Comparative Analysis of Domestic and International College Teacher Evaluations Based on Literature Knowledge Map Analysis

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Abstracts

Utilizing CNKI and Web of Science databases, this study nalyzes research papers on higher education teacher evaluation published over the past 20-30 years, focusing on "college teachers" and "teacher evaluation" as keywords and employing CiteSpace software to generate knowledge maps of the literature. The analysis reveals that research in China on "college teacher evaluation" is multidimensional. A omparative study between domestic and international research indicates that Chinese research primarily concentrates on the construction and refinement of evaluation systems, whereas international studies tend to focus more on the professional development and psychological well-being of teachers, along with the psychometric properties of evaluation. A global omparison shows significant variations in academic output across different countries in the field of "college teacher evaluation," with the United States leading, followed by Turkey and China. These disparities may stem from differences in each country's educational policies, research funding allocation, academic traditions, and quality assurance mechanisms in education. Overall, this paper provides a comprehensive analysis and valuable perspective in the field of "college teacher evaluation."

Introduction

In today's society, higher education is undergoing unprecedented changes. The trends of globalization and marketization are reshaping the landscape of the educational field, bringing diversified educational needs and new educational models (Harjanto et al., 2022). With the increase in cross-border educational exchange programs and the number of international students, higher education institutions are increasingly facing global competition and international assessment standards (Tran et al., 2023). This trend compels universities and colleges to continuously improve their teaching quality and research levels to attract excellent teachers and students, and to enhance their position and reputation in the global education market.

The development of teacher evaluation models is closely related to the evolution of educational concepts. From the initial focus on single-dimensional teaching quality evaluation to the current emphasis on multidimensional values and comprehensive development, teacher evaluation models are continuously progressing and improving. Internationally, teacher evaluations have expanded from purely classroom teaching assessments to encompass multiple dimensions, including research, community service, and professional development. For example, some countries in the United States and Europe have already begun to adopt student learning outcome-centered teacher evaluation models, emphasizing that the ultimate goal of teaching is to enhance students' learning outcomes.

Therefore, researching the differences in college teacher evaluations between China and other countries, and using this as a reference direction, has become an essential path. This study explores the comparative evaluation of college teachers in China and abroad through the method of literature knowledge mapping.

Literature Review

The knowledge map is a graphical analysis method that visualizes the development process and structural relationships of knowledge in a specific academic field through data mining, information analysis, scientometrics, and graphic drawing. It possesses the dual characteristics of a "map" and a "spectrum," capable of displaying both visual knowledge graphs and serialized knowledge genealogies. This research method, developed by the American scholar Chaomei Chen, has been widely applied in various fields of study in China after its introduction. For example, by analyzing literature on teacher professional development, one can identify the hotspots in this research area; similarly, an analysis of teacher education literature can reveal future trends in teacher education research, and so on. This paper focuses on documents published in CNKI from 2009 to 2018, using "excellent teacher" as the keyword. It employs the CiteSpace literature knowledge map method to organize and analyze the Chinese literature on "excellent teacher," summarizing the characteristics and trends of research on this topic over these ten years.

Domestic "College Teacher Evaluation" Literature Study

This study searched the CNKI database for literature with "college teacher" & "teacher evaluation" as keywords, using selection criteria such as citations >10, inclusion in the Beilstein database with citations >5, and doctoral dissertations, resulting in 1291 documents. The CiteSpace literature knowledge map method (Chen Yue, 2015) was used to analyze and organize the literature on "college teacher evaluation" in China, covering publications from 1986 to 2023. The annual volume of publications is shown in Figure 1.

Figure 1: Annual Publication Volume Statistics for "College Teacher Evaluation"
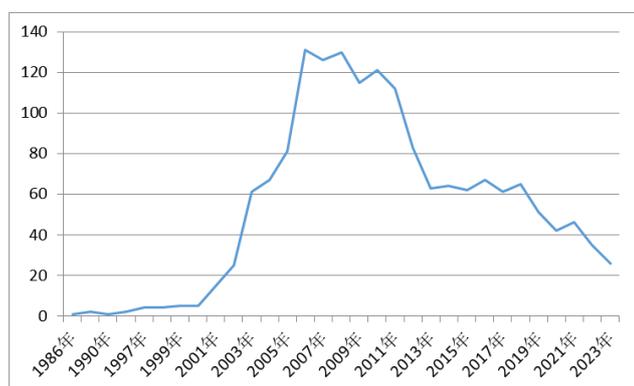

According to the statistical data, from 1986 to 2002, research on "college teacher evaluation" in China was relatively scarce, marking the nascent stage of this field. In 2003, the Ministry of Education proposed positioning education as a strategic priority in modernization efforts and formulated the "2003-2007 Educational Revitalization Action Plan." This plan aimed to actively build a modern education system with Chinese characteristics, laying the

foundation for a learning society and nurturing top innovative talents. With the comprehensive implementation of this plan, many scholars focused on areas closely related to "college teacher evaluation" and actively conducted research. As a result, from 2003 to 2007, the volume of research literature on "college teacher evaluation" in China surged, reaching its peak in 2007. Between 2007 and 2011, the research remained relatively stable and moderate, with an average annual publication rate exceeding 110 papers. After 2012, the volume of related research gradually declined.

Keywords play a crucial role in academic papers, not only encapsulating and summarizing the core concepts of the research topic but also helping to define the scope and depth of the articles (Corrin et al., 2022). This study employs CiteSpace to perform a temporal map analysis of the collected keywords from the "college teacher evaluation" literature. This analysis reveals the evolutionary paths and interconnections of research keywords over different time periods, thereby tracking and predicting the dynamics and trends in "college teacher evaluation" research. The analysis is depicted in Figure 2.

Figure 2: Temporal Map Analysis of Keywords in "College Teacher Evaluation" Research
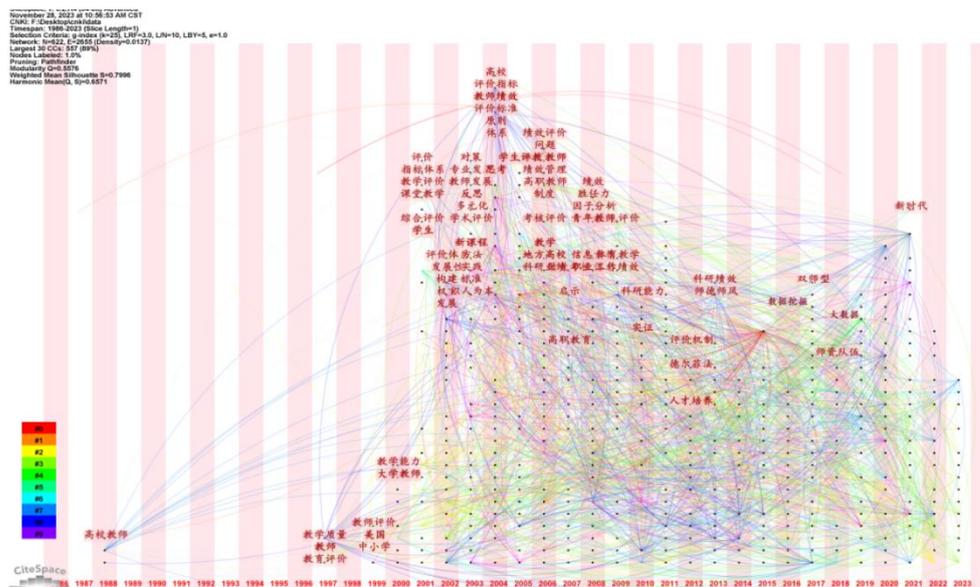
From the temporal map analysis of the keywords in "college teacher evaluation," it is evident that before 2000, research in this area primarily focused on evaluating teaching ability and teaching quality. During this period, evaluation methods were generally traditional, concentrating on assessing teachers' lecturing skills, mastery of course content, and interaction capabilities with students. These evaluation methods often relied on subjective feedback from students and peer reviews (Chen Dandan, 2021).

After 2001, with the construction of a more systematic and diversified teaching evaluation index system, research in teacher evaluation began to shift towards a more comprehensive approach. Researchers started developing a more holistic teaching evaluation index system, which not only covered traditional aspects of teaching quality but also began to include multiple dimensions such as teachers' research abilities, community service, and

contributions to students' overall development. This marked a shift from a singular focus on teaching quality to a more comprehensive understanding of the teacher's role. By 2008, a variety of new concepts and methods were introduced into teacher evaluation research, such as performance evaluation, competency assessment, factor analysis, empirical studies, the Delphi method, and evaluations of teachers' ethics and conduct. The introduction of these new concepts and methods indicated a growing emphasis on data and scientific methods in teacher evaluation research, as well as a focus on teachers' professional ethics and behavior (Zhang Run and Wang Yongbin, 2016). By 2017, big data technology and data mining began to be incorporated into research on college teacher evaluation. This transition meant that teacher evaluations started to utilize more advanced and complex data processing technologies (Huang Rongsheng and Cui, 2017), such as machine learning and artificial intelligence algorithms, to analyze extensive teacher performance data. The application of these technologies not only enhanced the accuracy and efficiency of the evaluation system but also allowed for a more objective and comprehensive reflection of teachers' multidimensional performance.

Overall, the research field of college teacher evaluation has continuously developed and evolved over time, gradually transitioning from a primary focus on teaching ability to a more comprehensive and scientific evaluation system (Wang Houxiang, 2020). With the introduction of new technologies, future teacher evaluation systems might increasingly rely on big data and intelligent analysis methods, providing more precise and effective support for the development of higher education.

Figure 3: Keyword Clustering Analysis in "College Teacher Evaluation"
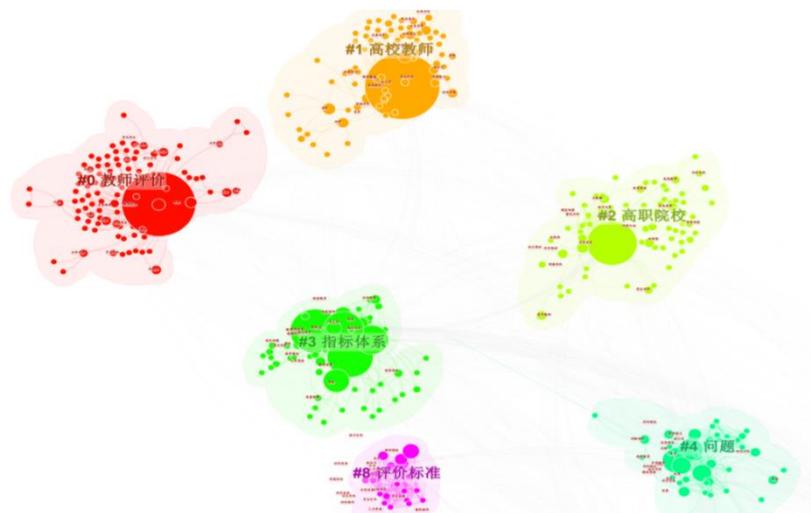
The clustering analysis of keywords related to "college teacher evaluation" in research literature revealed that studies mainly focus on eight themes: "teacher evaluation," "college teachers," "vocational colleges," "index systems," "issues," "information technology," "developmental aspects," and "evaluation standards." The diversity of these themes indicates that research in China on "college teacher evaluation" is multidimensional, involving various aspects such as setting evaluation subjects, constructing evaluation systems, identifying

evaluation issues, applying new technologies, developing evaluation mechanisms, and the outcomes of evaluation standards. This reveals that future research can continue to build upon these existing themes and delve deeper into optimizing evaluation models. For instance, future studies could explore improving the design and data analysis process of evaluation tools using big data and artificial intelligence technologies, or research how to more effectively apply evaluation feedback for teachers' professional development and teaching reforms.

A statistical analysis from 1986 to 2023 found that the highest frequency of keywords in the literature on outstanding teachers in China was 313, with the lowest frequency for high-frequency keywords set at 15, resulting in 14 high-frequency keywords, as shown in Table 1.

Table 1: Frequency Statistics of Keywords in "College Teacher Evaluation" Research in China, 1986-2023

Keyword	Frequency	Keyword	Frequency
College Teachers	313	Teaching Evaluation	44
Teacher Evaluation	306	Evaluation Indicators	28
Performance Evaluation	143	Performance Assessment	26
Evaluation System	142	Professional Development	23
Teaching Quality	116	Issues	21
Vocational Colleges	94	Performance Management	19
Index System	59	Teacher Development	16

The frequency analysis of keywords from 1986 to 2023 reveals that the most significant keyword in the "college teacher evaluation" research literature in China is "college teachers," with the highest frequency of 377. Other high-frequency keywords, in order of frequency, are "teacher evaluation," "performance evaluation," "evaluation system," "teaching quality," "vocational colleges," "index system," and "teaching evaluation."

Combining the temporal map analysis of keywords, the clustering analysis of keywords, and the frequency statistics table in the "college teacher evaluation" research, it is evident that there is a high degree of relevance and close connection between these keywords.

To further explore the overall trends in the research of "college teacher evaluation" and to effectively grasp its developmental characteristics, the collected keywords from "college teacher evaluation" literature were subjected to a "burst" analysis using CiteSpace.

Table 2: Burst Analysis of Keywords in "College Teacher Evaluation" Literature

Keywords	Year	Strength	Begin	End	1900 - 2023
Teacher	1997	4.08	2002	2005	
Teacher Evaluation	1999	13.4	2003	2005	
Developmental Aspects	2002	4.1	2002	2006	
Teacher Performance	2004	3.95	2004	2010	
Evaluation Indicators	2004	4.02	2014	2021	
Performance Evaluation	2006	5.07	2010	2012	
Higher Education Institutions	2007	4.45	2007	2008	
Vocational Colleges	2007	14.07	2017	2023	

By analyzing the changes in the burst keywords related to "college teacher evaluation," we can understand the updates in research themes, hotspots, trends, and directions within "college teacher evaluation" during specific time periods. Statistical analysis reveals that from 1986 to 2023, the burst keywords in the literature on "college teacher evaluation" in China primarily include "teacher," "teacher evaluation," "developmental aspects," "teacher performance," "evaluation indicators," "performance evaluation," "higher education institutions," and "vocational colleges." The evolution of these keywords reflects a transition from initial general evaluations of teachers and developmental evaluations to performance evaluations, culminating in the establishment of a model for evaluation indicators.

Table 3: Statistical Table of Researchers in "College Teacher Evaluation" Studies

Author	Frequency	Author	Frequency
Wang Binhua	8	Gu Cheng	4
Zhou Jingkun	6	Liu Yao	4
Li Chong	5	Liu Zhijun	4
Wang Guangyan	5	Shi Xiaoyan	4
Wang Jingying	5	Xu Min	4
Xiong Lan	5	Zhang Hongxia	4
Zhang Li	5		

The statistical collection of literature involved 2548 authors, among whom Wang Binhua, Zhou Jingkun, Li Chong, and Wang Guangyan were more active in research.

International "College Teacher Evaluation" Literature Study

For this research, Web of Science was searched for literature using "Teacher Evaluation" & "College Teachers" as keywords. Selection criteria included the database being SCI, the time span from 2001 to 2023, citations over 15, and the language being English, resulting in 1062 documents. The CiteSpace literature knowledge map method was employed to analyze and organize the literature related to "Teacher Evaluation" & "College Teachers," with the annual volume of publications shown in Figure 4.

Figure 4: Annual Publication Volume of "College Teacher Evaluation" Internationally
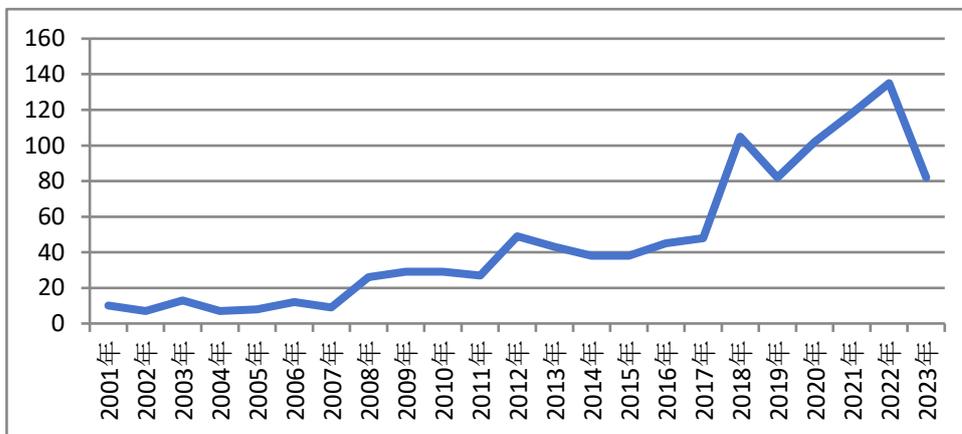
From the data statistics, between 2001 and 2017, international research on "college teacher evaluation" was relatively sparse. It wasn't until 2018 that the number of international research papers on "college teacher evaluation" began to rapidly increase, maintaining a high publication rate since then, with an average of over 100 papers published annually.

This study employs CiteSpace to conduct a temporal map analysis of the keywords collected from SCI in the "college teacher evaluation" literature, revealing the evolution of research themes, hotspots, and trends in different time periods, as shown in Figure 5.

Figure 5: Temporal Map Analysis of Keywords in International "College Teacher Evaluation"
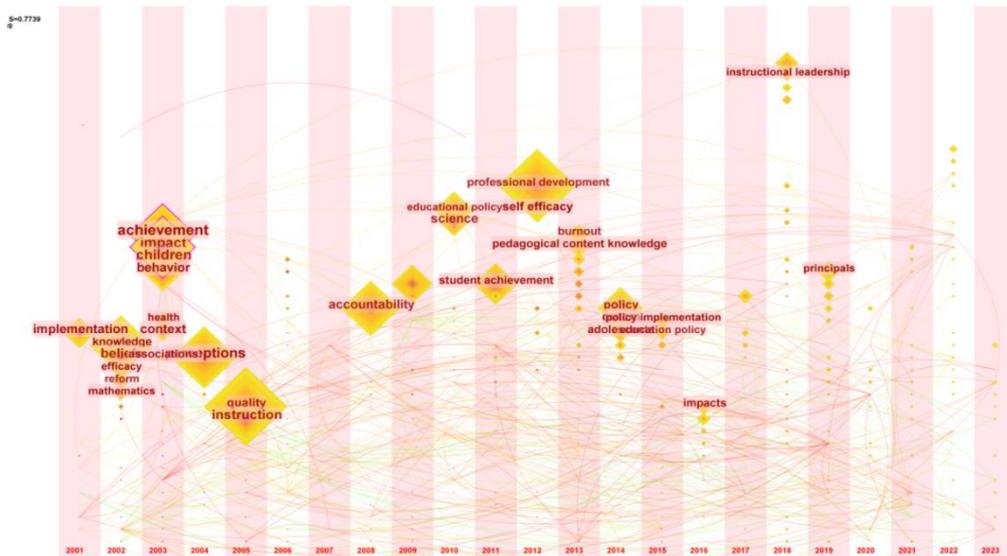
From the international temporal map analysis of "college teacher evaluation" keywords, it's observed that before 2005, research abroad had already begun exploring reforms in college teacher evaluation systems. This phase of research primarily focused on building the framework of the evaluation system, discussing how to establish a more comprehensive and fair teacher evaluation system. This included evaluating teachers' teaching, research, and community service, and considering how to balance student evaluations, peer reviews, and self-evaluations. The efforts of this period were mainly concentrated on breaking away from the limitations of traditional evaluation systems and introducing more diverse evaluation indicators and methods. By 2008, research on teacher evaluations started to place more emphasis on teaching quality. This shift reflects the higher education sector's focus on improving teaching quality. During this period, studies began to explore effective ways to assess teachers' teaching methods, classroom management skills, and interaction capabilities with students. Evaluations of teaching quality not only focused on the direct effects of classroom teaching but also included assessments of the impact on student learning outcomes. In 2010, research on college teacher evaluation started to focus more on policy-level issues and advocated for teachers' self-efficacy and continuous development. This period's research emphasized that teacher evaluations are not only tools for assessing current teacher performance but also means to promote professional growth and development. Enhancing teachers' self-efficacy was seen as key to improving teaching quality and fostering student learning. Hence, the evaluation system began to focus more on providing feedback and developmental opportunities for teachers, not just as a monitoring or assessment tool. In 2019, research on teacher evaluations started to focus more on educational competence. This indicates that the evaluation system not only focuses on teachers' teaching and research outcomes but also includes personal qualities and abilities such as communication skills, critical thinking, and leadership. Studies on educational competence highlight the important role of teachers in promoting the holistic development of students and their role as key participants in educational reform and innovation.

Overall, the research and development of college teacher evaluation systems reflect a deep understanding of the teacher's role and impact in the field of education and efforts to adapt to changes in the educational environment and societal needs. These changes and trends indicate that future teacher evaluation systems may place greater emphasis on the holistic development of teachers, their ability to innovate in education, and their contributions to the comprehensive growth of students.

Figure 6: Keyword Analysis of International "College Teacher Evaluation"
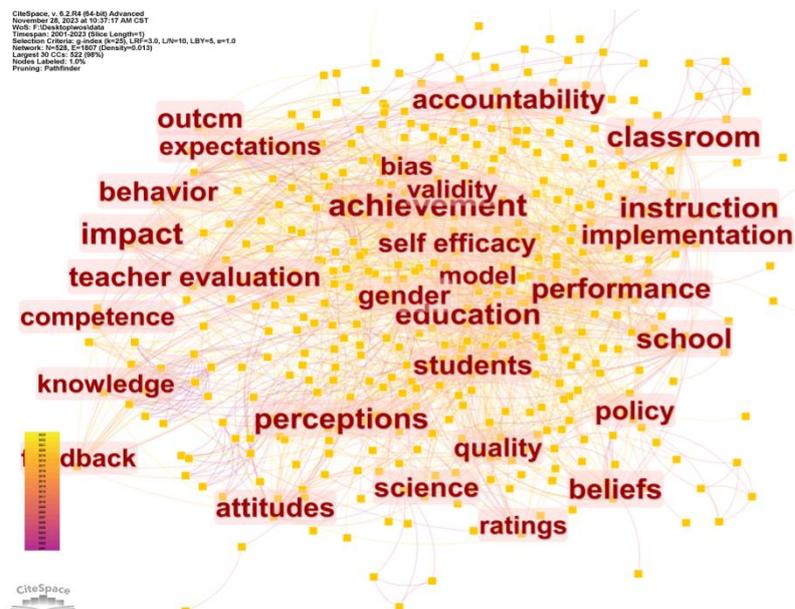
The statistical analysis of keywords in international "college teacher evaluation" shows significant differences between domestic and international research in this area. Internationally, the focus is more on aspects such as "self-efficacy," "executive ability," "capability," "quality," "behavior," and "expectations." Compared to international keywords, domestic research on "college teacher evaluation" might be more focused on building and perfecting the evaluation system, the informatization of the evaluation process, and the application and developmental orientation of evaluation results.

These differences might stem from variations in educational systems, cultural backgrounds, education policies, and societal expectations between different countries. For example, domestically, due to policy guidance and social environment influences, there is more emphasis on the construction of evaluation systems and indicators, as well as the application of information technology in evaluations. In contrast, international research might place more emphasis on the professional development of individual teachers and the quality of their teaching practices.

Figure 7: Keyword Clustering Analysis of International "College Teacher Evaluation"
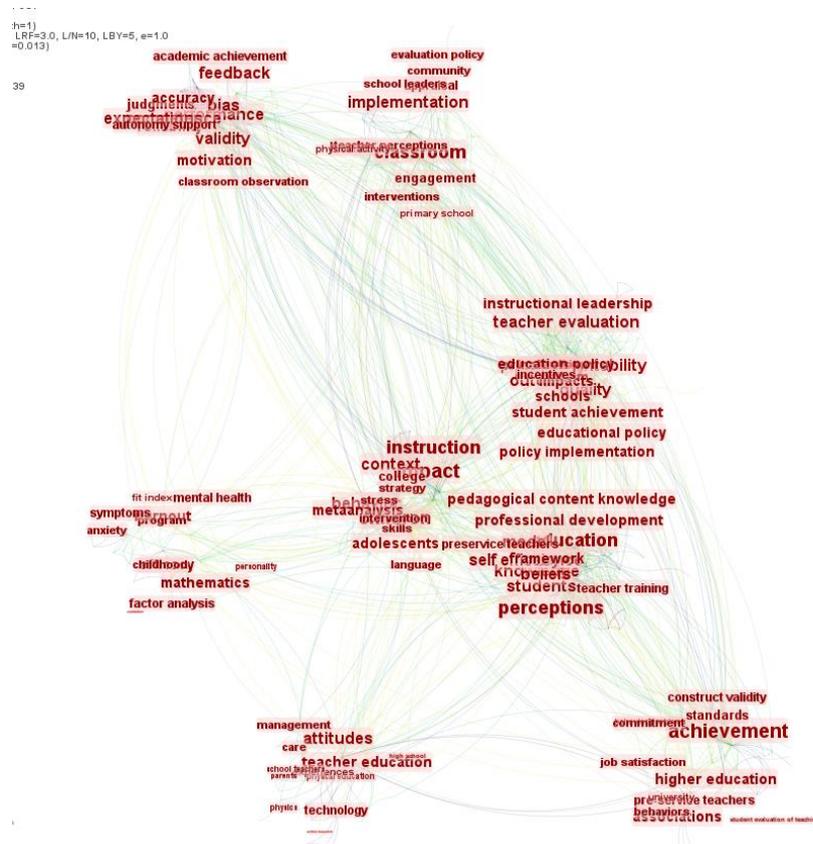
Clustering analysis of keywords in literature related to "college teacher evaluation" reveals that research mainly focuses on eight themes: "teacher training," "teacher evaluation," "behavior," "classroom," "higher education," "teacher stress," "teacher education," and "validity." Compared to Chinese studies, international research on "college teacher evaluation" tends to emphasize more on teachers' professional development and mental health, as well as the psychometric properties of evaluations. For instance, "teacher stress" indicates the international community's concern for teachers' welfare and support systems, while "validity" shows a high level of attention to the scientific nature and reliability of evaluation tools. Chinese research focuses more on the structure and technical implementation of the evaluation system, and how to apply evaluation results to teacher development and educational reform. These differences reflect the unique focus of educational evaluations in different cultural and policy environments, or due to different stages of development and priority goals of the educational systems in various countries. Chinese educational evaluation research might be more focused on perfecting the system and its efficiency, whereas international research might place more emphasis on the quality of individual teachers and teaching practices (Xia, 2023).

To further explore the trends in international "college teacher evaluation" research, CiteSpace was used to perform a burst analysis of the collected international "college teacher evaluation" literature keywords.

Table 4: Burst Analysis of Keywords in International "College Teacher Evaluation"

Keywords	Year	Strength	Begin	End	2001 - 2023
ratings	2003	4.26	2003	2011	
disorders	2007	3.8	2007	2013	
science	2010	3.23	2010	2013	
student achievement	2011	4.5	2011	2016	
evaluation scores	2011	3.64	2011	2015	
principal leadership	2013	2.94	2013	2017	
teacher training	2009	3.04	2019	2020	
education policy	2015	3.31	2020	2021	
science education	2020	3.31	2020	2021	
quality	2005	4.1	2021	2023	

Statistical analysis from 2001 to 2023 shows that the burst keywords in international research literature on "college teacher evaluation" mainly include "ratings," "disorders," "science," "student achievement," "evaluation scores," "principal leadership," "teacher training," "education policy," "science education," and "quality." These keywords represent a shift from initial general and developmental evaluations of teachers to performance evaluations, ultimately leading to the development of an evaluation indicator model (Xu Jihong, 2013). The emergence and evolution of these burst keywords reflect the international research community's new focus and research directions in teacher evaluations, as well as the evolution of evaluation standards and strategies in response to changes in the educational environment and societal demands. In comparison, Chinese research tends to focus more on constructing evaluation systems, applying information technology, and localizing evaluation indicators.

Figure 8: Author Network Map in International "College Teacher Evaluation"
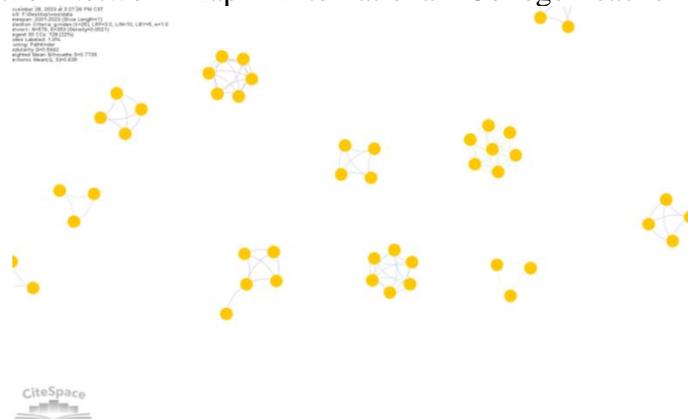
Figure 9: International "College Teacher Evaluation" Collaborating Institutions Network Map
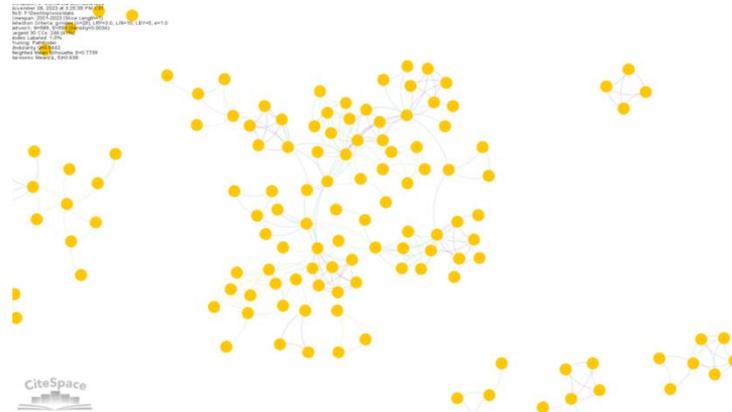

Figure 10: Collaborating Countries Network Map in "College Teacher Evaluation"
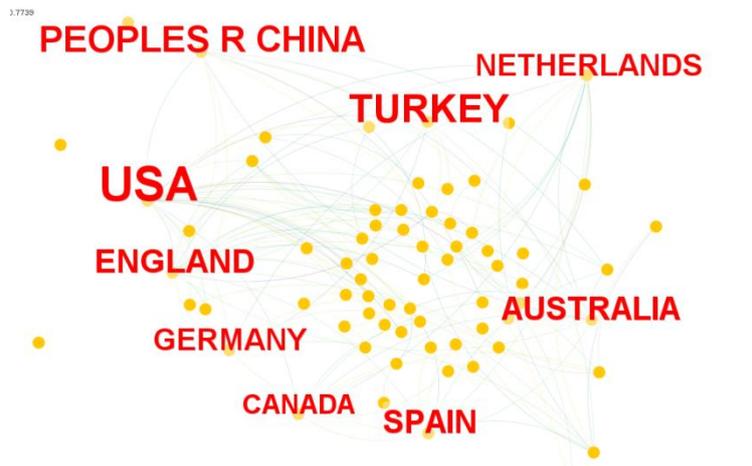

Table 5: Academic Output Statistics of "College Teacher Evaluation" by Country

Country	Frequency
USA	367
TURKEY	110
PEOPLES R CHINA	80
ENGLAND	47
SPAIN	46
AUSTRALIA	43
GERMANY	39
NETHERLANDS	36
CANADA	24
FINLAND	18

The data indicates significant differences in the academic output of various countries in the field of "college teacher evaluation." The United States leads with 367 publications, reflecting its active engagement in educational research and the maturity of its college teacher evaluation system (He & Yin, 2016). Turkey ranks second, demonstrating its emphasis and investment in higher education evaluation research. The number of studies from China indicates the importance of college teacher evaluation research, closely related to the rapid development of higher education and the focus on educational quality in recent years.

These data reflect potential differences in academic focus and research priorities in the "college teacher evaluation" field across countries. These differences could be a result of varying educational policies, research funding allocations, academic traditions, and education quality assurance mechanisms in different countries. Understanding these differences is crucial for global education researchers, as it helps in exchanging best practices, fostering international cooperation, and collectively enhancing educational quality.

Conclusion and Recommendations

This paper provides an in-depth analysis of the field of "college teacher evaluation" both in China and internationally from multiple perspectives. The main contents include:

Literature Statistics and Trend Analysis: The study used CNKI data to analyze related literature on "college teacher evaluation" from 1986 to 2023. These documents show a rapid increase in related research publications since 2003, when the Ministry of Education prioritized education in the national development strategy, particularly peaking in 2007. Subsequently, research has tended towards stability, with an average of over 110 papers published each year.

Keyword Temporal Mapping and Clustering Analysis: Using CiteSpace, the collected literature underwent keyword temporal mapping analysis, revealing the evolutionary path and interconnectivity of research keywords. The analysis indicated that research before 2000 focused on teachers' teaching abilities and quality evaluation, shifting towards a diversified teaching evaluation index system after 2001 (Zhou , 2017). Keyword clustering analysis showed that research primarily focuses on eight themes, demonstrating the multidimensional nature of China's research in "college teacher evaluation."

Comparison of Domestic and International Research: The analysis found significant differences in the keywords of "college teacher evaluation" research between China and other countries. Chinese research is more focused on building and perfecting evaluation systems, and the application and development-oriented outcomes of evaluations. In contrast, international research tends to focus more on teachers' professional development and mental health, as well as the psychometric properties of evaluations.

International Comparison of "College Teacher Evaluation" Research: The data show significant disparities in academic output in the field of "college teacher evaluation" among different countries, with the United States leading, followed by Turkey and China. These differences may be due to variations in educational policies, research funding allocations, academic traditions, and quality assurance mechanisms in different countries (Mohamed et al., 2007).

In summary, this paper comprehensively analyzes the research dynamics, trends, themes, and differences in the field of "college teacher evaluation" both domestically and internationally, providing valuable perspectives and references for this area of study.

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