Computer Fraud and Security
ISSN (online): 1873-7056

Hotspot and Development Trend of University Education Research in China: Bibliometrics and Big Data Analysis Based on University Pedagogy

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Abstract:
Using big data analysis has become an important method in scientific research today.In the past 30 years, China's higher education cause has developed vigorously.This paper uses the software computer space to conduct a measurement and qualitative analysis of changes in the number of published articles, publishing institutions, authors, high citations, research hotspots and hotspots in university educational science over the past 30 years.The results show that the number of articles published in the Journal of University Education Science is declining, with Hunan University, Hunan Normal University, Xiamen University and Central South University as the main contributing articles. The journal has formed a stable group of core authors.The journal serves as a reprint database of the People's Congress.Teaching reform, university, college students, teaching content, academic freedom, college, socialism, talent training, academic annual conference, university teachers, college entrance examination reform and so on are the main contents of "university education science".Through big data analysis, it is found that the influence and discourse power of university education science have been significantly enhanced in the academic circle, and it has become an important hub of academic and cultural exchanges in the field of higher education in China, and has made a significant contribution to the theoretical exploration of promoting the construction of a strong education country in China.

Keywords: university education, University Education Science, Bibliometrics, citespace, data analysis

INTRODUCTION

With the rapid development of information technology today, big data analysis, as an emerging methodology, is profoundly changing the face of scientific research.With the spread of the Internet, the progress of sensor technology and the improvement of computing power, scientists face an unprecedented amount of data that not only covers experimental data in traditional research fields, but also integrates information from diverse fields such as society, environment and biology. Big data analysis gives researchers powerful tools to tap out potential laws and trends from massive data and promote interdisciplinary collaboration and innovation. First of all, big data analysis provides a whole new perspective, enabling researchers to identify key variables from complex phenomena and form more accurate models and predictions.Through techniques such as machine learning and data mining, scientists are able to dynamically monitor and analyze complex systems in real time to adjust their research direction in real time.Secondly, big data also helps to explore unknown fields. Through in-depth analysis of historical data, it reveals the laws and connections that have not been noticed before. In addition, the application of big data also promotes the openness of scientific research, and the establishment of research results and data sharing mechanism, which can accelerate the process of scientific discovery and improve the overall benefits of scientific research. To sum up, big data analysis is not only a useful tool for scientific research, but also a driving force to promote scientific progress. Facing the future, how to make effective use of big data will be a major challenge and opportunity for scientists to face together.

University Education Science was approved by the General Administration of Press and Publication of the People's Republic of China document. It was renamed as a higher education academic research journal in 2003, which was originally founded in 1984 and has been included in the Chinese Social Science Citation Index (CSSCI) source journal (including extended edition) (2008 to present), and the source journal of Synopsis of Chinese Core Journals of Peking University: 2011 edition, 2014 edition, 2017 edition and 2020 edition. It consists of the following columns: education frontier, teaching reality, teacher's career, management and economy, comparison and reference, quality and evaluation, educational history, academy and modern university.

Scientific econometric analysis has become a modern rising research method. In recent years, the hot topic of econometric analysis has risen in the academic circle. It is of great theoretical and practical significance to explore

the hot spots and frontier of higher education research for further deepening the reform of higher education. Tan (2018), Sun (2021), Su (2023), Yu (2024) studied the hot spots of higher education at home and abroad through econometric analysis, which provided powerful evidence for understanding the dynamic development of higher education at home and abroad. However, it has not been found that some people analyze a specific journal from the perspective of historical institutionalism, under the guidance of high-quality development background and the spirit of cultivating world-class journals. University Education Science has been published for 40 yearsIn, as a professional academic journal of higher education in China, its academic influence and the evolution of research themes deserve further exploration and research. Therefore, based on the development and change of University Education Science in the past 30 years, with the help of citespace visual analysis software, this paper systematically and comprehensively analyzes many indexes of the journal, in order to objectively evaluate the development status of the journal since its inception, and to probe into the development trend and evolution of the field of university education science in China.

SUBJECTS AND METHODS

On April 21, 2024, the Journal of University Education Science from Articles were searched from 1993 to April 2024, yielding a total of 4108 relevant articles. Among them, there are 2945 papers from University Education Science and 1163 papers from Research on Higher Education in Machinery Industry. In order to ensure the statistical accuracy of the analysis and eliminate the lack of author information and some advisory advertisements, 4042 valid data were finally obtained. in addition, in ord to understand that influence of discourse in the field of education of university education science, the research also uses the database of copy newspapers and periodicals of the people's congress as one of the data sources for research and analysis. From this data, 0 papers were obtained, of which 39 were published during the period of Research on Higher Education in Machinery Industry and 41 during the period of University Education Science. Citespace is used for statistics of the collected data, and qualitative analysis is carried out in combination with quantitative statistics.

THE DEVELOPMENT STATUS OF UNIVERSITY EDUCATION SCIENCE

Annual Volume of Documents Issued and Reprinted

See Fig. 1 and Fig. 2 for the amount of articles published in and reprinted by the University of China's National People's Congress. As can be seen from Figure 1, in that course of these 30 year, since 1994, the number of articles published in the early periodicals has been maintained at about 120. During the period of "Research on Higher Education in Machinery Industry", although 170 papers were published in 1996, they gradually dropped to about 150 papers after 1997 and kept at this level. In 2002, the number of articles published rose again to 143. Year 2003After the journal changed its name to University Education Science, the number of articles published rose to 151 in 2005, the first increase since the journal changed from quarterly to bimonthly. Subsequently, the annual volume of papers was basically stable at about 150. However, the sudden increase to 194 articles in 2016 and to 219 articles in 2017 is not consistent with the benign development of journals. Therefore, in 2018, the number of articles published was controlled again, and it was directly reduced to 130. By 2021, the number of articles published had fallen to only 92 and remained within 100 in the following years. This trend reflects that under the fierce competition, the quality control of journals is constantly improved, and the idea of high-quality development of the times is met by substituting quality for quantity.

As an important selected database in the field of humanities and social sciences, the reprinting of the reprinted materials in the newspapers and periodicals of Renmin University of China has gradually become one of the criteria for academic evaluation, which not only reflects the depth and value of the journal articles, but also highlights the hot spot and development trend of a certain research field to a certain extent. [1]Fig. 2 shows the reprinting situation of University Education Science journal. FromFrom 1994 to 2024, the number of reprints showed certain fluctuations and changes. In 1994 and 1995, that numb of reprints was 0 and 3, followed by a significant increase of 6 and 8 in 1996 and 1997, respectively. However, that numb of reprints fell to four in 1998, then seven and five in 1999 and 2000, respectively. Only 1 was reproduced in 2001, and 4 and 2 in 2002 and 2003, respectively, showing fluctuations. The number of reprints remained relatively stable between 2004 and 2007 and then increased significantly between 2008 and 2012, reaching 16 in particular in 2011. Subsequently, there was little fluctuation between 2013 and 2018, and the number of reprints remained relatively high. The number of

reprints decreased to 5 and 8 in 2019 and 2020, and increased again to 10 in 2021. Over the next few years, the number of reprints continued to fluctuate, but the overall trend appeared to remain at a relatively flat level. Such fluctuations and changes may be influenced by a variety of factors, including the impact of the journal, the quality and content appeal of published articles, academic partnerships, and changes in the material needs of the National People's Congress. The increase in the number of reprints in some years may be due to the fact that the specific topic or research direction of the journal has attracted the attention of the National People's Congress, or the demand for the National People's Congress database has increased. Conversely, the decrease in reprints in some years may be due to a greater interest in material from other topics or sources, or to a decrease in the relevance of articles published in journals at certain periods. This analysis will help the journal better understand its influence and readers' needs, so as to better position and adjust its development direction.

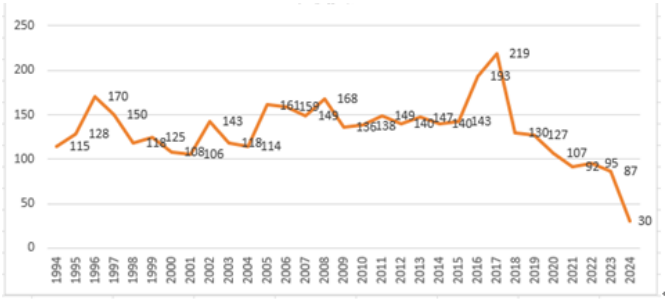

Figure 1. Quantity and trend of papers published in the journal of university education science

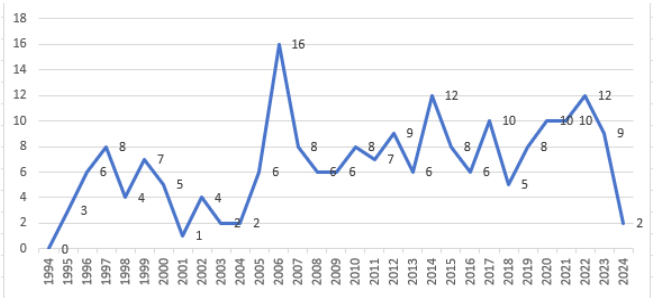

Figure 2. Reproduction of university education science by the national people's congress

Number of Papers Issued by the Research Institution

Table 1 shows the 15 most published articles in University Education Science in the past three decades. Hunan University, Hunan Normal University, Xiamen University and Central South University ranked the top four, with 608, 211, 179 and 123 articles published respectively, all of which exceeded 100 articles. Hunan University topped the list with 608 articles, mainly due to its special status as a "985" university and the sponsor of University Education Science. Further observation of the table1 shows that most of the 15 units come from "985/211" colleges and universities, which also reflects the relationship between the university level and the scientific research strength. In addition, it is worth noting that Hunan University, Hunan Normal University, Central South University, Hunan Institute of Foreign Economics and Hunan University of Science and Technology are all located in Hunan Province. These five units account for one-third of the list, reflecting the influence of geographical factors on their publications to some extent. Therefore, we can see from this data that some high-level universities and provincial units occupy the dominant position in the number of published articles of University Education Science, which is not only related to its academic strength and geographical location, but also closely related to its special university category and the identity of the sponsor. This analysis will help us to better understand the performance and status of these units in the field of academic research, as well as the causal relationship behind them. Among these organizations with a large number of articles, it can be seen that the top three cited papers are Central China Normal University (29.59), Zhejiang University (26.63) and Renmin University of China (21.26), which all have been cited more than 20 times, indicating that the quality of the articles issued by the authors of these institutions is relatively high.

Table 1. Top 15 high-yield institutions of university education science

Sort	Issuing Authority	number of papers issued	always cited	All articles are cited
1	Hunan University	608	7480	12.30
2	HunanNormal University	211	1965	9.31
3	Xiamen University	179	2821	15.76
4	CentralSouth University	123	1064	8.50
5	BeijingNormal University	83	1363	16.42
6	East China Normal University	79	730	9.24
7	HuazhongUniversityofScienceandTechnology	67	725	10.82
8	Hunan Institute of Foreign Economics	63	470	7.46
9	Nanjing Normal University	53	7456	8.60
10	Zhejiang University	46	1225	26.63
11	Renmin University of China	42	893	21.26
12	Central China Normal University	41	1213	29.59
13	Hunan University of Scienceand Technology	38	299	7.87
14	Jiangsu University	35	371	10.6
15	Peking University	31	392	12.65

Authors of Contribution

In order to understand in more detail who contributed more to the publication of the Journal of University Education Science. The statistics are shown in Table 2. It can be seen from the table 2 that in the past 30 years, 40 people have published more than 7 papers in the Journal of University Education Science, of which the first three are Yao36 articles, Zhang 33 articles, Jiang 25 articles, especially Yao and Zhang more than one. The table 2 also shows that the journal has its own core author group, which is an important force for the theoretical exploration of domestic higher education.

Table 2. Major authors of university education science in the past 30 years (N≥7)

S/N	Author	number of papers issued	Earliest Time	S/N	Author	number of papers issued	Earliest Time
1	Yɑo	36	1994	21	Bing	10	2005
2	Zhang	33	2005	22	Dɑo	9	2007
3	Guo	25	2007	23	Liu	9	2005
4	Jiang	17	2005	24	Ke	9	2005
5	Zhang	15	2005	25	Xiao	8	2005
6	Tang	15	2006	26	Yang	8	1998
7	Liu	15	1994	27	Tong	8	2005
8	Wang	14	2005	28	Liu	8	2005
9	Chuan	13	2006	29	Liu	8	2003
10	Xu	13	2005	30	Han	8	2007
11	cowavelet	13	2007	31	Yɑo	7	2007
12	Wang	13	2006	32	Liu	7	2014
13	Yang	12	2005	33	Gao	7	2008
14	Hu	12	2005	34	Luo	7	2005
15	Wang	11	2006	35	Li	7	2006
16	Kai	11	2007	36	Zhang	7	2004
17	Long	11	2006	37	Hu	7	1997
18	Liu	11	2011	38	Xu	7	1994
19	Li	10	2015	39	Li	7	1995
20	Liu	10	2007	40	Wang	7	1994

Highly Cited Documents

The cited quantity is an important index to measure the journal level and academic influence. The number of citations reflects the quality of the journal articles and the research level of the scholars and their units [2]. The factors influencing the citation of the articles mainly include academic quality, research innovation, author influence, paper writing quality, journal selection and keyword selection. High-quality research, innovative ideas, author's reputation, clear structure and language presentation of the paper, selection of influential journals, and accurate selection of keywords are all key factors that influence how articles are cited. in ord to compare that citations of" university education science" from 1994 to now, table 3, 4 and 5 show the top ten high-cited articles in three different periods. In Table 3, the three high schools are cited as the discussion on the mode of postgraduate training, the analysis of interpersonal relationship in university dormitories, and the connotation, history and development trend of internationalization of higher education. The themes of these three articles respectively discuss the mode of postgraduate training, make in-depth analysis on the importance and development trend of postgraduate education, reveal the importance and research value of this field, systematically analyze the connotation and development trend of higher education internationalization, and provide unique perspective and theoretical support.These have aroused the attention of the academic circles. During this period, the number of articles cited did not reach more than 100, which is related to the times and the small number of researchers.

as can be seen from table 4, From 2003 to 2013, the number of citations in the top ten articles cited by University Education Science was over 100, and the highest wasIn 2012, Dong published the concept definition and element analysis of the talent training model in colleges and universities, which was cited by G.746 times. It is not only the urgent need of the development of the times, but also the urgent requirement of the development of higher education itself to strengthen the theoretical research on the talent training mode. However, there are different views on the exact definition of the talent training mode, and differences exist on the elaboration of the constituent elements of the talent training mode, which affects the rational cognition and innovation of the talent training mode. To clarify the definition of talent training mode, it is necessary to deeply analyze the connotation of “mode” and “talent training”, as well as the characteristics of “talent training mode”.

Table 3. Top ten cited papers in university education science from 1994 to 2002

Article	First Author	Publication Time	number of citations
On the Training Mode of Postgraduates	Li	2002	75
On the Interpersonal Relationship in College Students' Dormitory	Yɑo	1995	58
The Connotation, History and Development Trend of Internationalization of Higher Education	Ou	2001	57
A Comparative Study on the Construction of Teachers in Colleges and Universities between China and America	Luo	2002	48
Construction and Operation of Teaching Total Quality Management System in Colleges and Universities	Lin	2001	48
On the Mode of Sino-foreign Cooperation in Running Schools	Wang	1996	35
Comparison of Employment Guidance for American and Chinese College Graduates and Some Enlightenment to China	Wang	2002	34
Comparative Experiment on the Relationship between Learning Motivation and Academic Achievement of College Students	Du	2000	33
Investigation and Analysis of College Students'Frustration Tolerance	Fu	1999	33
A Study of College Students' Personality and Family Relationship	Kong	2001	30

Table 5 isThe three different time periods are the shortest, but the number of citations of the top ten cited articles are all over 100, indicating the influence of journal articles. The first three articles are the historical logic, the system demand and the action direction of the idea of "Course Ideological and Political"; Curriculum Ideological and Political: the new perspective of the reform of university general education; the error identification, principle requirements and practical exploration of the "Course Ideological and Political" concept. It can be seen that the

curriculum ideological and political policy has become a high-frequency issue of academic research in recent years, which is related to a series of curriculum ideological and political policy documents, such as the Opinions on Strengthening and Improving the Ideological and Political Work in Colleges and Universities under the New Situation and the Outline of Curriculum Ideological and Political Construction in Colleges and Universities issued by the Ministry of Education.in addition, it also reflect that policy idea of" university education science" topic focus on national reality [3].

Table 4. Top 10 cited papers in university education science from 2003 to 2013

Article	First Author	Publication Time	number of citations
Concept Definition and Element Analysis of Talent Training Mode in Colleges and Universities	Dong	2012	746
The Connotation and Strategy of the Professional Development of College Teachers	Lin	2006	289
A Study on the Present Situation and Countermeasures of the Cultivation of College Students' Innovative Ability	Zhang	2005	216
A Summary of the Research on the Cultivation of College Students' Innovative Ability	Qiɑo	2008	215
Evolution and Reference of Subject Concept	Yang	2004	201
Rethinking from Elite to Mass to Popularization of Higher Education: Form and Stage of Modern Higher Education after World War II	Ma	2009	179
A Review of Teaching Methods in Colleges and Universities	Yɑo	2010	165
Training Objectives and Curriculum System Construction of Application-oriented Undergraduate Education	Wang	2005	152
The Position and Function of Characteristic Universities in Higher Education	Pan	2008	141
The Experience and Characteristics of the Construction of Foreign University Teachers	Li	2006	140

Table 5. Top 10 cited papers in university education science from 2014 to 2024

Article	First Author	Publication Time	number of citations
The Historical Logic, System Appeal and Action Direction of the Idea of "Course Ideological and Political"	Wu	2019	545
Curriculum Ideology and Politics: A New Perspective of the Reform of General Education in Universities	Nie	218	252
A Probe into the Concept Error Discrimination, Principle Requirement and Practice of "Course Ideological and Political"	Zhang	2020	192
Analysis on the Formation of Innovative and Entrepreneurial Talents Training Mechanism Based on the Coupling of Universities, Governments and Enterprises	Chen	2015	168
Three Breakthroughs in the Construction of "Double First-class": System, Management and Technology	Zhou	2016	163
Local Internationalization: A New Trend of China's Higher Education Development	Zhang	2017	152
Promoting the Quality of Professional Education in Colleges and Universities with the Concept of OBE	Zhang	2019	145
Transformation and Development of Local Undergraduate Colleges: Possible Effects and Main Problems	Zhang	2014	135
Theoretical Discussion on the Construction and Reform of University Curriculum——Reflections on the Construction of "Golden Courses" in Chinese Universities	Dong	2019	127
"Five Only" Problems: Consequences, Roots and Solutions of College Teachers' Evaluation	Cao	2019	101

RESEARCH HOTSPOT AND DEVELOPMENT TREND OF UNIVERSITY EDUCATION SCIENCE

Key words are the gist of the study. From the point of view of bibliometrics, it is possible to analyze the research hotspot and main direction of a certain research field from the clustering structure of co-cited networks. [4]

Keyword Co-Occurrence Analysis

Table 6. 1994 top 40 high-frequency keywords of university education science in 2024

S/N	Keyword	Frequency	centrality	Time	S/N	Keywords	Frequency	centrality	Time
1	Higher Education	161	0.26	2000	21	university governance	22	0.04	2009
2	University	101	0.13	2000	22	discipline construction	20	0.03	1994
3	college students	87	0.13	2000	23	Innovation	19	0.02	2002
4	colleges and universities	70	0.17	2000	24	quality education	19	0.04	1999
5	Education	53	0.10	2000	25	higher engineering college	19	0.04	1994
6	teaching reform	52	0.06	1996	26	teaching content	18	0.05	2004
7	cultivation of talents	43	0.11	1994	27	Question	18	0.02	2000
8	Teacher	41	0.07	2000	28	university teachers	18	0.03	1997
9	United States	40	0.08	2001	29	Development	17	0.01	2000
10	colleges and universities	39	0.02	2000	30	teaching mode	17	0.03	1994
11	Countermeasures	35	0.06	2000	31	Pan Mɑoyuan	17	0.01	2004
12	reform	34	0.06	2000	32	Culture	16	0.01	2004
13	Teaching	33	0.02	2000	33	Course	16	0.03	2004
14	market economy	30	0.06	1994	34	value orientation	15	0.02	2004
15		29	0.08	1994	35	President of University	15	0.03	2005
16	academic freedom	29	0.03	1996	36	university spirit	15	0.04	1994
17	Academy	26	0.04	2005	37	credit system	15	0.04	1996
18	teaching quality	26	0.05	1994	38	academic power	15	0.01	2009
19	university teacher	26	0.01	2005	39	teaching method	15	0.02	1994
20	teacher education	23	0.02	2004	40	moral education in colleges and universities	15	0.00	2002

As the information highly summarizing the research content, the co-occurrence network and occurrence frequency of the keywords provide the researchers with the possibility to clearly develop the current research hotspot of university education [4]. highlight the research problems focused by the researchers in a certain period, and help to see the future research trend [5]. Leveraging CitespaceKeyword co-occurrence function of the analysis of 4042 articles, Table 6 is

the results show that, fromTop 40 high-frequency keywords higher education published in the journal University Education Science since 1994(161)University(101), College(87), University (70), Education(53), Teaching Reform(52), Talent Development (43), Teachers (41), USA (40), Colleges and Universities (39), Countermeasures (35), Reform(34), Teaching (33), Market Economy(30), Academic Freedom(29), Academies(26), Teaching Quality(26), University Teachers (26), Teacher Education(23), University Governance (22), subject construction (20), innovation (19), quality education (19), higher engineering college(19), teaching content(18), problems (18), college teachers (18), development (17), teaching mode(17), Pan Maoyuan(17), culture(16), curriculum(16), value orientation (15), university president (15), university spirit (15), credit system (15), academic power (15), teaching method(15) and university moral education(15).

Keyword Cluster Analysis

in ord to understand that topics concern in university education science, cluster analysis was carried out on the statistic keywords [6]. table 7 is the cluster set, forming 12 groups of topics.

Table 7. 1994-college education science keyword cluster 2024

cluster number	cluster scale	boundary value	Averge Year	Other Keywords
teaching reform	63	0.832	2004	Teaching reform, employment, colleges and universities, teachers, quality education, multimedia, information technology, knowledge economy era, guarantee system, talent introduction, performance evaluation
1 Higher Education	58	0.868	2008	New Era, Higher Education, Development, Discipline Construction, Educational Evaluation, Higher Engineering Education, Curriculum Content, National Key Disciplines, Incoordination, Economy
2 Universities	57	0.864	2008	Administrativeization, University, America, Freedom, Curriculum, Education, Industrialization, Content Knowledge, Theory, Rational Training, View of Knowledge
3College Students	54	0.853	2004	Countermeasures, Employment, Professional Development of Teachers, College Students, Problems, Investigation, Teaching, Training Models, Boyer, Science
4 Teaching content	48	0.903	1999	Teaching Content, Constructivism, Reform, Teaching Methods, Institutions of Higher Learning, Connotation, Constructivism, External Characteristics, Social Functions, Teaching Reform and Practice, Teaching Forms
5 Academic freedom	34	0.886	2011	Academic Freedom, University Governance, University Spirit, University Way, University Teachers, Professional Autonomy, Modern University Theory, World First-class University, Professional Development, University Standpoint
6 Academy	32	0.94	2006	Academies, Imperial Examinations, Humanities Education, Specialized Teaching, Textbook Contents, Speciality Dimensions, Scientific Education, Historical Materials of Academies, Origin of Academies, Social Functions
7 Country	31	0.897	1995	Graduates, Employment, Market Economy, New Situation, Harbin, Faculty, Undergraduate, Marxist Theory Course, Higher Education System, Yanshan University, Production-Academic Cooperation Education Mode
8 Talent training	28	0.908	2007	Academy, talent training, undergraduate teaching, higher education quality, quality assessment, ideological and political teaching, establishment and development, cognitive rationality, combination of science and engineering, international academic symposium, elite education
9 Annual Academic Conference	25	0.943	2006	Annual Academic Conference; Machinery Industry, Fifth Session, General Education, Professional Education, Pedro, Mission of University, History of Human Civilization, Management of University, Concept of University Education
10 University teachers	17	0.949	2012	University Teachers, Empirical Research, Methodology, Academic Evaluation, Higher Education Research, Higher Education Research, Honesty and Credit System, Realization Approach, Multi-method and Research Method
Reform of College Entrance Examination	8	1	2011	College Entrance Examination Reform, Ministry of Education, Jiangsu Province, Unified Examination, Independent Enrollment in Colleges and Universities, Enrollment in Universities, Candidates Files, Admission Mechanism

Cluster 0 is focused on the theme of university teaching reform. the cluster size is 63, Topics include teaching reform, employment, colleges and universities, teachers, quality education, multimedia, information technology, knowledge economy era, security system, talent introduction, performance evaluation and other keywords. This theme demonstrates the interaction between university education and social development.1994-presentChina's economy and society are constantly progressing and developing, and social progress promotes the change and development of various fields. In order to meet the needs of the society for talents, university teaching has been

changing constantly, and this kind of reform and change involves a wide range. Duan (2003), Ren l. (2013) studied and analyzed the reform and development of university performance evaluation from different perspectives. Wang (2003), Liu (2003), Zhou (2005), Cai (2006), Ou l. (2010), Li(2016), Xiao(2023).constantly explore the application of multimedia informatization and digitalization in the education and teaching reform of Chinese universities [7].

Cluster 1 is focused on the theme of higher education development. Cluster size is 58This topic includes the new era, higher education, development, discipline construction, educational evaluation, higher engineering education, curriculum content, national key disciplines, disharmony and economic keywords. In the past three decades, China's higher education has developed vigorously, presenting a trend of rapid growth and quality improvement [8]. The government has invested a large number of resources and built a large number of colleges and universities, which has expanded the coverage of higher education. Higher education has been transformed from elite education to mass education, thus improving the education popularization rate. At the same time, the higher education structure is continuously optimized, the discipline construction is constantly improved, and the internationalization level is remarkably improved. At the same time, the teaching quality and scientific research level of colleges and universities continued to improve, and a large number of outstanding talents emerged. Pan (2004), Ye (2009), Yang (2011), Liu(2012), Huang (2013), Deng (2015), Sun (2016), Li(2018)Discuss the quality development of higher education. Huang (2003), Liu (2005), Yang (2005), Tang(2007), Yu(2009), Hu(2015) Discuss the popularization of higher education. Wang (2018), Liu (2020), Liu(2024)Analysis of higher education governance. Liu(2017), Li (2018), Han(2018) analyzed the construction problem of “double-first-class” higher education. The quality of China’s higher education has been continuously improved, and the international status and competitiveness have also been continuously improved.

Cluster 2 is focused on university topics. Cluster size is 57The topics include administration, university, America, freedom, curriculum, education, industrialization, content knowledge, theory, intellectual training, and knowledge outlook. The overall development of Chinese universities has made remarkable progress in the past three decades. Higher education continues to grow in number and coverage, providing opportunities for higher education for more students. Universities have made great progress in subject construction, teaching quality and scientific research level, from the initial emergence of some schools in the international ranking, to more and more crowded to the top. Colleges and universities strive to promote innovation and entrepreneurship education, cultivate a large number of innovative talents, and make positive contributions to social and economic development. The de-administrativeization of universities is an important issue which is widely concerned by the society, and the government and universities are in urgent need of reform. Qin (2003), Zhang (2007), Chen (2013) and Liao (2013) analyzed and discussed the issue of university administration. Zhang (2006) and Zhang(2010) analyzed and discussed the industrialization of universities. In the process of university reform and development, we should not only consider the local reality, but also draw lessons from the international advanced experience. Since 2004, the Journal of University Education Science has published 44 articles related to American universities, such as Ma (2004) and Qu (2006), which embody the international vision of periodical running. These achievements also provide rich relevant theories for the development of university education. The idea of freedom spirit leads the development of university, and it has become the focus of scholars to discuss the spirit of university freedom. Yang (2008) Zhang (2008), Xu. (2008), Zhang (2010), Gao (2013), Jiang (2014) Tu (2016) to discuss and analyze the essence of university freedom and other related topics.Zhang Chuting’s output results are up to 4 in total.

Cluster 3 is focused on undergraduate topics. the cluster size is 54, The topics include countermeasures, employment, professional development of teachers, college students, problems, investigation, teaching, training models, Boyer, and science. Over the past 30 years, the overall development of Chinese college students has been booming. The number of college students has been constantly increasing, the overall quality of students has been improved, and the student population has been diversified [9]. With the popularization of higher education, the comprehensive quality and innovation ability of college students have been improved, and more students participate in academic exchanges and competitions at home and abroad. The reform of the educational system has been deepened and the teaching methods and contents have been innovated to provide more space for students to grow. However, it also faces some challenges, such as increasing employment pressure, outstanding mental health problems, talent training and the matching of social needs. Deng (2007), Jiang (2023), Hao (2023) analyzed and discussed the employment of college students. in ord to adapt to that demand of the society for talents,

university education has been explore and adjusted the mode of talent training. You (2005), Liu (2006), Wang (2008), Wang (2009), Wang (2010), Li (2012), Li (2015), Zhao (2017), Liu (2020)This paper analyzes and probes into the training modes of college students, primary school teachers, professional postgraduates and doctors in the transitional period.

Cluster 4 is focused on the teaching content of university education. the cluster size is 48, This topic includes teaching content, constructivism, reform, teaching methods, colleges and universities, connotation, constructivism, external characteristics, social function, teaching reform and practice, teaching form. The teaching content of university education is suitable for the continuous change of social development. The teaching content of education pays more attention to the quality promotion and innovation driving, and emphasizes the cultivation of students' comprehensive quality and practical ability. The teaching content is no longer limited to traditional subject knowledge, but also includes interdisciplinary knowledge, practical skills and innovative thinking [10]. Hu (2003), Xu. (2003), Dai (2005), Cheng (2007), Yao (2011), Li (2014), Yao (2019), Xiao (2023) Focus on the teaching content of university education. Various teaching methods, such as case teaching, practical teaching and project learning, have been applied to promote students' active learning and problem-solving ability. Information technology is widely used in teaching, multimedia teaching, online education and other forms are gradually popularized, improving teaching effect and teaching experience. These changes make China's university education more in line with the needs of the times, cultivate more innovative and practical talents, and provide strong support for social development and economic prosperity. Huang (2003), Wang (2004), Liu (2005), Feng (2006), Wang (2007), Li (2008), Yu (2009), Yao (2010), Li (2014), Fan (2016), Hao (2018) focus on analysis of teaching methods.

Cluster 5 is focused on academic freedom topics. The cluster size is 34. The topics include academic freedom, university governance, university spirit, university way, university teachers, professional autonomy, modern university theory, world-class universities, professional development and university standpoints. Over the past three decades, academic freedom in China's university education has gradually improved, but it has also been accompanied by some challenges. The academic environment of universities is gradually opening up, academic exchanges are increasingly frequent, and scholars enjoy more freedom to publish their research achievements. Some colleges and universities have established independent academic evaluation mechanism to encourage scholars to think and explore independently. However, there are still some problems, such as academic corruption and political interference, which affect academic freedom to a certain extent. In order to promote academic freedom, we should strengthen the construction of academic morality, establish a sound academic evaluation mechanism, and guarantee the academic independence and freedom of speech of scholars [11]. The traditional meaning of university autonomy implies academic freedom. Xia (2004), Zhang (2005), Wu (2006), Hu (2007), Wang (2008), Bei (2011), Li (2012), Liu (2021), Liu (2022), Huo (2024)and analyzing the theme of academic freedom. World-class universities are seeking to give teachers more freedom in academic pursuit, Cui (2007), Zhang (2009), Mo (2010), Yang(2011), Liu (2012), Zhou (2016), Jiang(2018), Liu (2020), Wang (2022), Tian (2022) and other scholars focus on analyzing the academic freedom spirit of first-class universities at home and abroad.

cluster 6 is focused on the academy. The cluster size is 32This topic includes academy, imperial examination, humanities education, specialty teaching, textbook content, specialty caliber, science education, academy historical data, academy origin, social function. In the past 30 years, the college system of Chinese universities has been widely concerned and practiced. The academy system has become a new type of university governance mode in ancient times, emphasizing academic community and individualized education, and providing more choices and independent development space for students [12]. Some colleges and universities have set up a college system to promote academic exchange and interdisciplinary cooperation through small-class teaching and tutor system, so as to train students to be talents with comprehensive quality and innovation ability. The academy system also helps to break disciplinary barriers, promote the cross-border fusion of knowledge, and cultivate students' critical thinking and creativity. Deng (2003), Xiao (2005), Zhang (2006), Li (2007), Ding (2008), Deng (2011), Yu (2012), Zhu (2014), Zhang (2016), Du (2017), Xiao (2020) and others have studied and analyzed the management system of ancient academies, the rise and fall of academies, the characteristics of academies and related humanistic education, and some valuable experience of academies of academies. Li (2004), Jiang (2005), Luo (2015) Scientific education should be carried forward in the discussion of universities.

Cluster 7 is focused on Country. The cluster size is 31This topic includes graduates, employment, market economy, new situation, Harbin, teachers and staff, undergraduates, Marxist theoretical courses, higher education system, Yanshan University, production-university cooperation education mode. Chinese universities actively explore and develop in education. College education thoroughly implements the educational policy, pays attention to the cultivation of students' core values, guides students to strengthen their ideals and beliefs, and establishes correct world outlook, outlook on life and values. Colleges and universities have set up a series of theory courses to strengthen the ideological and political education of students, emphasize the love of the country, and cultivate the students' sense of responsibility and mission. At the same time, the university also actively promotes the construction of campus culture, organizes various voluntary activities and practices, and creates a strong Country atmosphere. Although there are still some challenges in this process, such as the depth and breadth of educational contents and the innovation of educational methods, Chinese universities are still improving the education system and trying to cultivate builders and successors who develop in an all-round way. Chen (2003), Liu (2005), Long (2014) the impact of core values on the spiritual values of college students. Gao (2007), Hu (2014) and Ma (2016) analyze the higher education system in Marxist and China.

Cluster 8 is focused on talent development. The cluster size is 28The topics include academies, talent training, undergraduate teaching, higher education quality, quality assessment, ideological and political teaching, establishment and development, cognitive rationality, integration of science and engineering, international academic seminars, and elite education. China's university education has experienced positive reform and development in talent training. College education has gradually changed into the goal of cultivating students' comprehensive quality, practical ability and innovative consciousness. The teaching content is closer to the social demand and industrial development, paying attention to students' practical application ability and problem-solving ability. Through offering diversified courses, carrying out practical teaching and strengthening the cultivation of scientific research ability, colleges and universities actively cultivate students' innovative spirit and team cooperation ability. At the same time, cooperation between universities and enterprises and practical training programs have been strengthened to provide more practical opportunities for students. Liu (2003), Xiong (2005), Ma (2006), Hu (2007), Zheng (2012), Dong (2014) and others analyzed the talent training problem. The talents training can learn from some international advanced experience. Li (2013), Xian (2014), Qiao (2015), Jin (2017)To study and analyze the talent training mode of American higher education. In 2019, University Education Science was published in the same journal by Kang, Peng , Wang Chen , Dong, Wei , Yao series of higher education quality articles.

Cluster 9 is focused on the annual academic conference. The cluster size is 25The topics include Annual Academic Conference, Machinery Industry, Fifth Session, General Education, Professional Education, Pedro, Mission of University, History of Human Civilization, Management of University and View of University Education. As a platform for academic exchange and cooperation, the Annual Conference of Chinese Universities has been widely developed. The annual academic conference not only provides opportunities for scholars to show their research achievements and exchange academic views, but also promotes cross-disciplinary integration and academic innovation. Annual academic conferences in many disciplines have emerged, covering a wide range from humanities and social sciences to natural sciences, promoting the diversity and depth of academic exchanges. At the same time, the annual academic conference has also promoted international academic cooperation and exchange, attracting scholars from all over the world to participate. However, the annual academic conference also faces some challenges, such as the uneven academic level and quality, academic integrity and ethical issues. Wu (2003), Miao (2007), Zhang (2011), Long (2014), Wang (2016), Chen (2018) and Zhu (2019) conducted research and analysis on the value, connotation, practice and reform of general education and the annual academic conference.

Cluster 10 is focused on university teachers. The cluster size is 17, this topic includes university teachers, empirical research, methodology, academic evaluation, higher education research, higher education research, credit system, realization approach, multi-method and research method. Profound changes have taken place in the faculty of Chinese universities. With the expansion of the university scale and the continuous improvement of the discipline construction, the structure of the university teachers team is gradually optimized and the quality of the teachers is improved. A large number of overseas returnee talents, doctoral graduates and outstanding young and middle-aged teachers have joined the teaching team of colleges and universities, injecting fresh blood into

teaching and scientific research. Teachers' teaching level and scientific research ability have been improved, which has promoted the continuous improvement of the teaching quality of higher education.[13] At the same time, university teachers are also facing some challenges, such as heavy teaching pressure, lack of scientific research resources, and so on. Tong (2003), Yuan (2006), Xiao (2007), Li (2010), Rong (2011), Xu (2014), Zhang (2015), cow (2018), Qu (2019), Liu (2021) and Zhang (2023)This paper studies and analyzes the academic value, legal status, change of employment system and professional title evaluation of university teachers.

Cluster 11 is the reform of the college entrance examination. The cluster size is 7The topics include the reform of the college entrance examination, the Ministry of Education, Jiangsu Province, unified examination, independent enrollment of students in colleges and universities, enrollment in universities, examinee files, and admission mechanism. In the past 30 years, China's college entrance examination reform has experienced continuous exploration and positive change. The reform of college entrance examination is devoted to establishing a fair, scientific and comprehensive selection mechanism to promote the development of students' all-round quality. The reform measures include the diversified methods of enrollment and examination, the introduction of comprehensive quality evaluation, and the continuous improvement of enrollment system in colleges and universities. The reform of the college entrance examination gradually reduces the excessive dependence on the scores and pays more attention to the comprehensive quality and potential of the students. At the same time, the reform has also promoted the deepening of education and teaching reform, and promoted the improvement of the quality of school education and teaching. Zhang (2008), Gu (2010), Liu (2010), Zhang (2011) Peng (2012), Li (2014), Zhao (2019), Liu (2021) studied and analyzed the rationality of college entrance examination, independent enrollment and other related issues. Liu (2019), Yuan (2021) analyzes the enrollment system of American universities.

Research Hotspot Transition Analysis

The change of research topics reflects the historical vein of the development of university education, and is also the basis for predicting the development trend of higher education in the future.

The statistical results show that the top 25 keywords in the articles of University Education Science from 1994 to 2024 are highlighted, which can be divided into three stages: 1994-2000, 2000-2015 and 2016-2024 in combination with concentration and policy documents. The reasons for selecting the above time nodes areIn 1994, the former State Education Commission held the first symposium on the reform of higher education management system, and put forward five reform forms in practice. In 1995, the General Office of the State Council transmitted the "Several Opinions on Deepening the Reform of Higher Education System" issued by the State Education Commission. in that second stage, the issue of university, college students, university teacher and so on became the topic of periodical attention due to the promulgation of the higher education law of the people's republic of China in 1998 and the high education reform project in the new century issued by the ministry of education in 2000. The third stage of the publication of University Education Science focuses on issues such as artificial intelligence, teaching evaluation, education evaluation and the new era, which is related to the publication of the Implementation Measures for Overall Promotion of the Construction of World First-class Universities and First-class Disciplines (Provisional), the Opinions on Deepening the Teaching Reform of Undergraduate Education and Improving the Quality of Talent Cultivation in an All-round Way, and the Action Plan of Artificial Intelligence Innovation in Institutions of Higher Learning and other relevant policy documents. The subject change of the publication of University Education Science is related to the concentration of China’s higher education policy documents.reflect the idea of running a journal with the times.

CONCLUSION

By using the visualization software of citespcae, the paper analyzes the annual number of articles, research institutions, authors and high-level cited articles of the journals from 1994 to 2024.Objective quantitative analysis, and draw key word co-occurrence, key word clustering knowledge atlas. In the course of its development, periodicals have gradually formed their own contribution organizations, the development of periodicals pay attention to the change from the concept of quantity to quality, and the topic selection of periodicals pays close attention to the reform of higher education.

In recent years, the development trend of China's university education research shows the phenomenon of interdisciplinary, internationalization and practicalization. Interdisciplinary research helps to build bridges between different disciplines, promote knowledge exchange and fusion, and provide a broader perspective for university education research. The continuous promotion of international cooperation and exchange has brought China's university education research into line with the world, introduced foreign advanced ideas and practical experience, and provided new ideas and enlightenment for China's university education reform. The application of the practical research method makes the research closer to the practical problem, and has more operability and implementation, which is helpful for the research results to serve the educational practice better. Under the guidance of high-quality development and first-class journal, University Education Science, as an academic journal in the field of higher education in China, should continue to promote the frontiers of academic research, encourage scholars to carry out deeper and more extensive research, and make greater contribution to the sustainable development and quality improvement of Chinese university education. Through continuous exploration and innovation, China's university education research will continue to cultivate high-quality talents and promote the development of education.

ACKNOWLEDGEMENTS

This work was supported by the 2024 the Ministry of Education's Industry-University Cooperation Coordinated Talent Cultivation Project "Construction and Practice of Teaching Content the Course 'Educational Research Methods' Oriented towards Comprehensive Literacy" (project number: 2408030616), In 2024, Guangxi Philosophy and Social Science Planning research project "Research on the Ethical Risk and Prevention of the Application of Artificial Intelligence in Public Health".

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