model graph (standardized).

From Figure 4 and 5, it showed that the structural equation model with latent variables represented the direct effect of Vocational Education Policy (F1-VEP) and Enterprise Participation (F2-EP) as independent variable and College enterprise Cooperation Effectiveness (F4-COE) as dependent variable, and College Management system (F3-CM) as mediating which mediated the effect of the relationship between Vocational Education Policy (F1-VEP), Enterprise Participation (F2-EP) and College enterprise Cooperation Effectiveness (F4-COE).

From Figure 5, it was summarized that the analysis of structural equation model in standardized on the purpose of hypothesis testing, and effect decomposition.

Table 5 Fitting indexes of structural equation model

Measure	Estimate	Threshold	Interpretation
CMIN	136.334	--	--
DF	55	--	--
CMIN/DF	2.479	1-3 Excellent, 3-5 Acceptable	Excellent
CFI	0.971	>0.95 Excellent, >0.9 Acceptable	Excellent
SRMA	0.038	<0.08 Excellent	Excellent
GFI	0.967	> 0.9 Excellent	Excellent
NFI	0.953	>0.95 Excellent, >0.9 Acceptable	Excellent
TLI	0.960	>0.9 Acceptable	Acceptable

RMSEA	0.050	<0.06 Excellent, <0.08 Acceptable	Excellent
P-Close	0.502	>0.05 Excellent	Excellent

(*Note: Hu and Bentler (1999, "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives")

The fitting index of model operation is shown in the table5. The fitting index is as follows: CMIN/DF=2.479, less than 3.TLI=0.960, NFI=0.953, greater than 0.9, GFI=0.967, CFI=0.971, greater than 0.95, RMSEA=0.050, less than 0.06.. Compared with the fitting criteria of the table, the fitting indexes of the model meet the requirements, so the path of the model is analysed. In summary, from the results, the indicators were showed the structural equation model fit the empirical data at an excellent level detail.

14. Hypothesis testing

(1) Testing for direct effects hypothesis

Table 6 Hypothesis testing of direct effects.

Relationship			Unstand ardized	Standa rdized	S.E.	C.R.	P	Hypothesis
COE (F4)	<---	VEP (F1)	0.362	0.313	0.079	4.568	***	H1
CM (F3)	<---	VEP (F1)	0.305	0.283	0.073	4.198	**	H2
CM (F3)	<---	EP (F2)	0.465	0.517	0.064	7.220	***	H3
COE (F4)	<---	EP (F2)	0.292	0.301	0.080	3.649	***	H4
COE (F4)	<---	CM (F3)	0.211	0.196	0.084	2.501	0.012*	H5

(Note: *represent $P \leq .05$, **represent $P \leq .01$, ***represent $P \leq .001$).

Hypothesis testing for H1: Vocational Education Policy (VEP) factor has positive direct effect on college enterprise Cooperation Effectiveness (COE). From Table 6, it was summarized that the path coefficient of the effect of VEP on COE in unstandardized and standardized were 0.362 and 0.313 respectively, critical ratio (C.R.) was 4.568, and was statistically significant (p

=0.00 ; $p < 0.05$), which pointed out that the hypothesis was right, and concluded that there was significant positive effects relationship between VEP and COE.

Hypothesis testing for H2: Vocational Education Policy (VEP) factor has positive direct effect on College Management system (CM). From Table 6, it was summarized that the path coefficient of the effect of VEP on CM in unstandardized and standardized were 0.305 and 0.283 respectively, critical ratio was 4.198, and was statistically significant ($p = 0.00$; $p < 0.05$), which pointed out that the hypothesis was right, and concluded that there was significant positive effects relationship between VEP and CM.

Hypothesis testing for H3: Enterprise Participation (EP) factor has positive direct effect on College Management system (CM). From Table 6, it was summarized that the path coefficient of the effect of EP on CM in unstandardized and standardized were 0.465 and 0.517 respectively, critical ratio was 7.220, and was statistically significant ($p = 0.00$; $p < 0.05$), which pointed out that the hypothesis was right, and concluded that there was significant positive effects relationship between EP and CM.

Hypothesis testing for H4: Enterprise Participation (EP) factor has positive direct effect on college enterprise Cooperation Effectiveness (COE). From Table 6, it was summarized that the path coefficient of the effect of EP on COE in unstandardized and standardized were 0.292 and 0.301 respectively, critical ratio was 3.649, and was statistically significant ($p = 0.00$; $p < 0.05$), which pointed out that the hypothesis was right, and concluded that there was significant positive effects relationship between EP and COE.

Hypothesis testing for H5: College Management system (CM) factor has positive direct effect on college enterprise Cooperation Effectiveness (COE). From Table 6, it was summarized that the path coefficient of the effect of CM on COE in unstandardized and standardized were 0.211 and 0.196 respectively, critical ratio was 2.501, and was statistically significant ($p = 0.012 < 0.05$), which pointed out that the hypothesis was right, and concluded that there was significant positive effects relationship between CM and COE.

(2) Testing for indirect effects hypothesis

In order to explore whether there was mediation effect in these significant paths, we ran Bootstrap method in AMOS21.0, selected 5000 repeats, and the confidence interval standard was 95%. Therefore, we used the grammar of AMOS software to assign values to all the relevant paths. Specific mediating effects of computational standardization.

Table 7 Hypothesis testing of indirect effects (Standardized indirect effects.)

Relationships	Estimate	Lower	Upper	p	Hypothesis
COE<---CM<---VEP	0.056	0.001	0.151	**	H6
COE<---CM<---EP	0.101	0.002	0.238	**	H7

** p<0.01

Hypothesis testing for H6: Vocational Education Policy (VEP) factor has positive indirect effect on college enterprise Cooperation Effectiveness (COE) and the College Management system (CM) factor is mediating. From Table 7, it was summarized that the estimated effect was 0.056 (Standardized indirect effects), and had statistically significant ($p<.01$). It shows that the College Management system (CM) factor has a significant mediating effect between Vocational Education Policy (VEP) factor and College enterprise Cooperation Effectiveness (COE), so the H6 is valid.

Hypothesis testing for H7: Enterprise Participation (EP) factor has positive indirect effect on college enterprise Cooperation Effectiveness (COE) and the College Management system (CM) factor is mediator. From Table 7, it was summarized that the estimated effect was 0.101 (Standardized indirect effects), and had statistically significant ($p<.01$). It shows that the College Management system (CM) factor has a significant mediating effect between Enterprise Participation (EP) factor and College enterprise Cooperation Effectiveness (COE), so the H7 is valid.

Table 8 Decomposition of effects factors Vocational Education Policy (VEP) on College enterprise Cooperation Effectiveness (COE) (Standardized)

Parameter	Estimate	Lower	Upper	p	Effect proportion
Direct effect	0.313	0.136	0.523	**	84.82%
Indirect effect	0.056	0.001	0.151	**	15.18%
Total effect	0.369	0.208	0.565	**	

** $p<0.01$.

From Table 8 (Standardized), it was summarized that the decomposing effects of Vocational Education Policy (VEP) on college enterprise Cooperation Effectiveness (COE) of direct effect and indirect effect of 0.313 and 0.056 respectively, and the total effect with 0.369 (Standardized total effects). And direct effect and indirect effect accounted for 84.82% and 15.18% of the total effect. And had statistically significant ($p<.01$), which indicated that

there was relationship between VEP and COE and there had partial indirect effect of VEP on COE via CM.

Table 9 Decomposition of effects factors Enterprise Participation (EP) on college-enterprise Cooperation Effectiveness (COE) (Standardized)

Parameter	Estimate	Lower	Upper	P	Effect proportion
Direct effect	0.301	0.098	0.463	**	74.88%
Indirect effect	0.101	0.002	0.238	**	25.12%
Total effect	0.402	0.201	0.550	**	

**p<0.01

From Table 9 (Standardized) , it was summarized that the decomposing effects of Enterprise Participation (EP) on college enterprise Cooperation Effectiveness (COE) of direct effect and indirect effect of 0.301 and 0.101 respectively, and the total effect with 0.402. And direct effect and indirect effect accounted for 74.88% and 25.12% of the total effect. And had statistically significant ($p<0.05$), which indicated that there was relationship between EP and COE and there had partial indirect effect of EP on COE via CM.

Summary, from Table 8-9, The effect of CM as mediating effect. From the model, if we take the model on the sample regression F1(VEP) effecting on F4(COE). There was 0.655 and if we take the model on the sample regression F2(EP) effecting on F4(COE). There was 0.657. Therefore, when using normal and perfect models, the effects of F1 and F4 range from 0.655 to 0.369; The effect of F2 and F4 ranges from 0.657 to 0.402, which was the mediating effect and could reduce the effect VEP and EP on COE.

15. Conclusion

(1) The components of the effectiveness of the cooperation were divided to 3 components including three sub variables: profitability, sustainability, and satisfaction. Each component was at high level among vocational college in zhengzhou, Henan province and policy includes three branch variables, university management system includes three branch variables, and enterprise participation level includes four branch variables. (2) The model of college enterprise cooperation fit well with empirical data. There were indicators as follows: GFI、CFI、RMSEA and so on. (3) The VEP had direct positive effect on COE and had positive indirect effect on COE via CM with statistical significance at 0.05. The EP had direct positive effect on COE and had positive indirect effect on COE via CM with statistical significance at 0.05. The CM had direct positive effect on COE with statistical significance at 0.05, and the CM had mediator effect on the relationship between VEP、EP、 and COE.

16. Discussion

Research Objective 1 : (1) Vocational education policy, including sub-variables in three dimensions: talent incentive policy, sound financial policy, and sound laws and regulations; (2) Enterprise participation, including enterprise capital investment, enterprise incentive policy, training base and equipment investment, The four sub-variables of corporate tutor team and curriculum construction; (3) college management system, including sub-variables of dimensions such as college incentive system, college curriculum construction, and student innovation and entrepreneurship level; the main findings were revealed because they were consistent with the references in the paper. This research result is consistent with the research results of Xue Yucheng (2020) and Zhang Jing (2020). Factors affecting college-enterprise cooperation include college, enterprise, and government policy factors. The evaluation criteria for the effectiveness of college-enterprise cooperation include profitability, continuity, and satisfaction. In addition, from the research results of Xue Yucheng (2020), it can also be seen that industry associations have certain influencing factors in college-enterprise cooperation. Researcher Fan Xiaopei (2020) found in the study that the influencing factors of college-enterprise cooperation were mutually restrictive, and pointed out that government policy factors have a positive correlation with corporate participation, which is not directly related to the government policy and corporate participation in this paper. unanimous.

Research Objective 2 : To development the factors evaluation model affecting of the effectiveness of college enterprise cooperation in vocational colleges in Henan province; To evaluate the model fit with empirical data. The model of college enterprise cooperation fit well with empirical data. There were indicators as follows: GFI、CFI、RMSEA and so on. According to the following references, it is basically consistent with this conclusion. Xu Pingli (2021) proposed in "Analysis of the Effectiveness of Vocational Education School Enterprise Cooperation" that the factors that affect the effectiveness of school enterprise cooperation include three aspects: government, universities, and enterprises. Government policies include taxation, fiscal incentives, etc; The internal management of the college includes incentive policies and teachers who promote students' innovation and entrepreneurship; The initiative of enterprise participation includes financial investment and course design. The viewpoint is basically consistent with that of this model. The book "Research on the Effectiveness of School Enterprise Cooperation in Vocational Education" independently written by Pan Jianhua and published by Science Press focuses on evaluation criteria, empirical testing, and influencing factors. From the perspective of the effectiveness of school enterprise cooperation in vocational education, the main research focus is on effectively cultivating technical and skilled talents. The evaluation criteria for the effectiveness of school enterprise cooperation proposed were consistent with this model.

Research Objective 3 : Research had determined that the effectiveness of college enterprise cooperation (COE) can be directly or indirectly influenced by vocational education policies (VEP) and enterprise participation (EP), and the indirect effect is mediated by the college management system (CM) . Moreover, the mediation relationships in the model were discussed as follows: From the result, to verify the mediating effect of CM, if we take the model on the sample regression F1(VEP) affecting on F4(COE). There was 0.655 and if we take the model on the sample regression F2(EP) affecting on F4(COE). There was 0.657. Therefore, when using normal and perfect models, the effects of F1 (VEP) to F4 (COE) , it was reduced from 0.655 to 0.369; and when verified the effect of F2 (EP)to F4(COE), it was reduced from 0.657 to 0.402, which was the Mediating effect of F3(CM) on the relationship between VEP、 EP and COE. The internal management system of schools, as an important mediating variable, is of great significance in improving the effectiveness of school enterprise cooperation. This is an important finding of this research. The above results were consistent with the following references and can be revealed. The research results were consistent with those of Zhai Jinzhi (2021), Xu Pingli (2021), and Liu Xiao (2022). Zhai Jinzhi (2021) proposed in his article "Research on the Effectiveness Evaluation of School Enterprise Cooperation under Modern Apprenticeship System in Vocational Colleges" that the effectiveness of government vocational education policies and school enterprise cooperation is positively correlated with university management, and government policies can also influence the effectiveness of school enterprise cooperation through the school management system; Xu Pingli (2021) pointed out that the role of enterprise participation factors in school enterprise cooperation is also very important. The enthusiasm of enterprise participation can directly affect the effectiveness of school enterprise cooperation, or indirectly affect the effectiveness of school enterprise cooperation through school management.

17. Recommendation

The school management system plays an important role as an intermediary moderating variable that affects school enterprise cooperation. Therefore, for the school management system, the following should be fully implemented: 1. Colleges and universities should adopt teachers with high quality, professional abilities, rich work experience, and familiarity with professional work to participate in and guide industry university research cooperation projects, participate in scientific research work of enterprises, communicate and learn from experts and backbone of enterprises, and deeply learn corporate culture and technology. This not only creates greater value for industry university research cooperation, but also strengthens teachers' practical teaching Learning ability to better provide education for students. 2. Through school enterprise cooperation, the rapid development of innovative talent cultivation can be initiated and maintained. Many universities

neglect the cultivation of innovative talents in industry university research cooperation, and the correlation between industry university research cooperation and its internal systems is high. Therefore, in order to achieve a truly healthy development of industry university research cooperation, it is necessary to reform the relevant internal systems of higher education institutions.

3. In the cooperation between industry, academia, and research, schools play an important role in enterprise research, production, and education. They not only need to improve the plans and policies for university assistance, but also need to pay more attention to enhancing the enthusiasm of teachers and students to participate. The school should conduct a comprehensive evaluation of teachers' educational and scientific research skills, recognize and praise their achievements in helping enterprises solve educational problems in industry university research cooperation, and appropriately improve teachers' welfare benefits and positions, increase funding for outstanding teachers, and stimulate their enthusiasm. Teachers who participate in industry school cooperative education can spend more time cultivating students' professional skills in the teaching classroom, promoting industry school cooperation, and promoting the development of innovative education.

4. Establishing a long-term and stable school enterprise cooperation relationship is conducive to building a talent cultivation mechanism for resource sharing and cooperative education. In this process, the school provides high-quality students for enterprises and personnel needed for stable operation of the enterprise. Both parties can jointly face the difficulties encountered in the cooperation between industry, academia, and research, establish a stable internship platform, solve the problem of insufficient positions in some majors, ensure that students have stable opportunities to enter the enterprise for internships, and enhance their practical abilities in innovation and entrepreneurship.

According to the research conclusion of this article, the formulation of government vocational education policies has an important impact on improving the effectiveness of school enterprise cooperation. Therefore, for the government. We should start from the following aspects:

1. Learn from the experience of developed countries, accelerate the pace of college-enterprise cooperation policy innovation, improve the policy system, and make it systematized. In order to ensure college-enterprise cooperation, developed countries have formulated comprehensive laws and regulations. 2. Strengthen the overall responsibility of the government. The first is to clarify the responsibilities of the corresponding government departments in college-enterprise cooperation and break down the barriers of the management system. Departments of education, finance, taxation, and labor administration guide and encourage enterprises to strengthen cooperation with higher vocational colleges, and form talent sharing, equipment sharing, technology sharing, and achievement sharing by publicizing relevant policies and establishing information resource sharing networks. new cooperation system. The second is to improve the organization and coordination

system. Establish a college-enterprise cooperation coordination organization jointly composed of education, finance, taxation, labor administration and other departments, responsible for researching and formulating relevant policies and legal measures for promoting college-enterprise cooperation.

3. Establish a monitoring and evaluation system for college-enterprise cooperation. Standard system, broaden the information channels for evaluation, introduce detailed rules for the evaluation of college-enterprise cooperation, clarify the evaluation indicators and evaluation content, set up evaluation agencies or hire professional evaluation agencies to evaluate college-enterprise cooperation, and evaluate policy plans, policy implementation, and policy effects.

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