

The Effect of Improving the Quality of International Student Education: An Examination of the Role of High-End Foreign Language Talent in Enhancing International Student Education Quality and Governance Pathways

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Abstract: This paper explores the current situation of international student education at S University and the evaluation system for improving education quality. It constructs an evaluation framework for the quality of international student education from aspects such as training programs, teaching services, teaching outcomes, and educational resources. The study provides a reference for enhancing the teaching quality of international students at S University.

Keywords: International Student Education; Analytic Hierarchy Process (AHP); Fuzzy Comprehensive Evaluation Method.

1. Introduction

With the rapid development of China's science, technology, and economy, especially with the promotion of the Belt and Road Initiative, an increasing number of international students are choosing to study in China. Consequently, the scale of international students at S University is also expanding. However, due to significant cultural differences, the education of international students faces many new challenges. Based on the university's educational model and the characteristics of the international student group, this paper investigates the quality assessment of international student education at S University, aiming to identify key factors for improving education quality. Using the Analytic Hierarchy Process (AHP) and Fuzzy Comprehensive Evaluation Method, the study constructs a quality assessment model covering four dimensions: training programs, teaching services, teaching outcomes, and educational resources. This provides theoretical support and a basis for international student talent development. The research identifies key factors influencing graduate education quality and offers a scientific and effective reference for improving international student education and management.

2. Literature Review

Li Xiaobing (2023), from the perspective of "student-centered," established a postgraduate education quality evaluation indicator system based on three dimensions: the learning process, learning outcomes, and student development. The system includes three secondary evaluation indicators and 36 tertiary indicators. By analyzing survey data from postgraduate students, the rationality of the 36 tertiary indicators was verified. Using the maximum membership principle in the fuzzy comprehensive evaluation method, the weights of these 36 indicators were determined, providing a foundation for further postgraduate education quality assessment [1]. Wang Yong, Xue Fang, and Lu Chang'e (2022) constructed a labor education curriculum implementation

quality evaluation system based on the CIPP model, which includes four primary indicators and 15 secondary indicators. They used the Analytic Hierarchy Process (AHP) and fuzzy comprehensive evaluation method to determine the weights of evaluation indicators and verify the rationality of the evaluation system. The results showed that the overall evaluation of the labor education curriculum implementation quality in primary and secondary schools was "good and reasonable." Among the criteria-level indicators, the highest weight and membership degree were "reasonable" for all, with the background of the course rated as "very reasonable," while course resources, the educational process, and course effectiveness were deemed "reasonable" [2]. Cui Bifeng, Liu Chaopeng, Jiang Zhongfeng, et al. (2019) proposed a new approach for the qualitative and quantitative evaluation of undergraduate education quality in Henan Province using the fuzzy comprehensive evaluation model. Based on the fundamental principles of fuzzy comprehensive evaluation, they established a model for undergraduate education quality that includes nine influencing factors, such as the number of universities, enrollment, faculty structure, student-teacher ratio, teaching conditions, major construction and reform, student employment, research input and output, and the development of "Double First Class" disciplines. The results indicated that the undergraduate education quality in Zhengzhou, Kaifeng, Xinxiang, Luoyang, and Nanyang was higher than in other cities at the prefecture level. Indicators such as the number of universities, enrollment, and student-teacher ratio had lower weights, while student employment was given a significantly higher weight, suggesting that enhancing the employment capabilities of undergraduates can help reduce the disparity in the quality of undergraduate education across Henan's 13 prefecture-level cities [3]. Zhu Jiaming, Zhang Ting, Bao Jianhua, et al. (2019) conducted a fuzzy comprehensive evaluation of undergraduate education quality in Jiangsu Province using methods such as fuzzy comprehensive evaluation, grey relational analysis, and least squares methods. They developed a fuzzy evaluation model and grey relational models and utilized software such as

EViews and MATLAB for data solving and model analysis. The study explored effective ways to improve the quality of undergraduate education in Jiangsu and provided policy recommendations [4]. Jiang Xiaoxue, Zhang Xueyuan, and Fan Huiying (2018) focused on evaluating undergraduate education quality in Hebei Province, establishing suitable models for comprehensive evaluation of 11 prefecture-level cities in the province. Using methods like AHP, entropy weight method, and fuzzy comprehensive evaluation, they applied an entropy-weight-fuzzy comprehensive evaluation model, employing MATLAB software. The study examined the impact of various indicators on different cities and provided a comprehensive evaluation of their undergraduate education quality [5]. He Liangjie, Dai Zhengben, and Shi Ziliang (2018) tackled the imbalance in undergraduate education quality development across 13 prefecture-level cities in Jiangsu Province. Using fuzzy comprehensive evaluation and virtual variable control principles, they established evaluation models and applied software like MATLAB, EXCEL, and SPSS to derive conclusions on education quality rankings, secondary indicators, and key metrics. Based on their findings, they provided practical recommendations for improving education quality [6]. Wang Tian and Lin Jianbang (2018) developed an effective comprehensive evaluation model for teaching quality, which integrated teaching quality management, teaching team and subject team construction from the decision-making level to the management level, enabling comprehensive and dynamic management of teaching quality and faculty development [7]. Quan Jianyong, Quan Yanchun, and Ma Lianhua (2017) addressed the fuzzy nature of factors influencing teacher teaching quality and proposed a fuzzy comprehensive evaluation of teaching quality. By applying AHP to determine indicator weights, they built a fuzzy evaluation model for teacher teaching quality. Based on the evaluation results, they proposed specific strategies to improve teacher teaching quality [8]. Fan Zhenyu, Dai Xiaopeng, and Zhang Xiangya (2016) discussed the fuzzy comprehensive evaluation of teacher teaching quality, focusing on the determination of evaluation indicator systems. They constructed a mathematical model for fuzzy comprehensive evaluation of teaching quality and illustrated its application with examples. They also proposed a general model for multi-objective, multi-level fuzzy comprehensive evaluation for teacher teaching quality assessment [9]. Wang Zhisong and Gao Shuhong (2022) proposed five key factors of education service quality and used neural networks to model and analyze them. They examined each of the five factors in the education service quality evaluation model and analyzed the issues in the quality of international student education services in China. The empirical study revealed that international students in China expressed low overall satisfaction with the education service quality in Guangxi, with all indicators of education level being rated low [10]. Wenxin Du (2019) explored how to strengthen the educational management of international students in China, identified existing issues, and proposed targeted solutions [11]. Canjing Ma and Yinqiu Ma (2019) analyzed the international student enrollment policies formulated by the Shanghai Municipal Education Commission, clarifying the formal characteristics of "regular classroom learning" and the categorization of international student education management. By analyzing the characteristics of the international student education management system in Japan's primary and

secondary schools, they proposed some improvement suggestions [12]. Wei Jianhua (2019) conducted a survey of 463 international students to assess their satisfaction with Zhejiang's higher education institutions, identifying the factors that may hinder the development of international education in Zhejiang Province [13]. Kim Ihn Jou (2017) surveyed and analyzed international students' satisfaction, understanding, and perceived necessity of "career-starting" courses, focusing on professional courses for international students to improve the educational level of Chinese students [14]. Songzhu Xia (2014) introduced the Problem-Based Learning (PBL) teaching model into student education from four aspects: curriculum system, teaching staff, and developing graduate students' research abilities and creative spirit [15]. Ludmila N. Larina (2015) discussed critical issues in international student education. The main principles of Total Quality Management (TQM) were implemented in the planning and organization of education and other processes that are vital for education. The development of new forms and methods of educational activities, as well as the establishment of new links between different issues, were emphasized, alongside the importance of effective management of all processes [16]. Chiharu Kuroda (2014) researched the current state of master's degree programs for international students taught in English in Chinese higher education (EMIMDPs-ISs). The study first examined the relevant policies and practices of the Chinese government and explored the basic principles for strengthening EMIMDPs-ISs in current Chinese higher education. It then presented case study results from four leading comprehensive universities in China regarding eight EMIMDPs-ISs [17]. Hong Hyo Jeong, Hyun, et al. (2013) aimed to develop practical significance for the development of the ISD model by applying it to the learning strategy plan for international students' adaptation to university life. The results suggested that developing and operating a systematic curriculum is necessary to help international students adapt to university life in the future, with continuous consultation with participating students [18].

3. Analysis Methods

3.1. Fuzzy Comprehensive Evaluation Method (FCEM):

The Fuzzy Comprehensive Evaluation Method is a comprehensive evaluation technique based on fuzzy mathematics. It transforms qualitative assessments into quantitative evaluations according to the membership degree theory of fuzzy mathematics. This method provides an overall evaluation of a subject or object constrained by multiple factors. The fuzzy comprehensive evaluation method is characterized by clear results and a strong systematic nature, making it effective for solving ambiguous and difficult-to-quantify problems, and is suitable for addressing various types of uncertainty. Generally, the use of fuzzy mathematics for evaluating teaching quality provides a more accurate reflection of the actual situation

3.2. Analytic Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) was proposed by Thomas L. Saaty in the 1970s. It involves hierarchical structuring of the research object (dividing it into goals, criteria, and alternative levels), and then constructing a judgment matrix. Using data normalization methods, the relative importance weights of alternatives at the alternative

level are calculated in relation to the goal level.

4. Current Situation of International Student Education at S University

4.1. Educational Levels

S University began admitting and training international students in 1997. In 2006, the International Education College was established and shared an office with the Office of International Cooperation and Exchange. In 2018, the International Education College became an independent entity responsible for managing international students. It has four departments: the Comprehensive Office, the Student Affairs Office, the Teaching Affairs Office, and the Admissions Office, which together oversee international student recruitment, education, training, and management services. In 2011, the university became one of the first institutions in Shandong Province to be eligible for the Provincial Government Foreign Student Scholarship. In 2014, it was recognized as a China Government Scholarship institution for international students. In 2019, it was granted approval for the "Silk Road" China Government Scholarship Program. By 2019, the total number of international students at the university reached 1,033, ranking among the top in Shandong Province's universities. Over the years, the university has established 49 intercollegiate exchange programs and trained more than 5,500 international students from over 30 countries, including the United States, Russia, Japan, and South Korea.

4.2. Education System

In recent years, significant progress has been made in the international student education program, with the scale of international student training steadily expanding. The structure of the training system and the diversity of countries represented have been continuously optimized, forming a complete education system for bachelor's, master's, and doctoral levels.

4.3. Academic Programs

The university leverages its disciplinary strengths to develop a number of specialized programs that meet international education standards. These programs include both Chinese-taught and English-taught courses. The university currently offers two Chinese-taught undergraduate programs: Chinese Language and Literature (Business Chinese Direction) and International Business (Business Management Direction), as well as four English-taught undergraduate programs: International Economics and Trade (International Logistics Direction), Mechanical Design and Manufacturing and Automation, Computer Science and Technology, and Civil Engineering. Additionally, the university offers international undergraduate admissions in 71 programs across 22 colleges, and 34 programs for international graduate students.

4.4. Educational Platforms

The university has established various platforms to support international student education, including the Chinese Proficiency Test (HSK) testing center, the Business Chinese Test (BCT) center, the S University Teacher Training Center of the China International Chinese Language Education Association, and an International Student Cultural Experience Base. These platforms aim to cultivate Chinese-speaking and

China-friendly ambassadors for international exchange, continuously strengthening the education and training of international students and innovating the talent development model for international students at the university.

5. Construction of the International Student Education Indicator System at S University

This study designs the evaluation indicator weight system for the quality of international student education at S University using the Analytic Hierarchy Process (AHP). The process consists of the following steps: Expert Survey and Dimension Element Formulation. First, based on documents such as the "Regulations" and "Standards" and work practices, the study used methods like literature analysis and expert interviews to identify the main influencing factors related to the teaching quality of international students at S University. A preliminary set of factors was compiled, which was then used to design a survey questionnaire. The questionnaire was distributed to the university's staff involved in international student education and to the international students themselves. After reaching a consensus among experts, the research team formed a hierarchical system for evaluating the quality of international student education at S University. This system includes 11 primary elements and 29 secondary elements across four dimensions: training programs, teaching services, teaching outcomes, and educational resources (Table 1).

6. Analysis of the Quality Evaluation System Indicators

Through the factor weight rankings in Table 1, it can be understood that when evaluating the quality of international student education at S University, the evaluation areas are established sequentially based on international student training, teaching services, teaching outcomes, and teaching resources. Among them, international student training is in the core area, which is the top priority in ensuring the quality of international student education at S University; teaching services are in the key area, crucial for the smooth operation of international student education and teaching activities; teaching outcomes are in the focused area, serving as the main parameters and criteria for assessing teaching effectiveness; teaching resources are in the necessary area, providing essential conditions for teaching implementation.

6.1. International Student Training Dimension

Our university should develop and plan the formation of the teaching staff, talent training programs, and teaching implementation based on the university's positioning, international strategy, service orientation, advantages, and features. This research has set up two primary elements and seven secondary elements in this dimension.

6.1.1. Teacher Quality

Teacher quality is the core guarantee for teaching quality. The learning experience and outcomes of international students are directly influenced by the guidance and support from teachers. Teachers with higher qualifications can provide more efficient and effective teaching, helping international students achieve better learning experiences and results. Teacher quality includes understanding and respect for different cultures and the ability to communicate across cultures. Only teachers who possess these qualities can better

interact with international students, solve problems they may encounter in their studies and daily life, and help them adapt to a new cultural environment. Therefore, we believe this

primary element should include three secondary elements: teaching beliefs, professional competence, and information literacy.

Table 1. Evaluation System of Teaching Quality for International Students at S University

Evaluation Dimension	Weight	Primary Elements	Weight	Secondary Elements	Weight
International Student Training	0.6208	Teacher Competence	0.5533	Professional Competence	0.4332
				Teaching Philosophy	0.0783
				Information Literacy	0.0418
		Teaching Effort	0.0675	Classroom Design	0.0337
				Teaching Review & Analysis	0.0222
				Interactive Assistance	0.0085
				Organization & Implementation	0.0031
Teaching Services	0.1749	Management Team Building	0.1118	Team Development	0.0862
				Personnel Allocation	0.0256
				Management System Construction	0.0511
		Maintenance Mechanism Construction	0.0120	Normative System	0.0197
				Reporting & Feedback	0.0107
				Document Management	0.0013
		Teaching Outcomes	0.1630	Academic Achievements	0.1422
Professional Certificates	0.0428				
Academic Performance	0.0300				
Research Achievements	0.0204			Research Projects	0.0184
				Academic Papers	0.0019
Teaching Resources	0.0412	Resource Content	0.0235	Meeting Student Needs	0.0161
				Aligning with Professional Characteristics	0.0226
				Broad Knowledge Coverage	0.0027
		Teaching Methods	0.0125	Normative Methods	0.0109
				Diverse Types	0.0017
		Teaching Environment	0.0026	Policy Support	0.0020
				Well-Equipped Facilities	0.0003
				Convenience in Living	0.0003
		Online Platforms	0.0026	User-Friendly Operation	0.0017
				Convenient Functions	0.0007
				Aesthetic Interface	0.0002

6.1.2. Teachers' Teaching Input

A teacher's commitment to teaching directly affects teaching quality. Teachers who invest more time, effort, and energy into teaching are usually able to provide more meticulous and thoughtful teaching services, better meeting the learning needs of international students. The level of commitment also impacts their teaching methods and strategies. Their teaching attitude and professionalism can positively influence international students, inspire their learning potential, and shape their academic character and personal qualities.

6.2. Teaching Service Dimension

The teaching services dimension is responsible for the rational allocation and management of educational resources, including human resources, material resources, and financial resources. They must ensure that these resources effectively support the learning and living needs of international students, thus promoting the improvement of education quality. The management team is responsible for overseeing and supervising the teaching process, ensuring that teaching activities run smoothly and teaching quality steadily improves. They should establish effective supervision mechanisms to evaluate and track both the teachers' teaching behavior and the students' learning conditions. This dimension also involves organizing and managing student services and

support systems, providing comprehensive support and services to international students, such as academic guidance, life assistance, and cultural adaptation. Our university should continue to strengthen the organizational structure of the management department and coordinate the division of responsibilities and authority for the management and services of international student education. Specific efforts should focus on the construction of the management team, the establishment of management systems, and the maintenance of effective mechanisms.

6.3. Dimension of Teaching Achievement

Teaching outcomes are the direct reflection of the academic level and learning achievements of international students. By examining students' learning outcomes, including academic papers, project works, and exam results, it is possible to objectively assess their academic performance and level. These outcomes reflect whether students have met the teaching objectives and learning requirements. One of the main purposes of international students participating in educational activities is to acquire certain knowledge and skills, and by evaluating their learning outcomes, we can assess whether the teaching activities have met the expected goals. Teaching outcomes also serve as indicators for evaluating the academic development and professional abilities of individual international students. Students'

learning achievements reflect their growth and professional development during their study abroad experience, which is of significant importance for evaluating their academic level and career competitiveness.

6.4. Dimension of Teaching Resources

Good teaching resources can enhance teaching quality. For example, advanced laboratory equipment and facilities can promote the development of experimental skills for science-oriented international students; abundant library resources and electronic materials can support academic students in their learning and research. With sufficient teaching resources, teachers can better carry out teaching tasks and improve teaching effectiveness. The richness of teaching resources also offers diverse learning experiences. Different types of resources can meet the different disciplinary needs and learning preferences of international students, enriching their learning experience and stimulating their interest in learning. For research-oriented international students, adequate teaching resources can provide more academic research support. A university with high-quality teaching resources will enhance its reputation and attractiveness among international students. Therefore, we believe this dimension should include four primary elements: resource content, teaching forms, teaching environment, and online platforms.

7. Conclusion and Suggestions

The quality of international student education is the core driving force behind the development of international student education. This study focuses on international student education at S University, applying common decision-making analysis methods such as the Analytic Hierarchy Process (AHP) and Fuzzy Comprehensive Evaluation Method. By using semi-structured interviews and surveys to collect expert consultation data, this study analyzes potential influencing factors proposed in relevant literature based on practical work experience. Additionally, it leverages collective wisdom from experts, repeatedly revising the perspectives to distill and quantify them, ultimately forming an evaluation hierarchy model with a well-structured relationship. This model provides an effective reference for the assessment and development of international student education at S University and offers the following recommendations: Firstly, international student training is placed in the core area, which is crucial for ensuring the quality of international student education at the university. The key to improving this area lies in enhancing teacher quality and ensuring adequate teaching investment. Secondly, teaching services are placed in the key area, serving as a crucial factor for the smooth conduct of international student education and teaching activities. Therefore, it is essential to focus on the development of the management team, the establishment of management systems, and the maintenance of effective mechanisms. Thirdly, teaching outcomes are placed in the focused area. Teaching outcomes are the direct reflection of international students' academic level and learning achievements, serving as a key indicator for evaluating the success of educational activities. Finally, the university should continue to optimize teaching resources, which are located in the necessary area. These resources are essential for supporting the implementation of teaching activities and providing the necessary conditions for effective teaching.

Acknowledgments

This research is supported by “Study Abroad Education Research Project at Shandong University of Technology”.

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