Entrepreneurial Leadership Model for Administrators of Anyang Highervocational Colleges Under Henan Province, China

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Abstract

Studying the entrepreneurial leadership model of managers in vocational colleges and universities in Anyang City, Henan Province aligns with national policies and addresses the needs of local economic and social development. This research holds both theoretical and practical significance, as it aims to enhance the quality of vocational education while fostering students' innovative and entrepreneurial abilities. By focusing on entrepreneurial leadership, this study not only seeks to improve the leadership and organizational innovation capabilities of vocational college managers but also helps instill a deeper sense of educational entrepreneurship. Furthermore, it offers fresh perspectives and strategic directions for the development of vocational institutions, empowering managers to effectively guide their schools toward long-term success.

This research utilized a mixed-method approach, incorporating both qualitative and quantitative methodologies. The population of this study included 2,008 administrators and teachers from Anyang Higher Vocational Colleges in Henan Province. A stratified random sampling method was used to select a sample, totaling 312 participants. Data collection was conducted using a questionnaire, and descriptive statistics as well as Confirmatory Factor Analysis (CFA) were employed to analyze the data using statistical software.

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The research findings revealed that: (1) there were 5 components and 15 indicators of Entrepreneurial Leadership Model For Administrators Of Anyang Higher Vocational Colleges Under Henan Province, which consisted of Framing the challenge, Absorbing uncertainty, Path clearing , Building commitment, Specifying limits, A total of 15 indicators were also identified. (2) the developed Entrepreneurial leadership odel for administrators of Anyang Higher Vocational Colleges in Henan Province was consistent with the empirical data. The value of Relative Chi-square ($\chi 2/df$) = 1.18, Degree of Freedom (df) = 85, Goodness of Fit Index (GFI) = 0.960, Adjusted Goodness of Fit Index (AGFI) = 0.943, and Root Mean Square Error of Approximation (RMSEA) = 0.24, all in line with specified criteria. And the key components had the weight between 0.31-0.88 higher than 0.30.

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Introduction

At the national level, the Chinese government has prioritized innovation and entrepreneurship as key drivers of economic development. The 2015 State Council's "Opinions on Several Policies and Measures on Vigorously Promoting Mass Entrepreneurship and Innovation" introduced favorable policies, such as simplifying entrepreneurship registration, reducing costs, and strengthening support systems. Anyang City in Henan Province, an economically less developed region, aims to boost its economic transformation through innovation and entrepreneurship.

In Anyang City, vocational colleges play a crucial role in cultivating talent and supporting local development. The "Action Program for Innovation-Driven Development of Henan Province (2018-2022)" emphasizes the promotion of mass entrepreneurship and innovation, encouraging the cultivation of innovative talents. Studying the entrepreneurial leadership model of managers in Anyang's vocational colleges is essential to fostering local economic and social growth.

At the institutional level, managerial leadership is vital to the success of vocational colleges. The "Modernization of China's Education 2035" advocates for high-quality, distinctive vocational institutions with strong management and a focus on cultivating skilled talent. Entrepreneurial leadership directly influences organizational culture, teaching quality, and school development, making it essential for sustainable growth.

In conclusion, researching the entrepreneurial leadership model of managers in vocational colleges in Anyang City not only aligns with national policies but also addresses local development needs. It enhances vocational education quality, fosters students' entrepreneurial skills, and equips managers with leadership strategies for success.

Research Objectives

(1)To determine the components and indicators of Entrepreneurial Leadership for Administrators of Anyang Higher Vocational Colleges in Henan Province.

(2)To develop the model of Entrepreneurial Leadership for Administrators of Anyang Higher Vocational Colleges in Henan Province.

Research Hypotheses

Entrepreneurial Leadership model for administrators of Anyang Higher Vocational Colleges in Henan Province was consistent with the empirical data.

Literature Review

Entrepreneurial leadership is leadership with innovative thinking and entrepreneurial spirit. It emphasizes that leaders have keen insight and decision-making ability in the face of challenges and difficulties, and can guide the team to innovate, take risks, and realize the development and growth of the organization. Domestic scholars have discussed the definition of entrepreneurial leadership, and generally believe that entrepreneurial leadership is the ability to innovate, take risks, and identify opportunities in the process of entrepreneurship.

This article summarizes the domestic research on entrepreneurial leadership, mainly covering the definition of entrepreneurial leadership, entrepreneurial leadership and national policies, entrepreneurial leadership and enterprise development, entrepreneurial leadership and market competition, entrepreneurial leadership Capacity and personnel training,

entrepreneurial leadership and organizational culture, entrepreneurial leadership and personal qualities.

Through a simple literature review on the existing research on entrepreneurial leadership, this study finds that the existing research on entrepreneurial leadership has laid a solid foundation for in-depth related research in the future, but there are still deficiencies that will restrict the research on entrepreneurial leadership. Further development, in the early entrepreneurial stage of a new venture, entrepreneurial leaders can establish a clear and beautiful vision, thereby motivating the entrepreneurial team, influencing others to pursue opportunities, and leading the new venture to success (Chen, 2015). In the face of environmental changes, mature companies need to face the challenge of strategic innovation, and they need entrepreneurial leaders to establish entrepreneurial vision and promote change (Bums, 2008). Therefore, this paper proposes to establish an entrepreneurial leadership model based on the current situation of leadership development in vocational colleges and universities in Anyang City, Henan Province, to provide reference for subsequent research.

Research Method

1. Research Design

Used mixed method, both qualitative and quantitative, first the qualitative to determine the components and indicators of the entrepreneurial leadership model through content analysis from the document and research related, included 5 key informants. After that quantitative method was employed to collected the empirical data from the respondent through survey questionnaire.

2. Population and Sample

The population at this phase is the administrators and teachers of 3 Higher Vocational Colleges in Anyang, Henan Province. They are respectively: Anyang Vocational and Technical College Henan Vocational College of Nursing and Anyang Preschool Education College.The dministrators and teachers of 3 Higher Vocational Colleges in Anyang, Henan Province, total 2008 persons. the sample group is used to select respondents by proportional stratified random sampling, total 312 person with the G*Power program.

3. Research Instruments

The data collection instruments, firstly, semi-structured interview form, and data record note were employed to collect data from document and experts, and secondly, used a three-part of questionnaire.Use the Chinese website Questionnaire star “https://www.wjx.cn/” to create a five-point rating scale questionnaire and manage it on a professional platform for online data collection. It consists of the following three parts.

Part I: Demographic variables, general information of the respondents, totaling 5 items, such as gender, age, education level, position, working years, etc.

Part II: Rating scale questionnaire (Five-point rating scale), which asks about the entrepreneurial leadership model for administrators of Higher Vocational Colleges in Anyang Henan Province.

There were 49 indicators from literature analysis and interview of key informants. As result, total of 49 indicators were found and prepared as research instrument, a five-point rating scale questionnaire. The quality of instruments has been verified by content validity and reliability.

For the content validity of the questionnaire, after revision according to the opinion of the Advisory Committee of the Doctor of Thesis, the researchers submitted a draft questionnaire to a research instrument expert to determine the content match or IOC for five experts (list of experts shown in Appendix C), finding that all indicators derived from mentioned above. They were resolved by experts with a consistent overall opinion. The Item-Objective Congruence (IOC) was used to evaluate the items of the questionnaire based on the score range from -1 to +1. The items that had scores lower than 0.6 were revised, the items that had scores higher than or equal to 0.6 were reserved. As a result, it was found that there were 45 items in the questionnaire. The items that were deleted were: : FC9: Leaders set a higher goal at work, AU10 : Leaders with innovative ideas. BC10: Leaders focus on human resources strengths development, SL11: Leaders are able to anticipate risks and proactively make decisions

Part III: Suggestions and additional comments (Open Ended).

All type of questionnaires will be Likert's rating scale with 5 points (Batterton, K. A., & Hale, K. N. (2017).

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral,4 = Agree, 5 = Strongly Agree.

All of these develop are to use the IOC and Cronbach's alpha coefficient to find the validity and reliability.

4. Data Collection

The steps for data collection will be as follow:

Step 1: Request permission to collect data for research to the Faculty of Education, Bangkokthonburi University.

Step 2: Request a letter of recommendation for the researcher from the Faculty of Education, Bangkokthonburi University.

Step 3: Selection the coordinating teachers to help assist in coordinating data collection in each institution. Those will be oriented to understand the details of the questionnaire administration and data collection.

Step 4: Carry out data collection with the selected samples by sending questionnaires to the coordinator teacher who will help for collect data with the selected samples in each college.

5. Data Analysis

1) **Descriptive statis**

Descriptive statistic for describe the variables namely frequency, percentage, arithmetic mean, standard deviation, skewness, and kurtosis, and the criteria was used to interpret the mean score were: (Best and Kahn James,1993)

1.00 – 1.49	Very low	1.50 – 2.49	Low
2.50 – 3.49	Moderate	3.50 – 4.49	High
4.50 – 5.00	Very high		

1.Analyzing the model that the entrepreneurial leadership of administrators should be developed. The arithmetic mean was used by the researchers in Best' analysis (John W. Best, 1997: 190) shown in Table 3.2.

2.Data analysis for frequency and percentage in order to know the status of the sample group, i.e., gender, age range, educational level, position level, professional title, work experience, etc.

3.Average data analysis, Standard deviations and coefficients distribution to determine the suitability of the indicators for the selection of indicators in the model. by

specifying the following criteria, the mean value is equal to or more than 3.00 and the distribution coefficient (CV.) is equal to or less than 20% (Suthitt Khonkan, 2004).

2) Inferential statistics

For the model of entrepreneurial leadership for administrators. Confirmatory factor analysis (CFA) will be employed for finding and estimate the parameter in this situation as follows:

1. Data analysis to take into account the suitability of variables to be analysed for further components by analysing the Pearson correlation coefficient. In order to determine the degree and direction of correlation, if the variables are not correlated then there is no common component. There was a statistically significant correlation at the .01 level ($p < .01$). Bartlett's statistical analysis, which is a statistical test of the correlation matrix hypothesis between variables and Identity Matrix, considering the Bartlett's test of Sphericity and the probability that Is there an appropriate correlation to be used for further component analysis. By considering the statistical significance and analysis of the Kaiser-Myers-Allkil index. (Kaiser-Mayer-Olkin Measurers of Sampling Adequacy: MSA) Considering the criterion, a value greater than .80 indicates very good, less than .50 indicates invalid (Kim & Muclle, 1978)

2. Confirmatory Factor Analysis by testing the conformity of the structural correlation model and weighting the sub variables used to generate the empirical data indicators obtained from the weighted analysis of the data from the questionnaire. The sub variables used to generate the indicators and to verify the coherence of the research model are the theoretical models created by the researcher by analysing second-order confirmation elements with the empirical data. Thereafter, the coherence of the research model with the empirical data was examined. If the results of the first data analysis do not meet the specified criteria, the researcher must adjust the model to meet the specified criteria. According to the viewpoint of Hair et.al, (2010), the statistical values to be used as the audit criteria are as follows:

(1) Chi-square Statistics is a statistical value used to test the statistical hypothesis that the function Harmony is zero. The lower the Chi-square Statistics, the closer to zero the model is consistent with the empirical data.

(2) Harmony Level Index (Goodness-of- Fit Index: GFI), which is the ratio of the difference between the harmonious functions from the model before and after the model was adjusted to the harmonization functions before the model was adjusted GFI values from 0.90-1.00 indicate that the model was consistent with the empirical data.

(3) Adjusted Goodness-of-Fit Index (AGFI), in which the GFI is adjusted taking into account the size of freedom (df), which includes the number of variables and the sample size if the AGFI values from 0.90-1.00 indicate that the model is consistent with the empirical data.

(4) Root Mean Square Error of Approximation (RMSEA) error indicates the dissonance of the model generated with the population covariance matrix which is A value of RMSEA less than 0.05 indicates that the model is consistent with the empirical data.

(5) Apply the results of the analysis to verify the consistency of the model. The following criteria were selected for indicators showing Factor Loading: 1) equal to or greater than 0.7 for parent component (Farrell & Rudd, 2011), and 2) equal to or greater than 0.30 for sub-element and identifier (Point Tacq, 1997).

Therefore, the researcher used the statistics based on the opinion of Hair et.al, (2010) as a criterion to check the consistency between the models developed by the researcher from theory and research to empirical data. The variables used to generate the indicators and to verify the coherence of the research model are the theoretical models created by the researcher by analysing second-order confirmation components with the empirical data. Thereafter, the coherence of the research model with the empirical data was examined. If the results of the first data analysis do not meet the specified criteria, the researcher must adjust the model to meet the specified criteria.

Research Results

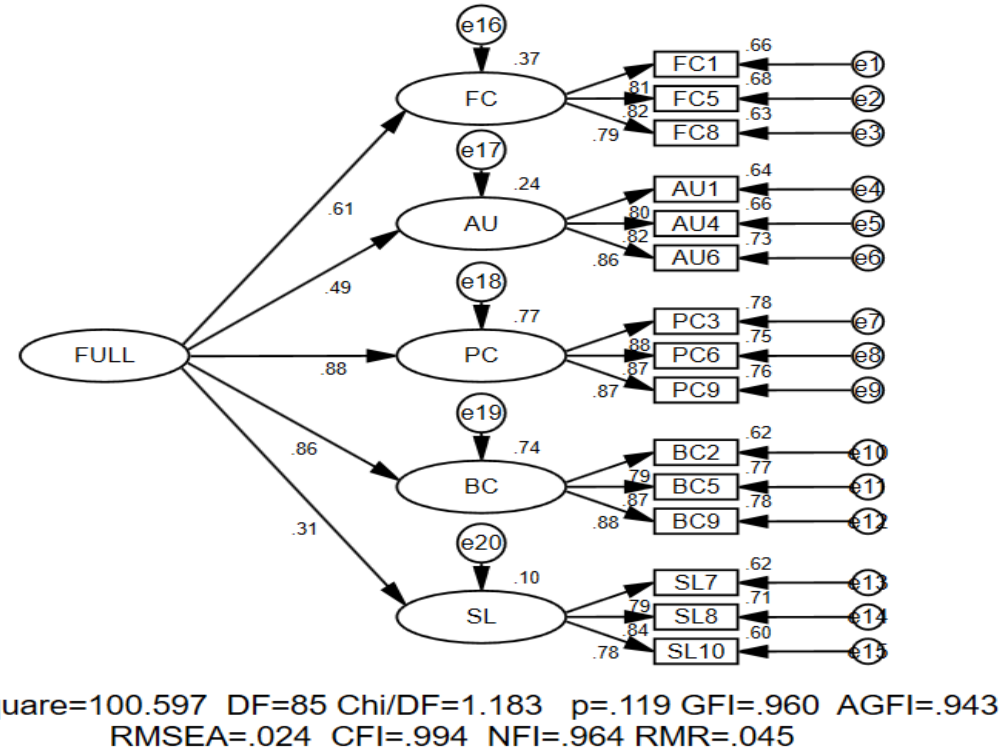
The research results revealed that

There were 5 components of administrators' Entrepreneurial Leadership for Administrators of Anyang Higher Vocational Colleges in Henan Province which consisted of: (1) Framing the challenge (2) Absorbing uncertainty (3) Path clearing (4) Building commitment (5) Specifying limits.

There were total 15 indicators of administrators' Entrepreneurial Leadership for Administrators of Anyang Higher Vocational Colleges in Henan Province. Details were as follows:

Component 1: Framing the challenge, it's the latent variable that consisted of 3 indicators.Component 2: Absorbing uncertainty, it's the latent variable that consisted of 3 indicators.Component 3: Path clearing, it's the latent variable that consisted of 3 indicators.Component 4: Building commitment, it's the latent variable that consisted of 3 indicators.Component 5: Specifying limits, it's the latent variable that consisted of 3 indicators:

2. The researcher found that five of the six fitted indicators achieved a good fitting degree. They were /df, RMSEA, CFI, TLI and SRMR. Although the chi-square p-value of .0258 for this model was statistically significant and indicated that the model was not accepted. However, the values were susceptible to being strongly influenced by the sample size of the estimated parameters, and statistics are usually of little substantive help when using real-world data to evaluate theoretical models . (Rigdom,1995) All other fit indicators for the model were in the good fit range. both CFI and TLI were well above the fitted value .09, RMSEA and SRMR were largely below the fitted value .08, and /df was in the in the good fit range. (Tanaka, J. S. 1993, Bentler, P. M. 1990, Hu, L.; Bentler, P. M. 1999, Hu, Li-tze; Bentler, Peter M.1999, Hooper, D., Coughlan, J., & Mullen, M.R. 2008) Therefore, the measurement model passed the fitness-to-fit indicator tests.



Chi-square=100.597 DF=85 Chi/DF=1.183 p=.119 GFI=.960 AGFI=.943
RMSEA=.024 CFI=.994 NFI=.964 RMR=.045

Figure 1 The second order of Entrepreneurial leadership model for Administrators of Anyang Higher Vocational Colleges in Henan Province

Table 1 Index value to examine the consistent with the empirical data. (final adjustment)

Measure	Estimate	Threshold	Interpretation
CMIN	100.597	--	--
DF	85	--	--
CMIN/DF	1.183	Between 1 and 3	Excellent
CFI	0.997	>0.90	Excellent
GFI	0.96	>0.90	Excellent
AGFI	0.943	>0.90	Excellent
NFI	0.964	>0.90	Excellent
RMSEA	0.024	<0.08	Excellent

Note:Specific details of the absolute fit index (、RMSEA、CFI、TLI、SRMR) and the value-added fitness index(/df) were shown in Table 4.15.The researcher found that five of the six fitted indicators achieved a good fitting degree. They were /df, RMSEA, CFI, TLI and SRMR. Although the chi-square p-value of .0258 for this model was statistically significant

and indicated that the model was not accepted. However, the values were susceptible to being strongly influenced by the sample size of the estimated parameters, and statistics are usually of little substantive help when using real-world data to evaluate theoretical models. (Rigdom,1995) All other fit indicators for the model were in the good fit range. both CFI and TLI were well above the fitted value .09, RMSEA and SRMR were largely below the fitted value .08, and /df was in the in the good fit range. (Tanaka, J. S. 1993, Bentler, P. M. 1990, Hu, L.; Bentler, P. M. 1999, Hu, Li-tze; Bentler, Peter M.1999, Hooper, D., Coughlan, J., & Mullen, M.R. 2008) Therefore, the measurement model passed the fitness-to-fit indicator tests.

Table 2 Statistical value of administrators'Entrepreneurial Leadership Model for Administrators under Anyang Higher Vocational Colleges in Henan Province

Latent and observable	Standardized Factor loading	S.E.	C.R.	p	R^2
FC	0.611				0.374
FC1	0.812				
FC5	0.825	0.074	14.646	*	
FC8	0.794	0.072	14.230	*	
AU	0.490	0.130	6.096	*	0.240
AU1	0.800				
AU4	0.815	0.075	14.781	*	
AU6	0.856	0.070	15.233	*	
PC	0.877	0.188	8.508	*	0.770
PC3	0.880				
PC6	0.868	0.049	20.275	*	
PC9	0.870	0.050	20.336	*	
BC	0.858	0.180	8.171	*	0.735
BC2	0.786				
BC5	0.875	0.064	16.723	*	
BC9	0.883	0.066	16.868	*	
SL	0.308	0.094	4.211	*	0.095
SL7	0.788				
SL8	0.841	0.087	13.699	*	
SL10	0.777	0.077	13.256	*	

From Figure 1 and Table 1-2 above the statistical value of second order CFA was analyzed by AMOS, indicated that Entrepreneurial Leadership Model for Administrators under Anyang Higher Vocational Colleges in Henan Province was consisted with the empirical data, and the important components and indicators as rank order from high to low as follows:

Figure 2 the Entrepreneurial leadership model from theory with the empirical data The model showed that there were 5 components and 15 indicators of the

Entrepreneurial Leadership Model for Administrators under Anyang Higher Vocational Colleges in Henan Province. By rank order from high to low, respectively. They were:

Component 1: Framing the challenge.it's the latent variable that consisted of 3 indicators: FC5: Leaders always want to achieve more in their work.FC1: Leaders tend to set a high standard in their work.FC8: Leaders are perceptive

Component 2: Absorbing uncertainty.it's the latent variable that consisted of 3 indicators: AU6: Leaders inspire confidence.AU4: Leaders are able to anticipate what may happen in the future.AU1: Leaders are able to construct a clear vision for the school and a bright vision for the future

Component 3: Path clearing.it's the latent variable that consisted of 3 indicators: PC3: Leaders are able to negotiate effectively to remove barriers that employees face at work. PC9: Leaders respect their employees and are supported by their subordinates.PC6: Leaders are able to persuade employees to accept their point of view.

Component 4: Building commitment. It's the latent variable that consisted of 3 indicators: BC9: Leaders develop strategies to motivate employees.BC5: Leaders enable organization members to work effectively together.BC2: Leaders are highly resilient to stress.

Component5 Specifying limits.it's the latent variable that consisted of 3 indicators: SL8: Leaders are able to let their optimism and confidence influence others.SL7: Leaders are optimistic and confident.SL10: Leaders are flexible in their decision-making.

Discussion

Entrepreneurial leadership, as a core concept, emphasizes innovation, adaptability, and change, making it especially suitable for dynamic and competitive environments. Leaders with entrepreneurial qualities inspire creativity, motivation, and drive organizational growth, which is essential in today's fast-evolving contexts.

The theoretical foundations of entrepreneurial leadership are well-established through several key studies. Kuratko (2005) explored the trends and challenges in entrepreneurship education, offering insights that are directly applicable to leadership in vocational colleges. Rauch and Frese (2007) demonstrated the significant relationship between entrepreneurial traits and success, shedding light on the psychological drivers of entrepreneurial leadership. Covin and Slevin (1991) provided a conceptual model highlighting the role of leadership in shaping organizational behavior, while Miller (1983) examined how leadership impacts entrepreneurial activities across different types of firms. Fry (2003) introduced the concept of spiritual leadership, focusing on how values and vision contribute to organizational innovation. Similarly, Zhang and Bartol (2010) illustrated how empowering leadership fosters employee creativity, showing the connection between entrepreneurial leadership and innovative thinking through psychological empowerment.

Research findings from this study identified five key components of entrepreneurial leadership: framing the challenge, absorbing uncertainty, clearing the path, building commitment, and specifying limits. Leaders must clearly define their mission and vision, manage risks and uncertainties, remove obstacles, foster team commitment, and set clear boundaries. These components are supported by fifteen indicators that link theory to practical behavior, providing a solid foundation for the development of leadership in educational contexts.

This research contributes significantly to the integration of theory and practice. It confirms the relevance of established entrepreneurial leadership theories within vocational college management, demonstrating how entrepreneurial traits can enhance leadership in academic settings. Specifically, it shows that innovation and adaptability are critical in vocational education, where the landscape is constantly evolving. Furthermore, the study offers a framework for leadership development, guiding college administrators to promote both organizational innovation and educational entrepreneurship, ultimately enhancing their leadership skills.

The impact of entrepreneurial leadership on vocational colleges is far-reaching. It fosters organizational innovation, equipping institutions to navigate and respond to evolving educational landscapes and societal needs. This leadership approach also trickles down to students, cultivating their innovative thinking and entrepreneurial skills, which are essential for future success. Additionally, it empowers administrators to take proactive, strategic steps, ensuring the institution's long-term sustainability and success.

Empirical data further supports the findings, with statistical analysis (χ 2/df = 1.18) confirming that the Entrepreneurial Leadership Model developed in this research is consistent with observed data. This alignment underscores the model's validity and reliability, demonstrating that entrepreneurial leadership is a valuable framework for improving management and innovation in vocational colleges.

Recommendations

1. Recommendation for Policy Formulation

The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the Opinions on Promoting the High-Quality Development of Modern Vocational Education in 2021, highlighting vocational education as a key component of the national education system and human resource development. Vocational education plays a critical role in cultivating diverse talents, inheriting technical skills, and promoting employment and entrepreneurship. As China embarks on its journey of modernization, vocational education holds immense potential.

Vocational education is pivotal in driving human resource development, meeting industrial needs, and supporting national modernization. Improving the quality of education and innovating training models are essential to fostering social development. Entrepreneurial leadership, which emphasizes innovation, adaptability, and change, is especially relevant in vocational education. It prepares educators and students to thrive in complex, rapidly changing environments.

Entrepreneurial leadership inspires innovation and entrepreneurship. Leaders motivate teams, develop strategies, and manage change—all critical skills for vocational education students. Entrepreneurial leaders focus on hands-on experience, connecting education to real-world applications, and fostering relationships with industries. This approach helps vocational colleges remain responsive to the needs of the marketplace while instilling autonomy, creativity, and innovation in students.

By integrating entrepreneurial leadership principles, vocational education can produce students who are innovative, adaptable, and equipped to meet future career challenges, creating a system that is forward-thinking and aligned with industry needs.

2. Recommendation for Practical Application

The Entrepreneurial Leadership Model offers practical applications in fostering innovation and change. It promotes open thinking and adaptability, which are vital for keeping organizations competitive. Entrepreneurial leaders motivate teams, foster ownership, and respond effectively to external changes. This leadership style also helps organizations identify and capitalize on new opportunities.

Entrepreneurial leaders shape a culture of innovation, attract entrepreneurial talent, and increase employee satisfaction through empowerment. Their problem-solving abilities are essential for managing crises and driving growth. The flexibility and adaptability offered by entrepreneurial leadership enable organizations to navigate rapidly changing business environments. In practical application, these principles can drive innovation and success across various fields.

3. Recommendation for Further Research

This study develops a theoretical and practical entrepreneurial leadership model for building high-quality vocational colleges and promoting sustainable development. The model aims to guide leaders in fostering innovation, risk-taking, and adaptability—key elements in modern vocational education.

The model encourages innovation in curriculum design, teaching methods, and industry cooperation, ensuring education remains relevant to the evolving job market. It helps vocational institutions shape educational entrepreneurs among staff and students, cultivating talents aligned with market demands. The model also emphasizes service quality, enhancing educational services through feedback and collaboration with industries.

By focusing on adaptability and innovation, the model prepares students to thrive in fast-changing professional environments. It fosters a culture of positive innovation within institutions and promotes sustainable development strategies, ensuring long-term success for vocational education in China. Ultimately, this entrepreneurial leadership model provides a foundation for vocational education to evolve in line with technological advancements and industry shifts, driving innovation and sustainable growth.

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