Talent Cultivation in the Field of Infrastructure Construction and Professional Evaluation of Civil Engineering

Mingyi Qi

Department of Engineering cost, College of Construction Engineering, Yunnan Technology and Business University, Kunming city, Yunnan Province, China

332739337@qq.com

Keywords: Neighborhood of Infrastructure Construction; Talent Training; Civil Engineering; Professional Evaluation

Abstract: Due to the gaps in educational resources and teaching levels among colleges and universities, the level of graduates is uneven, and social evaluations are also different. Therefore, employers and parents of candidates have an urgent need for objective and reasonable evaluation of the setting, running level and teaching quality of civil engineering majors in colleges and universities. Based on the above requirements, this article selects the professional school level evaluation as the research direction, using a combination of journal literature review and online literature survey, combined with theoretical research and empirical analysis, to discuss the professional evaluation method and index system, and establish it in the analytic hierarchy process On the basis of the civil engineering professional evaluation system, the empirical analysis and evaluation of the civil engineering majors in four colleges and universities in Hunan Province. The empirical analysis results show that the evaluation results of the civil engineering professional evaluation system established by the analytic hierarchy process are in line with reality, strong maneuverability, and good evaluation performance; make the university professional evaluation scientific and standardized to meet the job market talent evaluation, university self evaluation, and professional choice The needs of the school provide a basis for decision-making for the rational allocation of education resources for personnel training in the field of infrastructure construction, so that the professional evaluation of universities can develop from experience to science.

1. Introduction

Since the recent period, the national fixed asset investment has maintained a considerable scale, resulting in a strong demand for talents in the field of construction. my country’s civil engineering education is on the road to international standards [1]. The civil engineering major will remain a popular major in colleges and universities. In order to meet the needs of the society's vigorous talents, most colleges set up civil engineering majors. With the development of society, the focus of society on higher education has shifted from scale growth to quality construction, and all aspects of society have stricter new requirements for the quality of college talent training.

Under the measures of colleges and universities to improve the level of running schools and expand the scale of running schools, whether the level of running schools can be truly improved is a matter of general concern. However, due to the influence of the school's operating conditions and the strength of teachers, the quality of civil engineering professionals in various universities is uneven. Therefore, education authorities, candidates, parents, employers, etc. have a strong demand for objective evaluation of civil engineering majors in colleges and universities. Professional evaluation is an integral part of university evaluation, and it is also an important branch of university evaluation [2].

The main purpose of professional evaluation is to promote the improvement of the quality of professional talent cultivation by formulating a detailed and scientific evaluation index system, and to provide a basis for decision-making for the rational allocation of educational resources for talent cultivation in the field of infrastructure construction. Since civil engineering evaluation is very

important for the cultivation of talents in the field of infrastructure, some research teams have begun to study the evaluation of civil engineering majors in colleges and universities, and have a certain understanding and conclusions in this field. There is no actual evaluation object for the study in the form of analysis [3]. At the same time, the research on the civil engineering professional evaluation system is very scarce, which makes the practical evaluation of the civil engineering professional evaluation not strong. In order to solve the problem of insufficiency of civil engineering professional evaluation research, this paper first uses a combination of journal literature review and online literature survey to collect data from the evaluated colleges [4]; the method of combining theoretical research and empirical analysis is used to analyze at the level Based on the professional evaluation system established by the law, empirical analysis of Hunan University, Central South University, Changsha University of Science and Technology, Hunan City College, the evaluation of civil engineering majors in universities, and the professional evaluation system and index system established by the analytic hierarchy process Explore.

2. Significance and role of civil engineering professional evaluation

Professional evaluation is an integral part of university evaluation. The main purpose of professional evaluation is to ensure that the quality of professional personnel training can be steadily improved by formulating a detailed and scientific evaluation index system. The civil engineering professional evaluation is to take the civil engineering specialty of colleges and universities as the evaluation object, and use the scientific evaluation index system to evaluate the results, which has very specific practical significance for school professional development, students, parents, employers, and personnel training in the field of infrastructure construction[5].

For colleges and universities, professional evaluation has a strong guiding role in strengthening professional construction, thereby improving the quality of professional training; for society, meeting the public’s informed needs for civil engineering professional construction in universities; for education administration the competent authority provides the basis for supervision. Through the evaluation of the civil engineering major, the colleges with civil engineering majors can understand the situation of the professional construction of the relevant colleges, clarify the advantages in the comparison, find out the gaps, and strengthen the professional construction in a targeted manner in the future to avoid weaknesses; At the same time, it can promote the civil engineering colleges to understand and analyze the "market conditions" more comprehensively, understand the professional shortage of the school in depth, reasonably do a professional positioning, so that school leaders can make directional decisions and make professional The setting trend tends to be more rational; the education department can have a more comprehensive understanding of the professional setting and teaching level of civil engineering, so as to provide a more developmental approach to the allocation and macro-control of education resources for personnel training in the field of infrastructure Basis for decision-making; to enable graduates to have a clearer understanding of the situation of civil engineering majors in relevant colleges, and employers to have a more comprehensive and clear understanding of the background of graduates [6]; increase college entrance examination candidates for civil engineering majors in colleges and universities.

The understanding of the situation allows candidates who intend to major in civil engineering to choose the right school in combination with the actual situation, thereby increasing the probability of candidates entering the university. This article starts from studying the current situation of talent training in the field of infrastructure construction in China, and selects civil engineering majors in Chinese universities as the research object. Based on the professional evaluation system established by the analytic hierarchy process, Hunan University, Central South University, Changsha University of Science and Technology, Hunan City University conducted a comprehensive evaluation of civil engineering. Through the research on the comprehensive evaluation of the civil engineering specialty, the specific discussion and practical application of the professional evaluation system and evaluation method, a set of universally applicable relatively simple, intuitive and easy-to-master professional evaluation system is sought to promote the scientific and professional evaluation of the

university Standardization to meet the needs of the talent evaluation in the job market, self-assessment of civil engineering talent training institutions, and professional selection of college entrance examination candidates, etc., provide a basis for decision-making for the rational allocation of educational resources in the field of infrastructure, and strengthen infrastructure The social adaptability of personnel training in the field has made professional evaluation from experience to science [7].

3. Experiments

3.1 Experimental Object

This article selects Hunan Province to open civil engineering undergraduate colleges: Hunan University, Central South University, Changsha University of Science and Technology, and Hunan City College for empirical analysis. These colleges have different backgrounds and belong to different types of colleges and universities. , Has a certain representation. Hunan University: There are 3 academicians of the Chinese Academy of Engineering, 3 Changjiang scholars, and 40 doctoral supervisors in the School of Civil Engineering. Central South University: The School of Civil Engineering has more than 2,700 students and more than 1,600 doctoral and master students. Changsha University of Science and Technology: The School of Civil Engineering currently has 163 faculty members and more than 150 full-time teachers, including 30 professors, 52 associate professors, 17 doctoral supervisors, and 75 master supervisors. Hunan City University: The School of Civil Engineering currently has 98 faculty members, including 8 professors and 38 associate professors.

3.2 Experiment Design

Checked the periodical papers, various documents, and documents related to the content written in this paper, collected information about the evaluation of civil engineering majors in universities, summarized the data and conducted relevant theoretical analysis. The comprehensive evaluation system of civil engineering majors with reference to analytic hierarchy process is an empirical analysis of civil engineering major evaluations in 4 universities in Hunan Province. The steps of empirical evaluation analysis are: selecting the evaluation object, collecting the data information of the evaluation object; screening the data information; comparing and analyzing various data parameters; establishing a detailed evaluation score table to score the evaluation object; [8].

4. Discussion

Refer to the comprehensive evaluation system of civil engineering specialty by analytic hierarchy process, index structure of comprehensive evaluation of civil engineering specialty [9]. As shown in Figure 1.

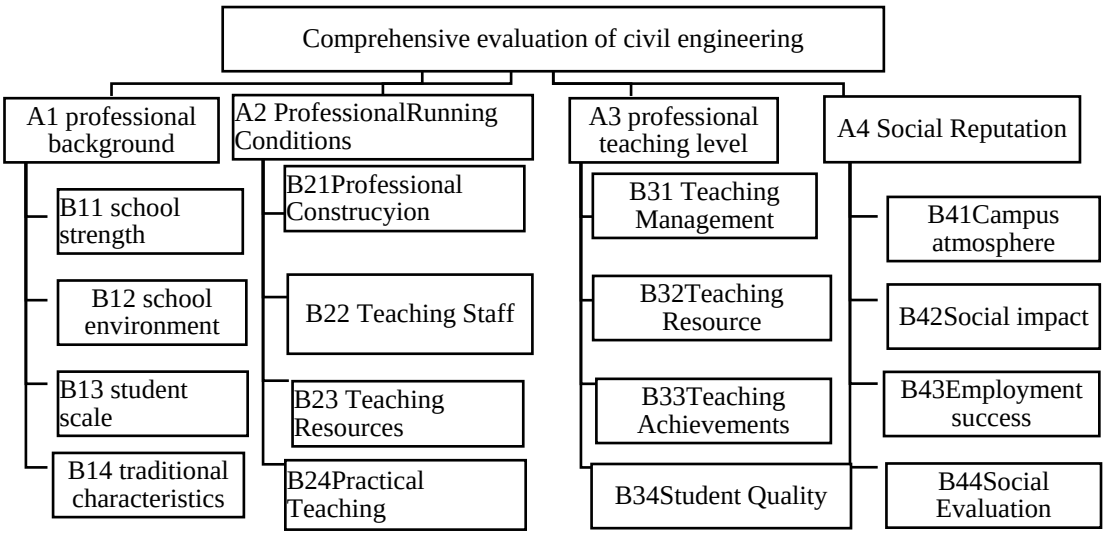

Figure 1. Index structure diagram of comprehensive evaluation of civil engineering specialty

In order to conduct a professional comprehensive evaluation of the civil engineering of the evaluation colleges and universities, each index evaluation level standard [10] is established for each index in the evaluation system, as shown in Table 1.

Table 1. Index values of indicators in the evaluation system

First class index	Secondary indicators	Evaluation criteria	
		Class A	Class B
Professional background	School strength	"985" Engineering School	Multidisciplinary university
	Disciplinary environment	civil engineering	master's degree
	Professional scale	one batch of admission	two batches of admission
	Traditional features	school has a long history	major has a long history
Professional running conditions	Professional Construction	Good professional direction	three professional directions
	Faculty	The level of teachers is high	Meet the teaching requirements
	Education resources	Teaching equipment	basic teaching equipment
	Practical teaching	Experimental teaching	normal teaching experiment
Professional school level	Teaching management	Complete teaching system	normal teaching system
	Teaching effect	outstanding teaching	excellent teaching materials
	Research innovation	won many awards	projects awarded in national
	Teaching Quality	higher degree	higher postgraduate examination
Social reputation	Campus atmosphere	strong academic atmosphere	good academic atmosphere
	Social influence	Academic achievements	Academic achievements,
	Employment	Very high employment rate	high employment rate
	Social evaluation	great influence in the country	good influence in regions

Note: The B-level standard is between the A-level standard and the C-level standard, and the

evaluation that fails to reach the C and standard is D-level.

According to the comprehensive evaluation system of civil engineering specialty based on the analytic hierarchy process, collect relevant data and information of the evaluation object, filter the data collected by Hunan University, Central South University, Changsha University of Science and Technology, and Hunan City College The parameters were analyzed and sorted after A, B, C, and D grades of the four universities according to the evaluation criteria of the index values of the indicators in the comprehensive evaluation system of civil engineering majors in Table 1. The scores of the civil engineering majors of the evaluated schools are shown in Table 2.

Table 2. Comprehensive scores of civil engineering majors in some colleges and universities in Hunan Province

First class index	Secondary indicators	Index Weight	Hunan University	Central South University	Changsha University of Science and Technology	Hunan City University
Professional background 0.16	School strength	0.15	10	10	10	6
	Disciplinary environment	0.55	10	10	8	4
	Professional scale	0.06	10	10	8	4
	Traditional features	0.24	10	8	8	4
Professional running conditions 0.47	Professional Construction	0.55	10	10	8	6
	Faculty	0.08	10	8	8	6
	Education resources	0.23	10	10	8	4
	Practical teaching	0.14	10	10	8	4
Professional school level 0.28	Teaching management	0.19	10	10	10	6
	Teaching effect	0.11	10	8	8	4
	Research innovation	0.35	10	10	8	6
	Teaching Quality	0.35	10	8	8	6
Social reputation 0.01	Campus atmosphere	0.23	10	10	10	6
	Social influence	0.08	10	10	8	4
	Employment	0.55	10	8	8	4
	Social evaluation	0.14	10	10	8	4

Note: The score of a single item is calculated according to A=10, B=8, C=6, D=4.

Multiply the single score by the second-level index weights to get the first-level index weights, and each first-level index score by the first-level index weights to get the total score. The scores of the first-level indicators and the total score of the comprehensive evaluation of the civil engineering majors evaluated in colleges and universities are shown in Figure 2.

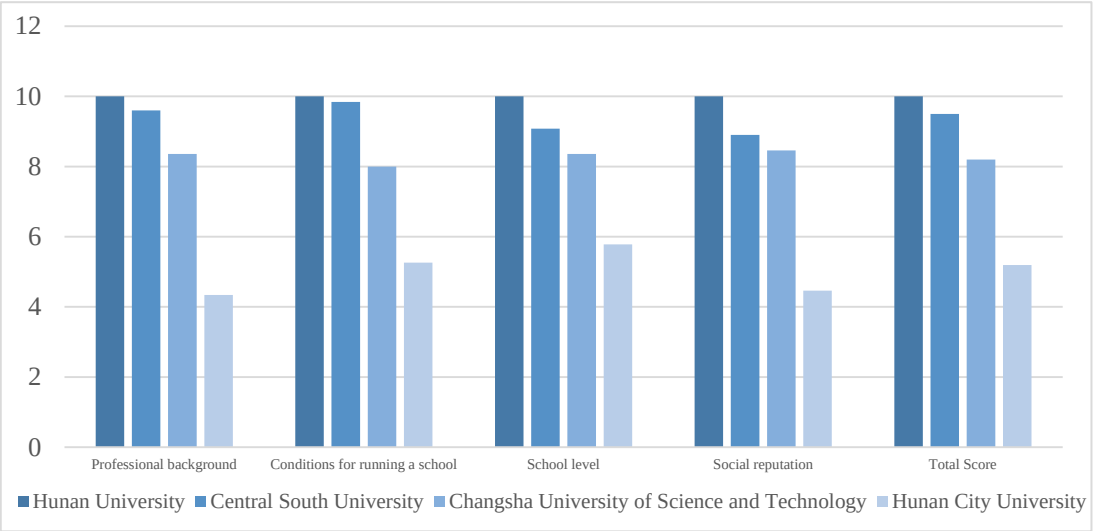

Figure 2. The scores of the first-level indicators and the total score of the comprehensive evaluation of the civil engineering majors evaluated

According to Figure 2, the overall ranking and individual ranking of civil engineering professional evaluation of some universities in Hunan Province are: Hunan University, Central South University, Changsha University of Science and Technology, Hunan City College. Based on the analysis of the above evaluation results, from the professional background, Hunan University is the provincial key university among the evaluated schools. It has multiple doctoral degrees and belongs to the teaching and Research University. It has the strongest comprehensive strength. From the perspective of running conditions, the top three Universities have master's degree programs. They have certain advantages in professional settings, key disciplines, and laboratory construction. Although Central South University has certain strengths, it is slightly inferior to Hunan University. From the perspective of school level, Hunan University, Central South University, and Changsha University of Science and Technology all have a good style of study, and Hunan City University is inferior; from the perspective of social reputation, Hunan University, Central South University, and Changsha University of Science and Technology have a better source of students, which is more influential in the country There are many students who have achieved outstanding achievements, and the geographical position is superior, which is favored by candidates and their parents. Judging from the total score, it is basically in line with reality and the evaluation result is acceptable, as is the fact. It shows that the evaluation results of this civil engineering professional evaluation system are true and reliable, with strong operability and good evaluation performance.

Conclusions

University professional evaluation is not only a branch of university evaluation, but also an important part of university evaluation. This article takes the civil engineering majors of four universities in Hunan Province as the specific evaluation object, and uses the analytic hierarchy process to establish the civil engineering professional evaluation system as the evaluation guide ， Comprehensively compare and evaluate the civil engineering majors in four colleges and universities in Hunan Province. The evaluation results are true and reliable, and they are highly consistent with the actual situation. Higher promotion and application value. The evaluation of civil engineering majors in colleges and universities is an important way for universities to continuously improve the construction level of civil engineering majors. In order to achieve the goal of strengthening talent training in the field of infrastructure, major universities should grasp the purpose, requirements, and program content of professional evaluation, and do a good job in the training of civil engineering professional evaluation, curriculum system, practice system, classroom teaching, etc. Reform to achieve the goal of first-class professional construction in civil engineering.

References

[1]. Xianhui W U, Bu W. Evaluation on civil engineering students' application ability of professional knowledge based on subject competition[J].journal of architectural education in institutions of higher learning, 2017,34(2):893-901.

[2]. Jie, Liu, Feng.Engineering Survey Course Reform of Applied Civil Engineering Professional Talents Training System[C]. 2019, 11(04):94-96.

[3]. Guirao B, Escobar J. Civil Engineering Students in the Final Year of Their Bachelor's Degree: Evaluation of Group Project Work under a Retrospective Dimension [J]. Journal of Professional Issues in Engineering Education & Practice, 2017, 143(1): 401-406.

[1]. Yubao Liang, Chuanjiao Pan, Shaotang Liu. Innovating the Teaching of Engineering Survey Course and Cultivating Professional Talents of Civil Engineering[C].International Conference on Information Engineering & Computer Science. IEEE, 2010. 39(12):2849-2856.

[2]. Orlić Bachler, Mandi. The introduction of IT course at professional study of civil engineering[C]. Sgem Conference, 2016, 35:267-288.

[3]. Xu, Yidong, Wu. Integrated Curriculum Design Reform of Civil Engineering Management Discipline Based on Inter-disciplinary Professional Training[C].International Conference on Information Engineering & Computer Science. IEEE, 2018:56-111.

[4]. Xiuyan, Zhang, Huiqin. Research on the Development and Application of Three-dimensional Teaching Resources for the Professional Core Curriculum of Civil Engineering Specialty[C]. Sgem Conference, 2018: 104-113.

[5]. Kitch W A. Evaluation of effectiveness of just-in-time-teaching and peer instruction methods in civil engineering courses[C]. 118th ASEE Annual Conference and Exposition, 2011, 46(15):134-943.

[6]. Qing-Lei T , Zhan-You S A ,Chun-Yuan W , et al. Study on the System of Professional Training of Safety Engineering for Characteristics of Civil Engineering Construction Safety[C]. Education Teaching Forum, 2017:111-43.

[7]. A.T. Rose. Role of consulting engineering experiences for civil engineering technology faculty and other engineering educators in the next century[C]. Frontiers in Education Conference. IEEE, 2000:45-50.