

Identification of Influential Factors in the Construction of Financial and Commercial Majors in Higher Vocational Colleges

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Abstract: As Yunnan Province proposes to develop eight key industries, play the world-class "three cards" and build a modern industrial system oriented towards 2035. With the introduction of a large number of trillion-level industries, 100-billion-level industries, and 100-billion-level enterprises, people have gradually increased their emphasis on vocational education. Professional technical talents in higher vocational colleges have also become a new driving force for Yunnan's economic development. In order to realize the matching of professional and technical talents with regional economic development, the needs of employers, and mutual promotion, it is necessary to rely on the teaching quality of vocational colleges. Therefore, it is particularly critical to identify the factors affecting the construction of the financial and commercial professions in higher vocational colleges and to make suggestions. This article summarizes the specific factors that affect the construction of financial and commercial majors in higher vocational colleges. Combined with the literature review method, the influencing factors are classified and integrated, and the influencing factors of the construction of the financial and commercial majors of vocational colleges are identified from the three levels of government, society, and schools. At the same time, use the network analysis method to establish a strategy evaluation model. Furthermore, it provides targeted suggestions for the follow-up research on the construction of financial and commercial majors in higher vocational colleges.

Keywords: Higher vocational colleges, Professional Construction, Identification of influencing factors

1. Introduction

In February 2019, the State Council issued the "Notice of the State Council on Printing and Distributing the National Vocational Education Reform Implementation Plan", which pointed out the need to improve the vocational education and training system. By 2022, the specific goal of building 50 high-level higher vocational schools and 150 key majors (groups) [1]. Higher vocational education is an organic integration of higher education and vocational education [2]. The professional combination of school enrollment, teacher recruitment, and talent training is the meeting point of the talent needs of higher vocational colleges and enterprises [3]. Professional construction has gradually become an important aspect of the connotation construction of higher vocational colleges. Although for comprehensive higher vocational colleges, the proportion of financial and business majors is increasing, the number of enrollments is also increasing year by year, and the employment rate and the rate of entering a higher education are relatively stable. However, there are still many shortcomings in terms of social importance, school-enterprise cooperation and exchanges, professional structure setting, teacher level, and internship training base construction. It can be seen that the identification of key factors in the construction of financial and commercial majors in higher vocational colleges not only has a positive impact on the government, schools, and enterprises, but also promotes the development of vocational skilled talents.

2. Construction of the Influencing Factors (Identification) System of the Construction of Financial and Commercial Majors in Higher Vocational Colleges

Based on the problems existing in the construction of financial and commercial majors in higher vocational colleges, a comprehensive analysis and construction of a relatively complete influencing factor system for studying the construction of financial and commercial majors in higher vocational

colleges has been established. Based on the research and analysis of the construction of financial and commercial majors in higher vocational colleges, this paper draws on the research conclusions of relevant scholars and adopts qualitative research methods to conduct interviews with the government, enterprises, school management, and frontline teachers and students. Considering government factors, social factors, and school factors, a system of influencing factors is constructed.

Table 1: The system of influencing factors in the construction of financial and commercial majors in higher vocational colleges

the degree of influencing factors in the construction of financial and commercial majors	first-class indicators	second-class indicators
	Government factors A	Policy support
		Supervision mechanism
	Social factors B	Economic development
		Degree of attention
		Business needs
	School factors C	Training goals
		Professional settings
		Teachers Cooperation and exchange

2.1 Government Factors

As the main body of education investment and education supervision, the government's related policies will play an important role in professional construction. The existing policies on vocational education mainly focus on vigorously developing vocational education, accelerating the development of vocational education, vocational education reform, vocational education and employment closeness, etc. The policies to promote professional construction mainly focus on the undergraduate education stage. The special literature policies aimed at promoting the professional construction of higher vocational colleges are not perfect enough, and effective policies and regulations can improve the degree of macro-management of professional construction in higher vocational colleges. Correctly guiding the development direction of the professional construction of higher vocational colleges can provide a good social environment and solid policy guarantee for the professional construction of higher vocational colleges to a great extent [4]. The supervision and management of the professional construction of higher vocational colleges by the government and education departments is a favorable measure and guarantee for the standardized development of professional construction of higher vocational colleges.

2.2 Social Factors

Economy is the foundation for the survival and development of human society. A certain level of economic development provides economic conditions for education and puts forward certain requirements for educational development. Due to the imbalance and inadequacy of regional development in China, differences in the level of regional economic development have led to differences in people's living standards, per capita income, and population mobility. This will directly affect the education investment of the government and the family and the emphasis on vocational education. Economic development needs the support of elite, applied, technical, and managerial talents. Yunnan serves as a major channel and bridgehead for China to open to South Asia, Southeast Asia and the Indian Ocean rim. With the in-depth advancement of the "Belt and Road" initiative, the demand for vocational and skilled talents in enterprises in Yunnan Province is increasing day by day. However, due to the asymmetry of confidence and other reasons, the vocational skills education is decoupled from the actual needs of enterprises.

2.3 School Factors

As the main body of education and teaching, a school needs a fixed place, specialized teachers and

a certain number of students. In the education and teaching of students, not only must there be certain training goals and prescribed teaching content, but also a certain management system and management method must be included to ensure the learning effect of students. The professional training objectives will directly point out the direction for the construction of teaching plans, teaching content, selection of teaching materials, classroom teaching, and student employment. The rationality of the establishment of majors in finance and commerce is another factor that affects the construction of majors. There are commonalities in the basic courses of finance and commerce majors. However, the skill requirements of different professions are very different, so how to deal with this difference in the professional setting is particularly important. At the same time, the political literacy, teaching qualifications, teaching level, and teacher structure of teachers involved in the construction of financial and commercial teachers in higher vocational colleges are the fundamental guarantee for professional construction and reform. Majors serve as bridges between schools and enterprises, and it is still necessary to pay attention to school-enterprise cooperation in the construction of financial and commerce majors. Combine theory with practice to strengthen the training of talents' effectiveness and practicability.

3. Quantitative Analysis of Influencing Factors in the Construction of Finance and Commerce Majors in Higher Vocational Colleges

3.1 ANP Factor Identification Method (Introduction to the Method)

The Analytic Network Process (ANP) is a comprehensive multi-objective decision-making method proposed by Professor Saaty in 1996. In the process of using the network analysis method, it is necessary to consider the internal feedback, dominance and subordination of each element and other independent relationships. In the survey, it is found that although the network analysis method has a wide range of applications, there are few documents applied to the cultural tourism industry. The construction strategy of financial and commercial majors in higher vocational colleges involves government, enterprises, schools, teachers and other factors. Trying to use ANP to optimize the construction strategies of financial and commercial majors in higher vocational colleges should have certain theoretical significance and research value [5].

3.2 Key Factor Identification and Analysis Ideas

(1) Constructing the judgment matrix

First determine the goals and criteria. Through in-depth analysis and identification of decision-making problems, the decision-making goals, decision-making criteria, and sub-goals are defined.

Secondly, build the ANP network level. According to the goals and criteria determined in the previous step, determine the influence relationship between the criteria levels and within the criteria. And transform it into a network structure. Suppose there is an element Q_1, Q_2, \dots, Q_N in the control layer of the ANP structure, and under the control layer, there is an element group C_1, C_2, \dots, C_N in the network layer. Among them, there is element $k_{i1}, k_{i2}, \dots, k_{ini}, \dots (i=1, 2, \dots, N)$ in C_i , the control layer element $Q_s (s=1, \dots, N)$ is the criterion, and the element $k_{jl} (l=1, 2, \dots, n_j)$ in C_j is the secondary criterion. The elements in the element group C_j are compared according to their influence on k_{jl} in indirect dominance. That is to construct the judgment matrix:

Table 2: Comparison of dominance based on k_{jl} element

k_{jl}	$k_{i1}, k_{i2}, \dots, k_{ini}$	Normalized feature vector
k_{i1}		$w_{i1}^{(jl)}$
k_{i2}		$w_{i2}^{(jl)}$
\vdots		\vdots
k_{ini}		$w_{ini}^{(jl)}$

And get the sorting vector by the characteristic root method: $(w_{i1}^{(jl)}, w_{i2}^{(jl)}, \dots, w_{ini}^{(jl)})^T$. Remember

W_{ij} as:

$$W_{ij} = \begin{pmatrix} w_{i1}^{(j1)} & w_{i1}^{(j2)} & \cdots & w_{i1}^{(jN)} \\ w_{i2}^{(j1)} & w_{i2}^{(j2)} & \cdots & w_{i2}^{(jN)} \\ \vdots & \vdots & & \vdots \\ w_{ini}^{(j1)} & w_{ini}^{(j2)} & \cdots & w_{ini}^{(jN)} \end{pmatrix}$$

Here, the column vector of W_{ij} is the sort vector of the influence degree of the element $k_{i1}, k_{i2}, \dots, k_{ini}, \dots (i=1, 2, \dots, N)$ in C_i on the elements in C_j . If the elements in C_j are not affected by the elements in C_i , then $W_{ij} = 0$. [41]

(2) Constructing a super matrix

Combining the ranking vector matrix of the influence degree of all network layer elements can construct a hypermatrix under the Q_N criterion, denoted as W :

$$W = \begin{pmatrix} w_{11} & w_{12} & \cdots & w_{1N} \\ w_{21} & w_{22} & \cdots & w_{2N} \\ \vdots & \vdots & & \vdots \\ w_{N1} & w_{N1} & \cdots & w_{NN} \end{pmatrix}$$

(3) Constructing a weighted super matrix

There are n such super matrices, and they are all non-negative matrices. The sub-block W_{ij} of the super matrix is column-normalized, but W is not a normalized matrix. Therefore, with Q_N as the criterion, the importance of each element set to the criterion $C_j (j=1, 2, \dots, N)$ under Q_N is compared [42].

Table 3: Comparison of element importance based on C_j

C_j	C_1, C_2, \dots, C_N	Normalized feature vector (sorted vector)
C_1		b_{1j}
C_2		b_{2j}
\vdots		\vdots
C_N		b_{Nj}

If an element set has nothing to do with C_j , its corresponding sort vector component is zero. From this, the corresponding weighting matrix can be obtained:

$$B = \begin{pmatrix} b_{11} & b_{12} & \cdots & b_{1N} \\ b_{21} & b_{21} & & b_{2N} \\ \vdots & \vdots & & \vdots \\ b_{N1} & b_{N1} & & b_{NN} \end{pmatrix}$$

(4) Limit relative sorting to obtain the final sorting result

By weighting the elements of the super matrix W , $\overline{W} = (\overline{W}_{ij})$ is obtained.

$$\overline{W}_{ij} = b_{ij} W_{ij} (i=1, 2, \dots, N; j=1, 2, \dots, N)$$

Then \bar{W} is the weighted hypermatrix. The sum of the columns is 1, which is also called column random matrix.

The extreme relative sorting is the extreme operation of the hypermatrix, which integrates the element groups. The role of direct and indirect influences between the elements within the element group. It can be calculated by $\bar{W}^\infty = \lim_{t \rightarrow \infty} W^t$. When s is calculated to a certain power, each column of \bar{W}^∞ tends to be the same. At this time, it can be approximated that the elements in column j of \bar{W}^∞ are relatively ordered relative to the limit of element j in the network layer under the control layer criteria.

3.3 Identification and Analysis of Key Factors

3.3.1 Determine the Fuzzy Matrix.

In order to comprehensively and systematically identify the influencing factors of the professional construction of finance and commerce in higher vocational colleges. This evaluation system selects 30 people from various fields such as the Yunnan Education Department, employers, and higher vocational colleges. The second-level elements in Table are refined, and single-factor evaluations are conducted in each field by issuing questionnaires. The results can be obtained by recovering, sorting and statistics of the survey files.

Table 4: Statistics of the survey results of the degree of influencing factors in the construction of financial and commercial majors in higher vocational colleges

Index	Big	Relatively bigger	Medium	Smaller	Small
1. Policy support (C ₁₁)	2	6	1	0	0
2. Supervision mechanism (C ₁₂)	1	5	3	0	0
3. Economic development (C ₂₁)	2	1	4	2	0
4. Degree of attention (C ₂₂)	1	2	5	1	0
5. Business needs (C ₂₃)	1	3	3	2	0
6. Training goals (C ₃₁)	1	5	3	0	0
7. Professional settings (C ₃₂)	2	4	3	0	0
8. Teachers (C ₃₃)	2	5	2	0	0
9. Cooperation and exchange (C ₃₄)	0	3	6	0	0

3.3.2 Determine the Weight of Each Element.

Take the influence degree of the element c₁₁ in the element group C₁ as the secondary criterion. The elements c₁₁, c₁₂, and c₁₂ in the element set C are compared indirectly according to their influence on c₁₁. And use the triangular fuzzy number to construct a complementary judgment matrix and introduce the risk evaluation team to evaluate the indicators. Finally, the weight vector W is calculated using FANP.

Table 5: Results of single factor evaluation

Government level (0.3309)	Policy support (0.1782)
	Supervision mechanism (0.1527)
Social level (0.2856)	Economic development (0.0910)
	Degree of attention (0.0951)
	Business needs (0.0995)
School level (0.3834)	Training goals (0.1028)
	Professional settings (0.0923)
	Teachers (0.1137)
	Cooperation and exchange (0.0746)

(3) Conduct sensitivity analysis

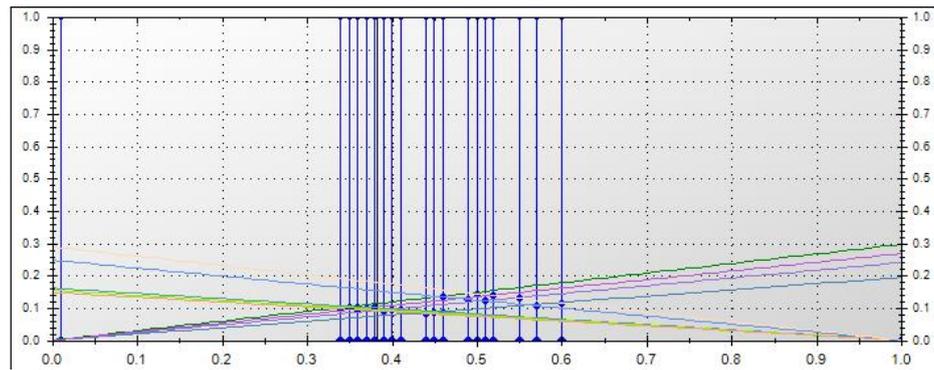


Figure 1: Results of single factor evaluation

According to the principle of maximum membership, it can be found that the level corresponding to the maximum value is the school factor. Therefore, school factors have a greater impact on the construction of financial and commercial majors in higher vocational colleges, and the corresponding weight is 0.3834. In addition, the construction of financial and commerce majors in higher vocational colleges is also greatly affected by the government. The conclusions drawn through the weight calculation are consistent with the subjective opinions of the experts. At the same time, social factors are also an important aspect that affects the construction of financial and commerce majors in higher vocational colleges.

(4) Evaluation conclusion

Through analysis, it can be concluded that school factors and government factors have a greater weight, and they have a more important impact on the construction of financial and commercial majors in higher vocational colleges. It is specifically implemented in each secondary element layer and can be obtained from the calculation results. For the influencing factors of the professional construction of finance and commerce in higher vocational colleges, government policy support, supervision mechanism, school's training goals for the construction of finance and commerce and faculty in higher vocational colleges are the most important factors. In fact, the above aspects are all important factors affecting the construction of financial and commercial majors in higher vocational colleges.

4. Conclusion

Starting from the direction of China's policy guidance and regional development on the demand-oriented construction of financial and commercial majors in higher vocational colleges, participation in the process of financial and commercial professional construction has gradually become a key factor affecting the construction of financial and commercial majors in higher vocational colleges. The school aims to establish a harmonious and win-win relationship between the construction of financial and commercial majors in higher vocational colleges and the government and society. This article identifies and analyzes the possible factors that affect the construction of financial and commercial majors in higher vocational colleges. The result shows that the theory and method proposed in this paper are applicable.

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