Appendixes

Appendix A

Search Queries on CNKI

"SU=university*(research+technology+science+scientific)(talent+faculty+team+teacher+personnel)(evaluation+system+performance+indicator)". In these queries, "SU" denotes "subject," "*" represents "and," and "+" represents "or."

Appendix B

Keyword clustering results.

Cluster number	Keywords	Cluster Name
0	Academic governance, Mechanism for cultivating virtue and nurturing people, Professional development, New era, Academic evaluation, Teaching and academic, Evaluation system, Teacher evaluation, Scientific research evaluation, etc.	Educational evaluation and reform
1	Professional degree, Management system, Scientific research and education, Artificial Intelligence, Innovation, Interdisciplinary, Talent evaluation, Integration between industry and education, Double world-class project, Talent cultivation, etc.	Talent cultivation and scientific research development
2	Evaluation index, Management mode, Streamlining, administration and servicing, Institutions of higher learning, Scientific researcher, Research fund, Influencing factor, Scientific research performance, etc.	Scientific research management and performance
3	Property right incentive, Institution, Professional title review, Innovation ability, College students, Scientific research, teaching, Universities, etc.	Teaching innovation and teacher development
4	Management mechanism, Scientific and technological achievements, Scientific research ability, Teacher development, Merit pay, Private university, Evaluation, Performance appraisal, Young teachers, Strategy, etc.	Teacher performance and career development

Appendix C

Cluster label classification results.

Category	Contribution Index	Keywords	Contribution Rate	Keywords	Contribution Rate	Keywords	Contribution Rate	Keywords	Contribution Rate
0	Descriptive	University	64.9%	Teaching	1.4%	Collaborative innovation	1.3%	Young teachers	1.3%
	Discriminating	University	32.9%	Teacher	6.6%	Talent cultivation	4.1%	Higher education	1.9%
1	Descriptive	Talent cultivation	29.1%	Higher education	11.5%	Top-notch innovative talents	3.1%	integration between industry and education	2.9%
	Discriminating	Talent cultivation	15.9%	University	13.4%	Teachers	5.6%	Higher education	4.3%
2	Descriptive	Strategy	14.6%	Research funds	7.9%	Young teachers	3.8%	Problems	3.7%
	Discriminating	Strategy	8.2%	University	8.1%	Talent cultivation	5.1%	Research funds	4.2%
3	Descriptive	Discipline development	8.0%	World-class discipline	6.2%	Teachers	5.6%	Evaluation	3.9%
	Discriminating	University	14.7%	Discipline development	4.3%	Teachers	4.3%	World-class discipline	3.7%
4	Descriptive	Teachers	29.3%	Local universities	4.7%	Double word-class project	4.1%	Teacher evaluation	3.7%
	Discriminating	University	17.6%	Teachers	14.0%	Talent cultivation	3.2%	Teacher evaluation	2.3%

Appendix D

Centripetal force and density.

Category	Centripetal Force	Density
1	4.13	7.31
2	3.47	4.00
3	4.67	4.40
4	10.58	6.33
5	6.07	3.57
Average Value	5.78	5.12

Appendix E

Appendix E: Data Processing Workflow

1. Introduction

This appendix outlines the detailed data processing workflow used in the study, focusing on the operations performed using Bicomb and CiteSpace software. These tools were employed to clean, organize, and analyze the bibliographic data retrieved from the China National Knowledge Infrastructure (CNKI) database. The primary objectives were to identify high-frequency keywords, perform cluster analysis, and visualize the research trends and hotspots in the evaluation of university research talent in China over the past decade.

2. Data Processing with Bicomb

2.1 Data Import and Cleaning

- **Data Import**: The bibliographic records retrieved from CNKI were exported in EndNote format and imported into Bicomb software.
- **Synonym Merging**: Synonymous terms (e.g., "scientific talent" and "research talent") were merged to ensure consistency and avoid duplication in the analysis. This step involved identifying and consolidating keywords with similar meanings.
- **Keyword Extraction**: Keywords were extracted from the cleaned data, and a threshold value was set to focus on high-frequency keywords. Keywords appearing at least four times were selected for further analysis.

2.2 Matrix Generation

- **Co-occurrence Matrix**: A co-occurrence matrix was created to record the frequency of simultaneous occurrences of two keywords within the same article. This matrix was used to identify frequently co-occurring keywords, which are indicative of research hotspots and trends.

3. Data Analysis with CiteSpace

3.1 Keyword Co-occurrence Network

- **Network Construction**: The co-occurrence matrix generated in Bicomb was imported into CiteSpace to construct a keyword co-occurrence network. This network visualizes the relationships between keywords based on their co-occurrence frequency.
- **Threshold Setting**: To filter out less significant connections, a co-occurrence threshold was set. Only keywords with co-occurrence frequencies above this threshold were included in the network analysis.

3.2 Cluster Analysis

- **Cluster Identification**: CiteSpace's clustering algorithm was used to identify distinct clusters of keywords within the co-occurrence network. The algorithm groups closely related keywords into clusters based on their co-occurrence patterns.
- **Cluster Labeling**: Each cluster was labeled based on the dominant keywords within it. The labels were determined by analyzing the keywords with the highest betweenness centrality and frequency within each cluster.

3.3 Visualization and Interpretation

- **Keyword Co-occurrence Map**: A keyword co-occurrence map was generated to visually represent the clusters and their relationships. The map highlights the main research hotspots and trends in the evaluation of university research talent.
- **Strategic Coordinate Diagram**: Based on the keyword similarity matrix, a strategic coordinate diagram was created to analyze the centripetal force and density of each cluster. This diagram helps identify the core research areas and their connections to other areas.