

Research on the Construction of Quality Standard System of Adult Higher Education from the Perspective of Student Satisfaction

Liu Hui, Li Bao, Feng Shuqing, Liu Zijun

Department of Economics and Management, Shenyang Aerospace University, Shenyang, Liaoning, China, 110136

Abstract: Exploring and establishing quality standards for adult higher education is a major issue facing adult higher education in China at present. On the basis of using literature induction method to analyze the keywords, hot spots, research institutions and their standard research status of existing adult higher education quality research in China, the limitations in the current research perspective are pointed out, and the quality standard system of adult higher education in China and its weight are preliminarily constructed and analyzed according to the perspective of student satisfaction, Delphi method and analytic hierarchy.

Keywords: Adult higher education; quality standard index system; Delphi Method; AHP

1. Introduction

Adult higher education mainly refers to post-service higher education and non-academic education for in-service personnel, including two categories: independent adult higher education and college adult higher education. Exploring and establishing quality standards for adult higher education is a major issue facing adult higher education in China at present. Due to the late start of adult higher education in China, the few relevant documents issued by the national, provincial and municipal management departments at all levels, and the lack of supervision standards, in recent years, there have been some problems such as imperfect management mechanisms and governance systems, hollowing out of school-running points, and difficulty in ensuring teaching quality. There is still a certain gap between this and the state's requirements of "running a satisfactory education for the people" and "building a high-quality education system that serves the lifelong learning of the whole people". In 2022, the Ministry of Education issued the Notice on Strictly Regulating the Setting and Management of Off-campus Teaching Points for Higher Education Continuing Education (Faculty Chengdang [2022] No. 1), which is a landmark document for the standardized management, quality improvement, and value-added empowerment of adult higher education in China. In the past two years, domestic scholars Li Fangyi and Pei Changsheng et al. (2021) proposed to study the source issues that affect and restrict the development of adult higher education, correctly position the quality concept of adult higher education, and emphasize the necessity and urgency of building a scientific evaluation system that meets the requirements of social development^[1].

Based on the above analysis, this paper aims to build an objective and rigorous quality standard system for adult higher education that conforms to the characteristics of adult higher education in China and is easy to operate based on stakeholder theory, based on the combing and inductive deduction of existing literature, and on the basis of teaching research and practice summary, in order to further enrich the theoretical and practical research on quality standards of adult higher education in China.

2. Literature review and research basis

2.1. Relevant research on the quality of adult higher education

2.1.1. Strengthen teaching management analysis

Zhang Yaowen (2019) conducted a research and analysis on the management of teaching affairs from three aspects: pre-admission application, training of management personnel, and teaching

assessment; Xu Yucai (2021) analyzed the influencing factors of the internal quality of higher education continuing education, and constructed a comprehensive internal assurance management system for the quality of higher education continuing education of “input quality-process quality-output quality”^[2].

2.1.2. Analysis of teaching quality assurance mechanism

Xie Hui (2021) proposed relevant countermeasures to improve teachers' informatization teaching ability according to the new requirements of adult education blended teaching for teachers' informatization teaching ability^[3]. Fan Zhenyuan and Zhang Dan et al. (2021) built an education quality assurance system that is compatible with the Informatization development of continuing education In colleges and universities in the “Internet+” environment^[4].

2.1.3. Analysis of teaching quality system and development strategy

Qi Guosheng and Chen Meifeng (2010) start from the four survey indicators of “teaching attitude, teaching content, teaching method and teaching effect”, and believe that teacher characteristics and student characteristics have an impact on the quality of teaching^[5]. Shi Han and Ding Rui (2021) rethink and reshape the quality evaluation method of continuing education in China at this stage based on the theoretical concept of fourth-generation education evaluation and the practice of the training program of the College of Continuing Education of North China Electric Power University^[6].

2.1.4. Path analysis to optimize teaching quality

Li Wenjuan (2021) analyzed the strategic problem of SPOC teaching to solve the dilemma of adult higher education teaching^[7]; Liang Feng (2021) discusses the feasible path of adult education teaching strategy optimization in the network era from three aspects: teaching strategy optimization, learning process improvement and teaching support system design^[8]. Li Yanli and Chen Juan (2021) explore the prospects, dilemmas and development paths of adult education reform in the era of artificial intelligence^[9].

2.2. Research basis

According to stakeholder theory, the stakeholders of the school mainly include society, schools, administrators, students, alumni, etc., and a comprehensive education quality evaluation standard should include evaluation from different perspectives such as schools, experts, society, and students. At present, existing studies on the quality of adult higher education mainly analyze the quality of education from the perspective of other stakeholders – administrators and schools, and the interests of direct stakeholders, students, are ignored, and “it is almost impossible to draw convincing conclusions by simply treating all stakeholders as a whole for empirical research and application promotion” (Chen Honghui, 2005).

Based on the above analysis, this study intends to use Delphi method and analytic hierarchy method to construct the whole process of adult higher education quality standard index system from enrollment to graduation, so as to make a useful exploration of the existing higher education quality standard research from the theoretical system.

3. Research Methods and Design

3.1. Research methods

The basic steps of Delphi and analytic hierarchy are as follows:

First, establish a hierarchy. According to the summary of the results of the first round of anonymous expert interviews, the hierarchy is preliminarily divided into two layers: target layer A and criterion layer B. And launched a second round of investigation, multiple feedback collation. According to the interrelationship between the factors and their affiliation, the order and combination are formed to form an orderly hierarchical block diagram.

Second, construct a judgment matrix. The weight vector of a single judgment matrix and the synthetic weight vector of all judgment matrices are calculated and compared, and then different values are assigned to make qualitative analysis become quantitative analysis.

Third, hierarchical single sorting and its consistency test. Sort the importance, sort the weight value.

Fourth, the overall ranking of levels. All values are calculated to derive the composite weights of each layer of factors for the total target, and then sorted. The lower the overall weight bias, the more accurate the evaluation results will be.

3.2. Interview steps

This study took 8 students from the College of Continuing Education as the interview subjects, interviewed students on the issue of satisfaction with the teaching quality of adult higher education, and selected expert adult education facilities, curriculum, teachers, support system, curriculum setting, teaching affairs management and other high-frequency words to explain in detail the 1-2 things that are most satisfied or least satisfactory in adult education in this school, including the cause, person, process, result, time, scope and impact of the event, etc. Based on the content of the interview, it is summarized as follows:

First of all, the respondents' general dissatisfaction with adult education is the basic support system of adult education, that is, various infrastructure, including teaching buildings, teaching facilities in classrooms, campus network signals, professional quality of central teaching and auxiliary staff, dormitory environment, etc. Second, some respondents were dissatisfied with the curriculum of adult education, including the improper arrangement of core courses, the lack of extracurricular activities, and the lack of communication between students. In addition, some respondents are not satisfied with the management of adult education, such as poor attitude of dormitory managers, frequent change of counselors, and lax management of course assessment.

In summary, the interview results show that there is a lot of room for improvement in adult higher education in terms of basic support system, curriculum design, teaching affairs management and other aspects, and according to the overlapping parts of the measurement indicators of expert interviews and student interview survey results, the primary and secondary index systems of teaching quality are preliminarily formulated.

4. Optimization of the indicator system

4.1. Metric categorization and stratification

Table 1 Framework diagram of three-layer index system of adult higher education quality based on the perspective of student satisfaction

Quality Standard Index System of Adult Higher Education Based on the Perspective of Student Satisfaction	Enrollment Management Curriculum	Admissions publicity	Publicize the policy, Admissions Counseling
		Retest management	Retest process, Retest method
		Admission management	Admissions process
	Curriculum	Main courses	Foundation Course, Core courses
		Featured courses	Elective courses, Enterprise practices
		After - class communication	Large lectures, Extracurricular activities, Trainee exchanges
	Academic administration	Course management	Split mode, Course schedule
		Grade management	Course assessment, Time and attendance management, Grade management
	Faculty	Business level	Expertise, Hands - on experience
		Effort is invested	Teaching attitude, Classroom interaction, Mode of delivery, Evaluation criteria
	Basic support system	Environment support	Infrastructure, sanitation
		Technical support	Quality of personnel, Shared platform, Employment guidance
	Professional quality improvement	Upskil ling	Communicate effectively, time management
		Image boosting	interpersonal relationship, Professional etiquette, Professional image, Professional mindset
	Career development ability improvement	Cognitive improvement	Self - awareness, Career planning
		Improvement of learning ability	Lifelong learning, Take control of resources, Get a chance
Work capacity improvement		Self - marketing, Business knowledge	

According to expert opinions, the original system was further layered and refined. The seven indicators reflecting enrollment management are summarized into three types of indicators, namely enrollment publicity indicators, retest management indicators and admission management indicators. Similarly, the seven indicators reflecting curriculum are summarized into three categories: main courses, special courses and after-school exchanges; The five indicators reflecting academic affairs management are grouped into two categories: course management and grade management; The six indicators reflecting the teaching staff are grouped into two categories: professional level and energy investment; The five indicators reflecting the basic support system are grouped into two categories: environmental support and technical support; The six indicators reflecting the improvement of professional quality are summarized into two categories: image improvement and skill improvement; The seven indicators reflecting career development ability are grouped into three categories: cognitive improvement, learning ability improvement and work ability improvement. According to this classification, a layer - the secondary indicator - is added between the primary indicators and the specific indicators of the original indicator system, and the original indicator system is optimized, and the new indicator system framework is obtained as shown in *Table 1*.

4.2. Enrollment Management Subsystem

The second-level indicator enrollment publicity includes two indicators, publicity policy and enrollment consultation, and their frequency of appearance in interviews is 9 and 11 times, respectively, accounting for 2.57% and 3.14% of the frequency of all keywords, but accounting for 45% and 55% of the total frequency in the group, because the weight assignment within the subsystem of these two indicators is 45% and 55%. Similarly, the frequency of retest management including retest process and retest method was 55.6% and 44.4%, respectively. Here, for the convenience of operation, the weight of the subsystem of the two is assigned to 55% and 54%; There is only one three-level index admission management under the admission management subsystem, with an intra-group frequency of 1 and a weight of 100% within the subsystem.

4.3. Curriculum subsystem

In the same way, according to the same method, the indicators reflecting curriculum are divided into three categories: main courses, special courses and after-class exchanges, so as to build a curriculum system. Among them: the second-level index main course contains two third-level indicators, basic courses and core courses, which play an equally important role in the main course, and their weight is 50% each; The featured courses include two three-level indicators, elective courses and enterprise practice, in comparison, enterprise practice is more important than elective courses, the weight of enterprise practice is 60%, and the weight of elective courses is assigned 40%; After-school communication includes three three-level indicators: large-scale lectures, extracurricular activities and student exchanges, in which students pay more attention to large-scale lectures, with a weight of 40%, and extracurricular activities and college exchanges each account for 30%.

4.4. Academic administration subsystem

Similarly, the academic administration subsystem includes two secondary indicators: course management and grade management. Among them, the teaching management includes two three-level indicators of class classification method and course arrangement, and the performance management includes three three-level indicators of course assessment, attendance management and grade management. In the course management, the course arrangement is more valued, with a weight assignment of 75% and a weight of 25% in the class placement method. In grade management, the course examination is the main evaluation indicator, and the weight is assigned 50%; followed by attendance management, with a weight assignment of 35%; Finally, there is grade management, with a 15% weight assignment. In the academic administration subsystem, both lecture management and grade management hold equal importance in the minds of students, and these indicators are both of great concern to them. Therefore, the weight of both secondary indicators under this subsystem is assigned 50%.

4.5. Faculty subsystem

Similarly, the subsystem of teachers includes professional level and energy investment, of which teachers' energy investment plays a decisive role in teaching effectiveness, and its weight under the

system is assigned 65%, and the professional level of teachers is the basic guarantee of teaching quality, and its weight is assigned 35%. The business level mainly includes professional knowledge and practical experience, of which professional knowledge plays a leading role, and the weight is assigned 75%, and practical experience is a necessary supplement to improve the business level, and its weight assignment is 25%; Energy input is reflected in four aspects: teaching attitude, classroom interaction, teaching method and evaluation standards, of which classroom interaction and teaching method can better reflect the teacher's energy investment in teaching work, and its weight assignment is 35% and 30% respectively, teaching attitude is the basic driving force of teacher energy investment, its weight assignment is 25%, and the evaluation standard is also an important embodiment of teachers' energy investment, and its weight assignment is 10%.

4.6. Basic support subsystem

Similarly, the basic support is divided into environmental support and technical support, of which technical support is relatively important, with 55% weight assignment and 45% environmental support. Environmental support includes infrastructure and environmental sanitation, infrastructure is the focus of environmental support, the weight is assigned 90%, environmental sanitation accounts for 10%; Technical support includes personnel quality, sharing platform and employment guidance three aspects, platform construction is the most concerned technical support of adult education colleges, especially correspondence education colleges, its weight assignment is 50%, employment guidance and personnel quality is not as high as the shared platform, its weight assignment is 30% and 20% respectively.

4.7. Professionalism Enhancement Subsystem

Similarly, professional literacy enhancement includes image enhancement and skill improvement. Among them, image enhancement is composed of professional mentality, professional image, professional etiquette and interpersonal relationships, in these four items, professional mentality and interpersonal relationships are highly valued, and the greater weight of the professional image enhancement of trainees is assigned 40%, and the weight of professional etiquette and professional image is 10%. The improvement of professional image has an important position in the subsystem of professional quality improvement, and the weight is assigned 55%; Skill improvement is also the key to professional literacy, and its indicator is assigned 45%. Skill improvement is mainly reflected in effective communication and practical management ability, of which communication ability is an important factor in the improvement of employees' professional skills, with a weight assignment of 65%, and time management ability is also an important condition for employee skill improvement, with a weight assignment of 35%. The specific calculation process is shown in Table 2.

4.8. Career development capability improvement subsystem

Similarly, career development ability can be broken down into cognitive ability, learning ability, and work ability. Among them: the improvement of cognitive ability is achieved through self-awareness and career planning, career planning is more important, the weight is 70%, and the weight of self-awareness is 30%; The improvement of learning ability is achieved through three aspects: lifelong learning, resource control and access to opportunities, lifelong learning is particularly important, with a weight of 80%, and resource control and access to opportunities of 10% each; Work ability improvement is achieved by self-marketing and business knowledge, business knowledge is the key to the improvement of employees' work ability, the weight is 90%, self-marketing also has a certain role, the weight accounts for 10%.

5. Re-construction of the quality standard system indicators of adult higher education

Based on the above process analysis, the curriculum is the most important in the first-level indicators, with a weight of 25%, and the faculty, professional quality improvement and career development ability improvement have attracted much attention from students, with a weight of 15%, while enrollment management, academic affairs management and basic support system are also important parts of the quality standards of adult higher education, with a weight of 10%. Combined with the feedback of the previous trial information, this study revised individual contents in the system: for example, the "large-scale lecture" in the after-class exchange item under the curriculum subsystem was revised to "lecture opportunities". In the faculty subsystem, "classroom interaction" under energy

investment was revised to "flipped classroom", and the work ability improvement item "self-marketing" in the career development ability improvement subsystem was revised to "adaptability". Specifically, the quality standard index system of adult higher education based on the perspective of student satisfaction is shown in Table 2.

Table 2 Adult Higher Education Quality Standard Index System Based on the Perspective of Student Satisfaction

Level 1 indicators		Secondary indicators		Tertiary indicators	
Metric name	Weight(%)	Metric name	Weight(%)	Metric name	Weight(%)
Enrollment Management	10	Policy advice	60	Publicize the policy	45
				Admissions Counseling	55
		Retest management	30	Retest process	55
				Retest method	45
Admission management	10	Admissions process	100		
Curriculum	25	Main courses	40	Foundation Course	50
				Core courses	50
		Featured courses	15	Elective courses	40
				Enterprise practices	60
		After-class communication	45	Lecture opportunities	40
				Extracurricular activities	30
				Trainee exchanges	30
Academic administration	10	Course management	50	Placement method	25
				Course schedule	75
		Grade management	50	Course assessment	50
				Time and attendance management	35
				Grade management	15
Faculty	15	Business level	35	Expertise	75
				Hands-on experience	25
		Effort is invested	65	Teaching attitude	25
				Flipped classroom	35
				Mode of delivery	30
				Evaluation criteria	10
Basic support system	10	Environmental support	45	Infrastructure	90
				Sanitation	10
		Technical support	55	Quality of personnel	20
				Shared platform	50
				Employment guidance	30
Professionalism improvement	15	Image boosting	55	Professional mindset	40
				Professional image	10
				Professional etiquette	10
		Upskilling	45	Interpersonal relationship	40
				Communicate effectively	65
Career development ability improvement	15	Cognitive improvement	40	Time management	35
				Self-awareness	30
		Improvement of learning ability	35	Career planning	70
				Lifelong learning	80
				Take control of resources	10
		Work capacity improvement	25	Get a chance	10
				Adaptability	10
				Business knowledge	90

6. Conclusion

Based on Delphi method and analytic hierarchy method, this study constructs an adult education quality standard index system with 7 first-level indicators, 17 second-level indicators and 41 third-level indicators and its weights, which have good feedback effect in practice and application, and initially have social influence and market value. However, with the deepening of the reform of adult higher education, whether the index system has universality still needs to be verified, and the development stages and development characteristics of adult education in different schools are different, how to build a more detailed, more versatile and easier to operate adult higher education quality evaluation index system is the focus of the next research to explore. Moreover, in the future, it can continue to be

refined according to different interest groups, and continuously improve the multi-dimensional evaluation index system of adult higher education quality.

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References

- [1] Li, F.Y., & Pei, C.S., et al. (2021). *The positioning of the quality concept of adult higher education in colleges and universities in the new era. Open Education Research*(06), 108-118.
- [2] Xu, Y.C. (2021). *Construction of quality internal assurance system for continuing education of higher education from the perspective of total quality management. Adult Education in China*(10), 13-16.
- [3] Xie, H. (2021). *Strategies for Improving the Informatization Teaching Ability of Adult Education Teachers: Based on the New Normal Perspective of Blended Teaching. adult education*(05), 76-79.
- [4] Fan, Z.Y., & Zhang, D., et al. (2021). *Research on the construction of "Internet +" continuing education teaching quality assurance system in colleges and universities. Computer literacy and technology*(31), 164-166.
- [5] Qi, G.S., & Chen, M.F. (2010). *An empirical analysis of the influencing factors of quality management of adult education. Education & Careers*(09), 53-54.
- [6] Shi, H., & Ding, R. (2021). *Reflection and Construction of Continuing Education Quality Evaluation from the Perspective of Fourth-Generation Evaluation. Continuing education studies*(05), 9-14.
- [7] Li, W.J. (2021). *SPOC's strategy to solve the teaching dilemma of adult higher education. Journal of Hebei Normal University*(03), 108-113.
- [8] Liang, F. (2021). *Optimization of adult education teaching strategies from the perspective of "visible learning". adult education*(06), 75-79.
- [9] Li, Y.L., & Chen, J. (2019). *Overview and Characteristics Analysis of Adult Education Research in China—Based on the Review and Prospect of Adult Education Projects in the National Education Science Plan from 2010 to 2018. Adult Education in China*(12), 3-10.