Construction and Empirical Analysis of the Evaluation Index System for Majors Set at Transportation Vocational Colleges

Bai Xiao, Mao Wei, and Duan Mingshe

***Abstract*—With the continuous advancement of the Belt and Road Initiative, the rapid development of the transportation industry is inseparable from the talent support of transportation vocational colleges, and the rationality of professional setting is an important factor affecting the development of higher vocational colleges. However, there is little evaluation of the majors set at transportation vocational colleges in existing researches. This paper attempts to construct an evaluation index system for majors set at transportation vocational colleges from four primary indexes of social needs, hardware facilities, software resources and student quality, as well as fourteen secondary indexes. Moreover, with Xinjiang Vocational & Technical College of Communications taken as an example, an empirical test of the professional evaluation index system of transportation vocational colleges is carried out to verify the operability and practicality of the index system to comprehensively evaluate majors set at transportation vocational colleges.**

***Index Terms*—Transportation, vocational colleges, major setting, evaluation index system.**

I. Introduction

Since the Belt and Road Initiative was proposed in 2013, the top-level planning and design was completed in 2015, and the Belt and Road began to be fully implemented since 2016. Among them, facility connection made the fastest progress, which is inseparable from the talent support from transportation vocational colleges. Faced with the rapid development of the transportation industry in the new era, does the training of talents in transportation vocational colleges closely follow the development of the times? Whether the setting of majors can meet the need of current social development? The setting of majors plays a vital role in the development of higher vocational colleges. Therefore, it is of great practical significance for transportation vocational colleges to construct a scientific and reasonable professional evaluation system, evaluate and adjust their settings of majors. At present, there are basically few researches of the evaluation index system for majors set at transportation vocational colleges. This paper, taking transportation vocational colleges as the object, attempts to construct an evaluation index system for majors set at higher vocational colleges and conducts an empirical test with a transportation vocational and technical college as an example.

Manuscript received February 16, 2019; revised July 2, 2019. This work is supported by National Education Science 12th Five-Year Plan Youth Program of Ministry of Education — Study on Adaptability of Transportation Specialty and Transportation Industry Structure of Vocational Colleges in Xinjiang under the background of “One Belt One Road” Strategy (EJA150382). This work is also the phased research result of National Education Science 13th Five-Year Plan 2016 Annual Unit Funding Ministry of Education — Study on the Internationalization Development Strategy of Xinjiang Transportation Vocational Colleges under the background of "Silk Road Economic Belt".

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II. Ideas and Methods of Constructing the Index System

At present, domestic scholars have made certain achievements in the research on the construction of evaluation index system for higher vocational colleges. Wu Jie has constructed the evaluation index system for majors set at higher vocational colleges from two primary indexes, i.e., result evaluation and process evaluation, three secondary indexes, i.e., education benefit, social benefit and internal benefit as well as thirteen third indexes, and then interpreted the system [1]. Wang Lijun constructed the evaluation index system for majors set at secondary vocational schools from four primary indexes, i.e., social demands, school running conditions, professional location and normative standards, as well as twelve secondary indexes and 32 third indexes [2]. There are also scholars who evaluate and analyze each major at colleges. For example, Hu Weiqing uses the fuzzy comprehensive evaluation model to empirically analyze each major from market demand, public demand, software resources and hardware resources, ranks the score of each major and proposes corresponding suggestions for the setting of majors [3]. Based on analyzing the decisive factors in the setting of majors for vocational education, Guo Yang and Hu Xiujin designed the “two-dimensional four-directional evaluation model” and explained the operation process of this method. In the same year, they modified the model to make it more operational [4], [5]. Shen Jun used “two effects” (efficiency and effect) as the evaluation value guide, and built the “four cores” (core objectives, core resources, core tasks, core development) as the main direction. Moreover, with the "four degrees" (the fitness of the target, the degree of security of the conditions, the effectiveness of the task, the satisfaction of the development) are taken as the key scale of the professional construction evaluation index system [6].

Subsequently, some scholars used the "two-dimensional four-directional evaluation model" to empirically test the setting of majors at many colleges and universities.

On the basis of combing the research results of domestic scholars, this paper intends to start from the factors affecting the professional setting of transportation-oriented higher vocational colleges in the new era and selects the main influencing factors to transform them into corresponding indicators, thus forming an objective, scientific and effective comprehensive evaluation. Indicator system. The entropy weight method is used to measure the weight, and the index is weighted and calculated, and finally the comprehensive evaluation value is calculated. Besides, 5-10 experts in relevant fields are invited to select and supplement the indexes in the index system, and adjustments are made according to experts' opinions, thus forming the final evaluation index system for majors set at transportation vocational colleges. Xinjiang Vocational & Technical College of Communications is taken as an example for empirical test to verify the operability and effectiveness of the index system.

III. Selection of Index and Construction of Evaluation System

A. Principles Followed in the Selection of Index

The construction of this index system follows three principles: the principle of making it both scientific and practical. Being scientific means the selection of indexes in the index system is scientifically based and being practical means the evaluation index system can be applied to practice, and effective verification result can be obtained to provide valuable reference for practice. The principle of making the system comprehensive and independent is also followed. Being comprehensive means to make the indexes as comprehensive as possible and try to include the influencing factors in the index system while being independent means each index is relatively independent when these indexes are arranged. Besides, qualitative analysis is combined with quantitative analysis. After the quantitative evaluation, qualitative analysis is carried out, and the results are adjusted as necessary to make the evaluation conclusion more reasonable.

B. Basis of the Index System

This paper mainly takes the transportation vocational colleges as the research object to build the evaluation index system for majors set at transportation vocational colleges. According to the scientific principle and practical principle, the talent demand structure should be considered in the construction of index system.

C. Construction of the Index System

According to the index system construction principle and based on comprehensively collating relevant literature, four primary index and 14 secondary indexes are selected combined with the structure of the transportation industry and features of the transportation vocational college, and a comprehensive evaluation index for majors set at transportation vocational colleges is constructed (Table I). According to Luo Xia's[1] division of the transportation industry structure, the transportation industry structure mainly includes three major categories of transportation infrastructure construction industry, transportation industry and professional transportation equipment industry .Transportation infrastructure construction industry includes specializes in or is primarily engaged in the construction of infrastructure (railroads, highways, airports, ports, etc.). Transportation industry includes three major categories of Transportation Class I, Transportation Class II and Auxiliary transportation industry. Transportation Class I includes Transportation companies that own or lease vehicles and transportation routes, and undertakes the whole process of transportation from carrier to delivery, such as railways (including national railways, local railways), urban rail transit companies, airlines, etc. Transportation Class II includes Transportation companies that have a part of transportation equipment or facilities to provide services for the transportation process, such as airports, automobile transportation companies, and highway transportation companies. Auxiliary transportation industry includes Enterprises that serve as passenger (goods) transport agents or undertake intermodal transport, packaging, information consultation, vehicle cleaning, and vehicle testing enterprises that provide road transport services. And Professional transportation equipment industry includes Specialize in transportation equipment and equipment manufacturing industry.

TABLE I: Evaluation Index System for Majors Set in Transportation Vocational Colleges

Primary Index	Secondary Index	Nature of Index
A. Social demand	A1. The proportion of students enrolled majors related to the transportation infrastructure construction industry and the employment ratio of the industry	Moderate index
	A2. The number of students enrolled in the transportation industry and the employment ratio of the industry	Moderate index
	A3. The number of students enrolled in the professional transportation equipment industry and the employment ratio of the industry	Moderate index
B. Hardware infrastructure	B1. Total value of major related teaching equipment and total output value of schools	Positive index
	B2. Major construction funds and total annual education funds	Positive index
	B3. Training base matching degree	Positive index
C. Software resources	C1. Student-teacher ratio of this major	Moderate index
	C2. Full-time and part-time teacher ratio	Moderate index
	C3. Proportion of teachers work both at school and enterprises	Positive index
	C4. Teachers' title structure	Positive index
	C5. Teachers' qualification structure	Positive index
D. Student quality	D1. Student employment rate in their major fields	Positive index
	D2. Rate of students obtaining diploma and degree certificate	Positive index
	D3. Student employment satisfaction	Positive index

Explanation and description of the index meaning:

A1. The ratio of the number of students enrolled in the transportation infrastructure construction industry to the number of students employed in the industry: The number of students enrolled in the transportation infrastructure construction industry is classified according to the majors of transportation infrastructure construction in the "Catalogue of Higher Vocational Education Specialties (Majors) (2015)". The index is the number of students enrolled majors in the transportation infrastructure construction industry/the number of students employed in the transportation infrastructure construction industry.

A2. The number of students enrolled in the transportation industry and the employment ratio of the industry: The number of students enrolled in the transportation industry is classified according to the relevant transportation majors in the "Catalogue of Higher Vocational Education Specialties (Majors) (2015)". The index is the number of students enrolled in the transportation industry/the number of students employed in the transportation industry.

A3. The number of students enrolled in majors in the professional transportation equipment industry and the employment ratio of the industry: The number of students enrolled in majors in the professional transportation equipment industry shall be classified according to the relevant professional transportation equipment in the "Catalogue of Higher Vocational Education Specialties (Majors) (2015)". The index is the number of students enrolled in majors in the professional transportation equipment industry /the number of students employed in the professional transportation equipment industry.

B1. The total value of major related teaching equipment and the total output value of the school: The total value of major related teaching equipment (mainly including school teaching equipment, construction of related training room base, etc.) / total school output value.

B2. Major construction funds and school's annual education funds: major construction funds (mainly including financial allocations, funding for the Education Department, and funding for the establishment of the Human Resources and Social Security Department) / total annual education funding for the school.

B3. Training base matching degree: number of training bases / professional quantity.

C1. Student-teacher ratio of the major: the student-teacher should not be too high or too low, and the best internal shall be determined by relevant experts.

C2. Ratio between full-time teachers to part-time teachers: Full-time teachers refer to teachers who are employed to work full time at the school. Part-time teachers refer to teachers who are not an employed at the school or part-time teachers from enterprises. Ratio between full-time teachers to part-time teachers should not be too high or too low. Teachers from enterprises should account for a certain proportion at higher vocational colleges, and the best interval shall be determined by relevant experts.

C3. Proportion of teachers work at both school and enterprises: The total number of teachers with a non-teacher series of professional qualification certificates / the total number of teachers.

C4. Teacher title structure: Number of teachers with senior (including sub-high) titles (teacher series) / total number of teachers. "Upper limit" is set for this index, and a full mark is given to anyone who exceeds this limit.

C5. Teachers' degree structure: Number of teachers with a master's degree / total number of teachers. "Upper limit" is set for this index, and a full mark is given to anyone who exceeds this limit.

D1. Student employment rate in their major fields: Number of students employed in the transportation industry / total employment in the year.

D2. Rate of students obtaining diploma and degree certificate: The number of students who have obtained relevant professional qualifications/the total number of students.

D3. Student employment satisfaction: Obtained according to the results of the questionnaire from a third party (MYCOS).

TABLE II: THE RAW DATA OF EVALUATION INDEXES FOR MAJORS SET IN TRANSPORTATION VOCATIONAL COLLAGES

Index	2011	2012	2013	2014	2015	2016	2017
A1	1.4633	2.0804	1.7483	1.7848	1.3026	1.7522	2.1441
A2	1.4746	1.3357	2.0161	2.0573	1.7547	1.7799	1.9491
A3	1.3307	1.2166	1.3211	1.9726	3.3557	2.7382	2.5149
B1	0.2534	0.2534	0.2434	0.2112	0.1524	0.1824	0.1874
B2	0.6946	0.7486	0.5994	0.8225	0.7729	0.7053	0.6678
B3	43.48%	38.46%	51.72%	66.67%	60.61%	71.43%	88.57%
C1	14.7517	15.5158	17.0147	19.2374	22.2837	23.7650	25.0417
C2	3.9733	4.2133	4.2625	4.9722	5.2353	8.1333	5.7313
C3	0.2248	0.2120	0.2962	0.2877	0.2893	0.2869	0.4688
C4	7.38%	8.86%	9.68%	10.61%	12.36%	13.66%	15.63%
C5	34.56%	43.35%	42.23%	40.78%	41.85%	41.80%	40.36%
D1	69.11%	75.12%	92.92%	94.12%	93.22%	94.95%	95.94%
D2	98%	98.25%	98.10%	98.25%	97.54%	75%	80.54%
D3	60%	62%	63%	67%	77%	76%	74%

IV. EMPIRICAL TEST OF THE INDEX SYSTEM

In this paper, Xinjiang Vocational & Technical College of Communications is taken as an example to empirically test

the operability of the index system. Xinjiang Vocational & Technical College of Communications is a comprehensive higher vocational college that trains transportation professionals. The College has four major transportation secondary schools including the School of Automotive Engineering, the School of Road and Bridge Engineering, the School of Mechanical and Electrical Engineering, and the School of Transportation Management as well as 35 majors.

A. Data Source and Processing

From the Xinjiang Statistical Yearbook, Xinjiang Education Yearbook, MYCOS, Xinjiang Vocational & Technical College of Communications internal database, etc., this paper collects and collates the raw data of 14 secondary indexes of the professional setting evaluation index system of Xinjiang Vocational & Technical College of Communications from 2011 to 2017(Table II).

B. Determine the Weight of the Index System

In this paper, the entropy weight method is used to give the index weights, and the interference of subjective factors can be excluded, so that the evaluation results are more objective and reliable (see Table III for the results).

TABLE III: EVALUATION WEIGHTS FOR MAJORS SET AT TRANSPORTATION VOCATIONAL COLLEGES

Primary Index	Weight	Secondary Index	Weight
A. Social Demand	0.000722	A1.	0.000068
		A2.	0.000056
		A3.	0.000598
B. Hardware Facilities	0.119668	B1.	0.049943
		B2.	0.007590
		B3.	0.062135
C. Software Resources	0.854913	C1.	0.371182
		C2.	0.003114
		C3.	0.075241
		C4.	0.400877
		C5.	0.004499
D. Student Quality	0.024697	D1.	0.011292
		D2.	0.007101
		D3.	0.006304

C. Evaluation Interval Setting of Comprehensive Evaluation Index System

In this paper, the evaluation interval of the evaluation of majors set at transportation vocational colleges is divided into four states: excellent, good, qualified, and unqualified. The best interval for the indexes A1, A2, and A3 in the table is [1, 1.5], the optimal interval for the C1 index is [12, 18], and the optimal interval for the C2 index [2, 3]. The above indicators are all moderate indexes. Too high or too low values indicate that the index is not optimal, and the rest are positive indexes. The evaluation criteria scores corresponding to the four states are: excellent [80,100], good [50,80], qualified [20,50], and unqualified [0,20]. The higher the score, the more scientific and reasonable the major setting of higher vocational colleges. At the same time, combined with the meaning of the indexes, this paper sets the corresponding measurement range of the value of each index and the major setting standard score (Table IV).

TABLE IV: EVALUATION INTERVAL OF MAJORS SET AT TRANSPORTATION VOCATIONAL COLLEGES

Index	Excellent (80~100)	Good (50~80)	Qualified (20~50)	Unqualified (0~20)
A1	1~1.5	0.8~1or 1.5~1.8	0.5~0.8 or 1.8~2.2	0~0.5or above 2.2
A2	1~1.5	0.8~1 or 1.5~1.8	0.5~0.8 or 1.8~2.2	0~0.5 or above 2.2
A3	1~1.5	0.8~1 or 1.5~1.8	0.5~0.8or1.8 ~2.2	0~0.5 or 2.2 以上
B1	0.3~1	0.2~0.3	0.1~0.2	0~0.1
B2	0.8~1	0.5~0.8	0.2~0.5	0~0.2
B3	0.8~1	0.6~0.8	0.4~0.6	0~0.4
C1	12~18	9~12 or 18~21	6~9 or 21~26	0~6 or above 26
C2	2~3	1 ~2 or 3~4	0~1or4~5	0 or above 5
C3	0.6~1	0.4~0.6	0.2~0.4	0~0.2
C4	0.2 above 100	0.15~0.2	0.1~0.15	0~0.1
C5	0.15 above 100	0.1~0.15	0.05~0.1	0~0.05
D1	0.9~1	0.7~0.9	0.6~0.7	0~0.6
D2	0.9~1	0.7~0.9	0.6~0.7	0~0.6
D3	0.9~1	0.7~0.9	0.6~0.7	0~0.6

Note: The appropriate interval for the C1 and C2 indexes is based on the "Notice of the General Office of the Ministry of Education on the Comprehensive Evaluation of the Work Level of Talent Cultivation in Higher Vocational Colleges". For the C4 and C5 indexes, the upper limit value is set, and a full mark is given to anyone who exceeds the upper limit. In addition, the indexes are compiled according to relevant expert opinions. http://old.moe.gov.cn//publicfiles/business/htmlfiles/moe/moe_42/200409/1182.html

D. Calculation of the Comprehensive Evaluation Scores for Major Setting

First, the specific scores of each index are obtained by mapping the index values to the mapping formula of the scores. Then according to the weight of the score combined with the weight of Table III, the comprehensive score of the professional setting evaluation of the transportation vocational colleges is obtained (Table V)

Mapping Formula for Positive Index:

$$\begin{aligned} &Index\ score \\ &= upper\ limit\ of\ the\ score - (upper\ limit\ of\ evaluation - index\ value) \\ &\times \frac{highest\ score - lowest\ score}{upper\ limit\ of\ evaluation - bottom\ limit\ of\ evaluation} \end{aligned} \tag{1}$$

Taking the C4 teacher title structure index as an example, according to Table II, its 2017 value is 0.1563. Referring to Table IV, it can be seen that it falls within the excellent interval. Therefore, the evaluation score of C4 indicator is 80-(0.2-0.1563)×(80 -50)/(0.2-0.15)=53.78

Mapping Formula of Moderate Index:

The calculation of moderate indexes is divided into two types. One is that the larger the value is, the better it is. When the index value is greater than (the upper limit of evaluation + the lower limit of evaluation), the formula is:

$$\begin{aligned} &Index\ score \\ &= upper\ limit\ of\ the\ score - (upper\ limit\ of\ evaluation - index\ value) \\ &\times \frac{highest\ score - lowest\ score}{upper\ limit\ of\ evaluation - bottom\ limit\ of\ evaluation} \end{aligned} \tag{2}$$

The other is that the smaller the value is when it is close to the optimal value, the better it is. When the index value is less than (the upper limit of evaluation + the lower limit of evaluation)/2, the formula is:

$$Index\ score = upper\ limit\ of\ the\ score - (index\ value - bottom\ limit\ of\ evaluation) \times \frac{highest\ score - lowest\ score}{upper\ limit\ of\ evaluation - bottom\ limit\ of\ evaluation} \quad (3)$$

TABLE V: COMPREHENSIVE EVALUATION SCORE OF TRANSPORTATION VOCATIONAL COLLEGES

Index	2011	2012	2013	2014	2015	2016	2017
A1	81.47	28.97	55.17	51.52	87.9	54.78	24.19
A2	81.01	86.57	33.79	19.43	54.53	52.01	27.64
A3	86.77	91.34	87.16	24.11	2.9	12.03	15.33
B1	**66.02**	**66.02**	**63.02**	**53.36**	**35.72**	**44.72**	**46.22**
B2	69.46	74.86	59.94	82.25	77.29	70.53	66.78
B3	**25.22**	**17.69**	**37.58**	**60**	**50.92**	**67.15**	**88.57**
C1	**89.18**	**91.73**	**83.3**	**67.63**	**42.3**	**33.41**	**25.75**
C2	79.2	43.6	42.12	20.83	19.81	17.5	19.41
C3	**23.72**	**21.8**	**34.43**	**33.16**	**33.4**	**33.04**	**60.32**
C4	**14.76**	**17.72**	**19.36**	**23.66**	**34.16**	**41.96**	**53.78**
C5	100	100	100	100	100	100	100
D1	**47.33**	**57.68**	**85.84**	**88.24**	**86.44**	**89.9**	**91.88**
D2	96	96.5	96.2	96.5	95.08	57.5	65.81
D3	20	26	29	41	60.5	59	56
Total score	**48.3**	**50**	**50.86**	**46.6**	**40**	**41.5**	**46.3**

V. CONCLUSION

Combined with the data of the Xinjiang Vocational & Technical College of Communications and based on the results of the entropy weighting method, the weight of the software resource index is the largest among the four primary indexes in the evaluation index system for majors set at transportation vocational colleges. It is the main factor affecting the major setting of higher vocational colleges, followed by hardware facilities index, student quality index, and social needs index.

This paper constructs a evaluation system for majors set at transportation vocational colleges by scientifically selecting four primary indexes and fourteen secondary indexes, and empirically tests the indicator system through Xinjiang Vocational & Technical College of Communications. Finally, through comprehensive weighted analysis, the professional setup of Xinjiang Vocational & Technical College of Communications was qualified from 2012 to 2017 and food in 2012 and 2013.

The empirical test proves that the evaluation index system for majors set at transportation vocational colleges constructed in this paper is much operable and practical, and can be used to measure the setting of majors at other transportation colleges. The construction of this indicator system can also be appropriately improved, and applied to the evaluation of the setting of majors at non-transportation vocational colleges.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Bai Xiao wrote the paper; Mao Wei analyzed the data; Duan Mingshe collected the data and conducted the research; all authors had approved the final version.

REFERENCES

[1] J. Wu, "The elements, models and interpretation forms of the evaluation system for higher vocational professionals," *China Higher Education Research*, vol. 8, pp. 63-65, 2005.

[2] W. Q. Hu, "Fuzzy comprehensive evaluation of the relevance of majors set at higher vocational colleges," *Vocational and Technical Education*, vol. 28, pp. 46-49, 2007.

[3] Y. Guo and X. J. H, "The "two-dimensional four-directional evaluation model" for vocational education majors," *Vocational and Technical Education*, vol. 24, pp. 30-33, 2003.

[4] Y. Guo and X. J. Hu, "The revision of "two-dimensional four-directional evaluation model"," *Vocational and Technical Education*, vol. 24, pp. 32-34, 2003.

[5] R. S. Zhang, "Strengthening the construction of majors at vocational colleges by using major setting evaluation methods," *China Vocational and Technical Education*, vol. 34, pp. 58-59, 2012.

[6] J. Shen, "Practical research on CIPP evaluation model of professional construction in vocational colleges [D]," *Southwest University*, 2017.

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