

Research on Evaluation System of University's Talent Competitiveness——A Case Study of 211 Colleges and Universities in Jiangsu Province

Lei Zhu^{1,a}, Xiaoxiao Kong^{2,b,*}

¹School of Economics and Management, Nanjing University of Science and Technology, China

²School of Economics and Management, Nanjing University of Science and Technology, China

^a1103204132@qq.com, ^b563041472@qq.com

*Corresponding author: Lei Zhu, Master, 1103204132@qq.com

Keywords: Talent competitiveness; Evaluation index system; Influencing factors; Factor analysis

Abstract. To realize the strategy of building a strong country in colleges and universities, it is necessary to improve the competitiveness of university personnel. A reasonable and effective evaluation of the talent competitiveness of colleges and universities is an important basis for measuring talents' work. Based on the assessment of the talent competitiveness of universities at home and abroad and related research, this article takes the 211 colleges and universities in Jiangsu Province as an example to carry out empirical research. Combining with the actual situation of talents in colleges and universities, it mainly includes the scale of talents in universities, the quality of talents, the construction of talents platform, and talents. Contributions to science and technology and five other aspects of the construction of university talent competitiveness evaluation index system, and collected 211 colleges and universities in Jiangsu Province in 2012-2016 data, the use of factor analysis method of Jiangsu Province, 211 colleges and universities in the overall situation of talent competitiveness The analysis and talent competitiveness of 211 colleges and universities in Jiangsu Province were ranked.

1. Introduction1 Overview of Talent Competitiveness in Colleges and Universities

With the development of the knowledge economy and globalization, Chinese universities are faced with enormous competition in terms of students, funds, and talents. The strategy for building a strong country in higher education has been included in the Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020). Higher education competitiveness is the core and foundation of national competitiveness [1]. Constructing a strong province of higher education is an important part of the strategy to build a stronger country in higher education. To achieve economic and social development in Jiangsu Province, "two are the first", we must first complete the strategy of rejuvenating the province through science and education and strengthening the province. Human resources are the first resources for the development of college education. The competition among universities is ultimately the competition of talents. The advantage in competition depends on the advantages of talents.

Based on the theory of strategic management, this paper puts forward the evaluation index system of talents competitiveness in universities and colleges in Jiangsu Province on the premise of summarizing the research results of the scholars. It uses statistical software methods such as spss to analyze it, and further evaluates the talents of Jiangsu 211 universities based on the evaluation results. Competitive rankings.

2. Overview of Talent Competitiveness in Colleges and Universities

The concept of "core competence" was first proposed for enterprises, and it is believed that the company's core competitiveness comes from the company's cumulative knowledge, and the final result is represented by core products or services. In recent years, some scholars have begun to pay

attention to applying the concept of core competitiveness to the development of higher education. Liu Xiangbing proposes that the university's core competencies are the talent cultivation capabilities and academic research capabilities of universities. Cultural factors, disciplinary resources, human resources, material resources, and intangible resources are the support for the formation of competitiveness [2]. Shen Jian believes that the key to the strategy of strengthening the province's higher education is to establish the concept of core competitiveness, build a platform for innovation of superior disciplines, improve scientific research and innovation capacity of universities, optimize the structure of higher education, and build a high-quality teacher team [3].

Human resources in colleges and universities are regarded as strategic resources for the development of higher education and have always been the focus of attention in higher education institutions and human resource management circles. Weng Guangcong conducted a theoretical analysis of the incentive mechanism of college teachers [4]; Zeng Weiming et al. emphasized that teachers' competency should be reformed from the aspects of selecting, employing, educating, and retaining people in colleges and universities [5]. The second is the quantitative analysis is less and only for a certain part or part of the human resources management in colleges and universities. Li Feng and others used data mining methods to provide strategies for the introduction and cultivation of talents in colleges and universities, and provided a quantitative analysis solution to solve the problem of human resource management[6].

A competitive university is no longer confined to traditional teaching, but also shoulders the responsibility of scientific research innovation and social services. How to use effective and effective human resources management methods to manage and build a high-quality teaching staff should become a concern of current universities. Hot spots and focus.

3. Construction of Evaluation Index System for Talent Competitiveness in Colleges and Universities

3.1 Evaluation Index System Design Principles

Statistical indicator system refers to the organic whole made up of several interconnected statistical indicators. A statistical indicator reflects social and economic phenomena from only one aspect, while social and economic phenomena are multifaceted and complex. To comprehensively and systematically reflect socio-economic phenomena, it is necessary to establish an objective, systematic, and effective evaluation system that must be clear. Design principles, and based on the principles to determine the content of indicators and the relationship between indicators [7]. The assessment of talents' competitiveness in colleges and universities is a complex systematic project. The evaluation process must embody the principle of combining static evaluation with dynamic evaluation. It needs to adopt multiple indexes comprehensive evaluation method to evaluate. The design of talent competitiveness evaluation system in colleges and universities needs to follow the principles of science, system, feasibility and comparability.

3.2 Evaluation Index System of Talent Competitiveness in Colleges and Universities

The level of human resources competitiveness in colleges and universities is affected by the size of talents, the quality of talents, the construction of talent platforms, the educational contribution of talents, and the contribution of science and technology. Based on relevant research literature, combining with the actual situation of universities in Jiangsu Province, an evaluation index system for talents competitiveness in universities is established. The quality of talent includes the introduction of high-end talents and the cultivation of high-end talents; the construction of a talent platform includes innovation platforms and results transformation entrepreneurship platforms; Cultivate students and innovative educational achievements; talent and technology contributions include vertical and horizontal topics. Finally, five first-level indicators, nine second-level indicators and 18 third-level indicators were evaluated. The results are shown in Table 3-1.

Table 3-1. Evaluation Index System of Talent Competitiveness in Colleges and Universities

First-level indicators	Secondary indicators	Third-level indicators	Symbol
Talent scale	Talent scale	Total number of full-time teachers	A1
		Number of full-time teachers with positive senior titles	A2
		Number of full-time teachers with doctoral degrees	A3
Talent quality	Introduce high-end talent	Thousands of people plan candidates	B1
		Cheung Kong Scholar Distinguished Professor	B2
	Cultivate high-end talent	Ten thousand plan	B3
		National Green Youth	B4
		National Youth	B5
Talent platform	Innovation platform	National Key Laboratory	C1
	Achievements transformation entrepreneurship platform	Corporate Graduate Workstation	C2
Contribution to talent education	Train students	The total number of graduate students in the year	D1
		Total number of full-time foreign students studying abroad at the time of graduation	D2
		Graduates' initial employment rate	D3
	Innovative educational achievements	Nearly five years	D4
Talent Technology Contribution	Longitudinal issues	Nearly five years of research funding	E1
		Number of Major Projects of National Social Science Funds led by the past five years	E2
		The number of major projects of provincial social sciences fund led by the past five years	E3
	Horizontal topics	Nearly five years of horizontal research funding	E4

4. Empirical analysis and results

4.1 Samples and Data Sources

The purpose of this paper is to study the level of talent competitiveness and its influencing factors in colleges and universities in Jiangsu Province Taking into account the feasibility and accuracy of data acquisition and the degree of data differences between universities, this paper selected data from 211 universities in Jiangsu Province in 2012-2016. The sample data were compiled and calculated from the statistical data provided by the Jiangsu Talents Competitiveness Report and Statistical Yearbook of Jiangsu Province. The data was comprehensive, scientific, reliable and accurate.

4.2 Computational Analysis of Talent Competitiveness in Colleges and Universities

This paper uses the factor analysis method to deal with the tertiary indicators of colleges and universities personnel competitiveness, so as to obtain the public factor. Twenty primary statistical indicators were analyzed by principal component analysis using exploratory factors. The results revealed three common factors. These three public factors extracted 85.445% of total variance variance (Table 4-1). According to the structure of the rotated factor load matrix, F1 was named as the talent quality factor for college talents' competitiveness, F2 was named as the talent scale factor for college talents' competitiveness, and F3 was named as the talent contribution factor for college talents' competitiveness.

Table 4-1. Evaluation Index System of Talent Competitiveness in Colleges and Universities

Component	Initial Eigenvalues			Extract Sums of Squared Loadings			Rotation Sums of Squared and loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.981	59.904	59.904	11.981	59.904	59.904	9.402	47.008	47.008
2	3.093	15.467	75.371	3.093	15.467	75.371	5.516	27.578	74.586
3	2.015	10.074	85.445	2.015	10.074	85.445	2.172	10.860	85.445

According to the rotated factor loading matrix coefficient, the expressions of F1, F2, F3, and F4 can be obtained: $F1=0.196A1+0.510A2+0.434A3+0.937B1+0.977B2+0.192B3+0.850B4+0.990B5-0.099C2+0.711D1+0.663D2+0.334D3+0.935D4+0.673E1+0.929E2+0.358E3+0.202E4$; $F2=0.885A1+0.800A2+0.856A3+0.265B1+0.141B2+0.322B3+0.376B4+0.090B5+0.902C2+0.604D1+0.508D2-0.$

$064D3+0.015D4+0.487E1+0.316E2+0.207E3+0.885E4;F3=-0.274A1-0.254A2-0.086A3-0.033B1+.071B2+0.602B3+0.126C2-0.210D1-0.503D2+0.759D3+0.304D4+0.202E1-0.090E2-0.693E3;$

The eigenvalue contribution rate is weighted, and the comprehensive factor score calculation formula is: $F=0.47008F1+0.27578F2+0.10860F3$. By calculating the scores and ranking of comprehensive factors for each sample, the talent competitiveness of 211 colleges and universities in Jiangsu is shown in Table 4-2.

Table 4-2. Ranking of Talent Competitiveness of 211 Colleges and Universities in Jiangsu Province

SCHOOL	Overall ratings	Rank	Talent Quality Factor Score	Rank	Talent scale factor score	Rank	Talent Contribution Factor Score	Rank
Nanjing University	1.25	1	2.89969	1	-0.38393	7	-0.07938	8
Southeast University	0.86	2	0.41214	2	1.97806	1	1.09915	1
Suzhou University	0.07	3	-0.29786	5	1.3925	2	-1.56481	10
Nanjing University of Science and Technology	-0.12	4	-0.39082	8	0.05415	4	0.46064	6
Nanjing University of Aeronautics	-0.16	5	-0.53923	10	0.39158	3	-0.1643	9
Jiangnan University	-0.19	6	-0.5639	11	-0.01919	6	0.77897	2
He Hai University	-0.19	7	-0.51492	9	0.0028	5	0.4865	5
Nanjing Agricultural College	-0.19	8	-0.07921	3	-0.59775	10	0.12338	7
China University of Mining	-0.28	9	-0.38305	7	-0.55151	8	0.51193	4
Nanjing Normal University	-0.5	10	-0.21551	4	-0.57938	9	-2.16997	11
China Pharmaceutical University	-0.56	11	-0.32731	6	-1.68732	11	0.51788	3

4.3 Evaluation of results

Nanjing University, Southeast University, Suzhou University, Nanjing University of Science and Technology, and Nanjing University of Aeronautics and Astronautics ranked among the top five universities in terms of comprehensive talent competitiveness. Among the talent quality factor scores, Nanjing University, Southeast University, Nanjing Agricultural University, Nanjing Normal University The universities and Soochow University are among the top five; among the talent scale factor scores, Southeast University, Suzhou University, Nanjing University of Aeronautics and Astronautics, Nanjing University of Technology and Hohai University are among the top five; in the talent contribution factor score, Southeast University, Jiangnan Universities, China Pharmaceutical University, China University of Mining and Hohai University are among the top five.

References

- [1] Zhou Yuanqing. Pay attention to educational scientific research and build a strong country of higher education [J]. *China Higher Education Research*, 2010 (12): 1 -5.
- [2] Liu Xiangbing. Discriminating factors of university core competitiveness [J]. *Journal of Renmin University of China*, 2007 (2): 143 -148.
- [3] Shen Jian. The concept and practice of building a strong province of higher education [J]. *Jiangsu Higher Education*, 2011(1): 1 -4 .
- [4] Weng Guangcong. Research on the Incentive Mechanism of University Teachers [J]. *Science and Technology Management Research*, 2010 (14): 119-122;
- [5] Zeng Weiming, Xiao Yao, An Peiwang. Competency-based Human Resource Management in Universities [J]. *Heilongjiang Higher Education Research*, 2010 (8): 42 -44
- [6] Li Feng, Yin Jie, Wu Jie. Research on talents introduction and training strategy based on data mining in colleges and universities [J]. *Science and Technology Progress and Countermeasures*, 2010, 27 (12): 149 -151
- [7] Schuler R S, Susan S E, Jackson Tarique I. Global talent man-mentment and global talent challenges: Strategic opportunities for IHRM[J]. *Journal of World Business*, 2010, (10): 461-472