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The Academic Construction of Policy Discourse: Guided by the Spirit of Educators The Evolution of Research Focuses and the Knowledge Landscape in the Development of the Physical Education Teaching Workforce

-- A Mixed Bibliometric Analysis Using CiteSpace, VOSviewer and Biblioshiny

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Abstract

This study utilised literature indexed in CNKI, Wanfang and VIP from 2023 to 2026 (up to 31 August 2026) as its sample. Following screening, a total of 139 papers were ultimately included. A mixed bibliometric analysis was conducted using CiteSpace, VOSviewer and Biblioshiny, with the aim of systematically revealing the knowledge structure and evolutionary trajectory of research on the development of the physical education teaching workforce guided by the spirit of educators. The findings reveal that: (1) the volume of publications exhibits a pattern of 'initial phase—growth—boom—decline', corresponding to three stages: policy input and initial formulation of the research agenda (2023-2024), policy convergence and system construction (2025), and cyclical adjustment and in-depth expansion (2026); (2) Publications were highly concentrated in practice-oriented journals, with *Chinese School Physical Education* and *Physical Education Teaching* leading the field, whilst participation from theoretical core journals was relatively low; (3) Research output exhibited a pattern of 'one dominant player with multiple strong contenders and a long tail', but the density of the institutional collaboration network was as low as 0.004; according to Price's Law, the threshold for core authors is approximately two papers, with only four individuals meeting this criterion, indicating that a core author group has yet to form; (4) Keywords form a knowledge structure centred on the dual core of 'the spirit of educators' and 'physical education teachers', extending into specialised domains such as rural education and physical education in higher vocational education; (5) Research themes have undergone an evolutionary process, progressing from the initial emergence of policy concepts (2023), through the shift towards practical issues (2024), to the current emphasis on 'spiritual guidance' (2025–2026). The keyword 'spiritual guidance' exhibits the highest burst strength (2.92) and persists into 2026, becoming the most central frontier issue at present, whilst trend topic data indicate that 'university physical education teachers' and 'high-quality development' are gaining momentum as emerging directions. Overall, research in this field has preliminarily achieved a transition from policy discourse to academic discourse, yet it remains in a phase of fragmented exploration characterised by loose institutional collaboration, a lack of core authors, and insufficient participation by theoretical journals.

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Keywords

The spirit of the educator; development of the physical education teaching workforce; bibliometrics; knowledge graphs; visualisation analysis.

1. Introduction

In September 2023, General Secretary Xi Jinping wrote to representatives of outstanding teachers nationwide, systematically expounding for the first time on the six dimensions of the spirit of educators. In August 2024, the Central Committee of the Communist Party of China and the State Council issued the 'Opinions on Upholding the Spirit of Educators and Strengthening the Development of a High-Quality, Professional Teaching Workforce in the New Era', clearly emphasising the need to strengthen the guiding role of the spirit of educators. In January 2025, the Ministry of Education issued the first specialised document on the development of the physical education teaching workforce, requiring the spirit of educators to be integrated into the entire process of training and professional development. Driven by this series of policies, the topic rapidly became a focal point of academic attention. However, existing research predominantly employs theoretical exposition and logical analysis, whilst econometric analysis based on large-scale literature data remains insufficient; furthermore, the combined use of the three tools—CiteSpace, VOSviewer and Biblioshiny—has rarely been applied in this interdisciplinary field. This study utilises the aforementioned bibliometric tools to conduct a mixed-methods analysis of 139 relevant articles indexed in CNKI, Wanfang and VIP from 2023 to 2026, aiming to address the following questions: the characteristics of annual publication and journal distribution; the research force hierarchy and regional distribution; keyword co-occurrence and clustering structures; and the evolution of research hotspots and cutting-edge directions. The innovation lies in the following: methodologically, this is the first time these three tools have been used in combination in this field, facilitating a shift from theoretical speculation to a data-driven approach; in terms of content, it systematically reveals a three-tiered progressive pathway of 'policy concepts—practical issues—ideological guidance', providing empirical evidence for the organisation of knowledge and structural differentiation within this field.

2. Research Methods

The Bibliometrix R package provides a range of tools for quantitative research. It has been developed using the R programming language within the open-source platform and ecosystem. The most notable features of this software are its powerful statistical analysis capabilities, efficient numerical computation, and excellent data visualisation functions. Bibliometrix is an open-source tool specifically designed for quantitative research in the fields of scientometrics and bibliometrics, capable of supporting a variety of bibliometric analysis methods (Aria and Cuccurull, 2017).

CiteSpace is a free Java application developed using bibliometric and knowledge visualisation technologies (Chen, 2016). This tool can map the development trajectories of various scientific and technological fields, illustrating the overall landscape of scientific knowledge, whilst also identifying significant research outputs, popular research topics and innovative directions within a given discipline (Chen, 2006).

VOSviewer is a free software programme used to generate and view bibliometric maps. Using this software, users can create charts relating to authors or journals based on co-citation data, or generate corresponding charts based on the co-occurrence of keywords. It offers a wealth of visualisation features, enabling users to examine various bibliometric charts in detail.

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VOSviewer provides multiple charting methods, each of which highlights different characteristics within the charts (Van Eck and Waltman, 2010).

These three software programmes each have their own functional specialisations (Pan et al., 2018). In this study, we utilised Biblioshiny, CiteSpace and VOSviewer to analyse relevant literature retrieved from the CNKI, Wanfang and VIP databases between 2023 (the year the concept of 'the spirit of the educator' was first proposed) and 2026. The search criteria used were: TS = (the spirit of the educator) AND (physical education teachers).

3. Data Processing

3.1. Data Standardisation

A total of 161 relevant articles were obtained through systematic searching. These were exported from the CNKI, Wanfang and VIP databases in NoteExpress format. In accordance with pre-defined exclusion criteria, conference papers, newspaper articles and duplicate publications were removed. Subsequently, NoteExpress software was utilised to deduplicate the remaining literature, thereby ensuring standardised management of the articles. Following screening and review, 139 eligible papers were ultimately identified based on the inclusion and exclusion criteria.

3.2. Data Analysis

This study utilised a variety of software programmes for bibliometric and visualisation analyses. Excel (version 16.67) was used to calculate the annual number of publications. RStudio (version R-4.2.2) and its Bibliometrix plug-in were employed to conduct visualisation analyses of indicators such as journals and high-frequency keywords. CiteSpace (version 6.1.R3) was used to generate keyword co-occurrence maps, timeline diagrams, temporal distribution charts and co-citation networks. VOSviewer was utilised to create keyword co-occurrence overlay views and density visualisations. All figures and tables in this paper are based on search results from the CNKI, Wanfang and VIP databases, and were generated by CiteSpace (version 6.1.R3), VOSviewer (version 1.6.18), Biblioshiny (the bibliometrix package in R, running in an R 4.2.2 environment) and Excel (version 16.67) respectively; they are not labelled individually.

During the data processing stage, synonyms are merged and keywords are standardised. The classification and clustering of various software programmes are carried out automatically using mainstream bibliometric algorithms. CiteSpace further calculates the centrality values for each keyword node; the higher the centrality, the stronger the node's connecting role within the network and the greater its research influence.

In the analysis of author influence, core authors are identified in accordance with Price's law: the minimum number of publications required for a core author is $N_{min} = 0.749\sqrt{N_{max}}$,

Here, Nmax represents the highest number of publications by a particular author. Authors whose number of publications equals or exceeds Nmin are deemed to be core authors.

Keyword clustering analysis utilises the log-likelihood ratio (LLR) algorithm to extract cluster labels; this algorithm is performed automatically by CiteSpace. The clustering results are evaluated using modularity (Q-value) and average contour width (S-value): generally, a Q-value greater than 0.3 indicates a significant clustering structure, whilst an S-value greater than 0.5 indicates that the clustering results are reasonable and reliable.

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4. Research Findings and Analysis

4.1. From Policy-Driven to Academic Initiative: The Three-Stage Evolution of Annual Publications and the Structural Dynamics of the Journal Landscape

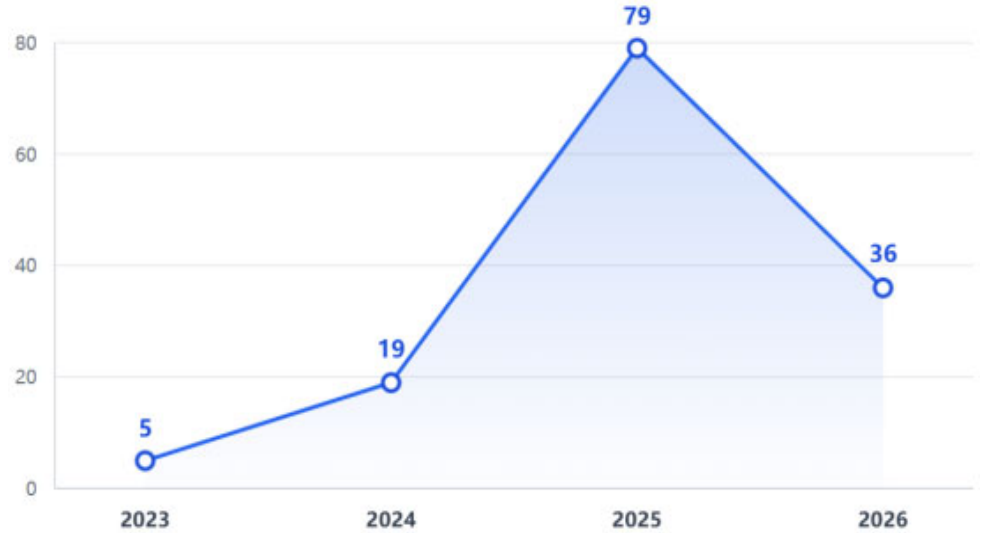


Figure 1. Trend chart showing the annual number of publications from 2023 to 2026

Note: Data for 2023 is calculated from the date the 'Spirit of the Educator' was first proposed; data for 2026 is based on a search conducted up to 31 August 2026.

1. Policy Input and Initial Framework Development (2023–2024)

The number of publications in 2023 totalled just five, a figure directly linked to the timing of the introduction of the 'spirit of the educator'. On 9 September 2023, in a letter addressed to representatives of the nation's outstanding teachers, General Secretary Xi Jinping systematically expounded for the first time on the six dimensions of the 'spirit of the educator', namely: the ideals and convictions of 'having a great sense of self and serving the nation with utmost sincerity'; the moral character of 'setting an example through words and conduct'; the pedagogical wisdom of 'enlightening minds and nurturing hearts, and teaching according to individual aptitude'; the dedicated attitude of 'diligent study, steadfast practice, seeking truth and innovation'; the benevolent spirit of 'taking joy in teaching, loving pupils, and being willing to make sacrifices'; and the pursuit of 'embracing the world and cultivating people through culture'. The letter was released by Xinhua News Agency the following day, and the full text was published on the front page of the *People's Daily* on the same day. As the proposal was put forward at the end of the third quarter of that year, the academic community had less than a quarter to respond; most of the resulting work consisted of articles offering policy interpretations and theoretical deliberations. Researchers primarily focused their discussions on the connotations, value and significance of the spirit of the educator, and no systematic research agenda had yet been established. Consequently, the output of only five articles for the entire year reflected that this field was still in a 'policy discourse' phase at this stage, with academic productivity not yet fully stimulated.

In 2024, the number of publications rose to 19, showing a marked upward trend, driven directly by the issuance of policy documents at the central level. On 6 August 2024, the Central Committee of the Communist Party of China and the State Council issued the 'Opinions on Promoting the Spirit of Educators and Strengthening the Development of a High-Quality, Professional Teaching Workforce in the New Era', which explicitly stated that 'strengthening the development of the teaching workforce must be treated as the most important foundational

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task in building a country strong in education, and the guiding role of the spirit of educators must be reinforced', and established 'cultivating the spirit of educators to strengthen the teaching workforce' as the core principle for the development of the teaching workforce. Wang Jiayi, Vice-Minister of Education, described the document as a "programmatic document for strengthening education and the teaching profession on the new journey of the new era". The document sets out comprehensive and systematic arrangements covering aspects such as "overall requirements", "strengthening the ideological and political development of the teaching workforce" and "cultivating noble professional ethics and conduct", thereby providing the academic community with a clear research framework and policy basis.

Against this backdrop, as the development of the physical education teaching workforce—a vital component of the broader teaching workforce—received increasing policy support, academic attention to this specific group grew significantly, driving the publication volume upward.

2. Policy Convergence and System Construction (2025)

In 2025, the number of publications reached 79, marking the peak of research in this field; this surge was primarily driven by three factors. Firstly, in January 2025, the Central Committee of the Communist Party of China and the State Council issued the 'Outline of the Plan for Building a Powerhouse in Education (2024–2035)', which set out comprehensive and systematic arrangements towards the goal of establishing a powerhouse in education by 2035, positioning the development of the teaching workforce as a foundational element in this endeavour. Secondly, on 17 January 2025, the Ministry of Education issued the 'Notice on Several Measures to Strengthen the Development of the Primary and Secondary School Physical Education Teaching Workforce in the New Era'. This was the first ministerial-level document specifically addressing the development of the physical education teaching workforce; it explicitly required that 'the spirit of educationalists and the spirit of Chinese sport be integrated into the entire process of physical education teacher training and development', and set the goal of 'cultivating a high-calibre, professional physical education teaching workforce for the new era' by 2035. This document directly addresses the core question of 'how the spirit of the educator can specifically guide the development of the physical education teaching workforce', providing academic research with clear policy focal points and a framework for research topics. Thirdly, around 2025, a series of academic seminars centred on the spirit of the educator were held, whilst academic platforms such as the National Conference on Sports Science also produced a wealth of relevant research findings. It is evident that the high volume of publications in 2025 was not only a concentrated manifestation of the combined effects of the strategic deployment of the 'Education Powerhouse' initiative and specialised policies for physical education teachers, but also a 'synergistic effect' arising from the formation of the academic community.

3. Cyclical Adjustments and In-Depth Expansion (2026)

The number of publications in 2026 fell to 36, primarily due to the data collection cycle. It should be noted that these figures only cover the period up to 31 August 2026; approximately one quarter's worth of literature has not yet been included in the statistics. Furthermore, the explosive growth observed in 2025 exhibited certain characteristics of 'concentrated publication'; some research findings were published in the year that saw the release of the Outline for Building a Powerhouse in Education and the special document on physical education teachers, which objectively depleted the stock of research output available for subsequent years. This also constitutes a key factor behind the decline in publication volume.

Overall, the trajectory of publication volumes in this field from 2023 to 2026 essentially reflects the process by which the 'spirit of the educator' has evolved from policy discourse into an academic topic. The low publication volume in 2023 corresponded to the initial dissemination of policy discourse following General Secretary Xi Jinping's letter; the increase in 2024

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corresponded to the preliminary formation of academic topics following the issuance of central government documents; the surge in 2025 corresponded to the concentrated release of research enthusiasm following the combined impact of the 'Education Powerhouse' Outline and the specialised policy on physical education teachers; whilst the decline in 2026 was primarily influenced by the statistical cycle. In the future, if the field can continue to deepen its problem-consciousness, strengthen institutional collaboration and expand empirical research after the initial policy fervour has subsided, it is expected to transition from 'policy-driven growth' to 'academically endogenous growth', thereby driving an overall improvement in research quality.

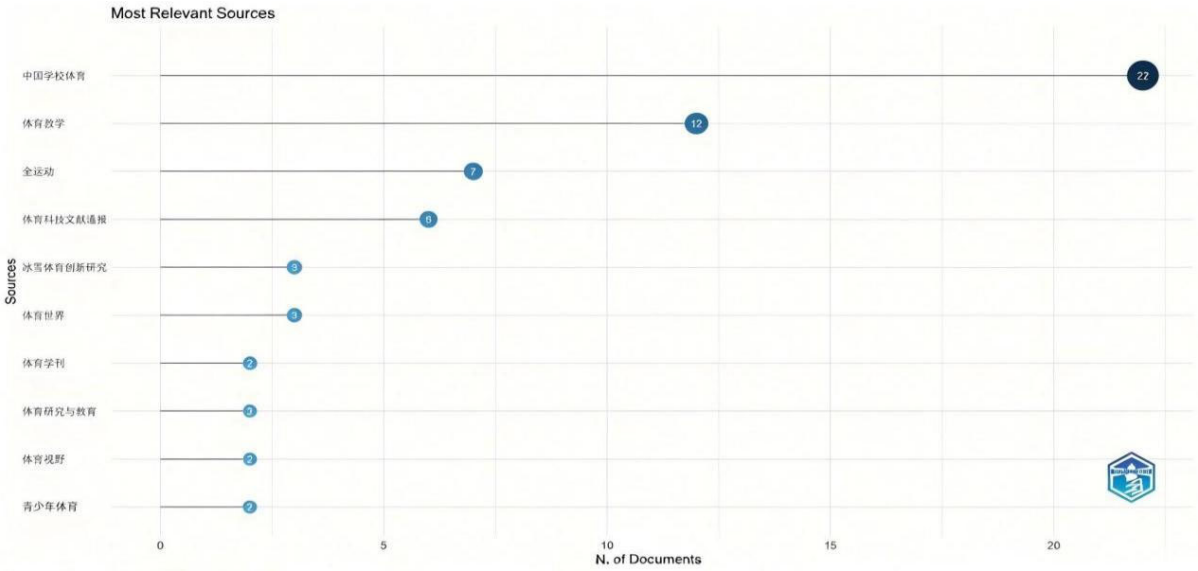


Figure 2. The top 10 journals by number of publications

In terms of the distribution of publishing journals, research outputs in this field are highly concentrated in a small number of specialist sports journals, and no group of authoritative journals with a core cohesion has yet emerged.

Firstly,*Chinese School Physical Education* ranks first with 22 publications, constituting the core publication platform for this field, with a share significantly higher than that of other journals. As a specialist journal aimed at practitioners in school physical education, its high publication volume reflects the strong connection between this topic and the practice of school physical education, and is also consistent with the practical orientation of the theme 'Guiding the Development of the Physical Education Teaching Workforce through the Spirit of Educators'.

Secondly, *Physical Education Teaching* (12 articles), *All Sports* (7 articles) and *Bulletin of Sports Science and Technology Literature* (6 articles) collectively accounted for 25 articles, forming the second tier; the remaining journals exhibited a 'long tail' distribution. This indicates that research in this field has garnered sustained attention from mainstream journals specialising in physical education.

Thirdly, the number of articles published in the remaining journals was relatively scattered. *Innovative Research in Winter Sports* and *Sports World* each published three articles; *Journal of Physical Education*, *Sports Horizon* and *Youth Sports* each published two; whilst *Sports Research and Education* published only one, presenting a distinct 'long-tail' distribution. On the one hand, this indicates that the research topics cover a broad spectrum and publication channels are diverse; on the other hand, it also suggests that the field still lacks a stable, focused cluster of high-calibre authoritative journals, with the majority of research outputs scattered across various sports-related journals.

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Overall, publications in this field are predominantly concentrated in journals focusing on frontline teaching practice (such as *Chinese School Physical Education* and *Physical Education Teaching*), whilst the number of articles in theoretical core journals such as *Journal of Physical Education* remains relatively low. This reflects that current research is still predominantly practice-oriented and policy-responsive, with a relative shortage of high-level theoretical constructs and systematic academic discourse; the hierarchical structure of the journal ecosystem therefore requires further optimisation.

4.2. From Isolated Dispersion to Structural Imbalance: A Study of the Tiered Differentiation of Research Capacities, Regional Imbalances and the Lack of Collaboration



Figure 3. Network diagram of institutional collaborations

In terms of institutional collaboration networks, cooperation in this field is extremely sparse. The CiteSpace institutional collaboration network map shows that the network comprises a total of 71 nodes and 10 links, with a network density as low as 0.004; the vast majority of institutions publish independently, and there is a severe lack of cross-institutional and cross-regional collaboration. The few collaborative relationships are concentrated within a small number of local clusters: Shandong University, Henan University and Zhengzhou University form a relatively close collaborative triangle, whilst Northeast Normal University, North China University of Water Resources and Hydropower, and Zhengzhou University constitute another local cluster. There are also a small number of pairwise connections, such as between the Capital Institute of Physical Education and Tianjin Vocational College of Physical Education, and between Guangdong Second Normal University and Lingnan Normal University. Zhengzhou University appears in both collaborative clusters and thus plays a certain hub role within the network. This collaborative landscape indicates that, although research in this field has reached

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a scale involving multiple institutions, a stable mechanism for collaborative innovation has not yet been established between them; 'scattered, single-point' distribution remains the primary characteristic of the current distribution of research capacity.

4.3. From Individual Exploration to a Lack of Collaboration: Structural Deficiencies and a Fragmented Landscape within the Core Group of Authors

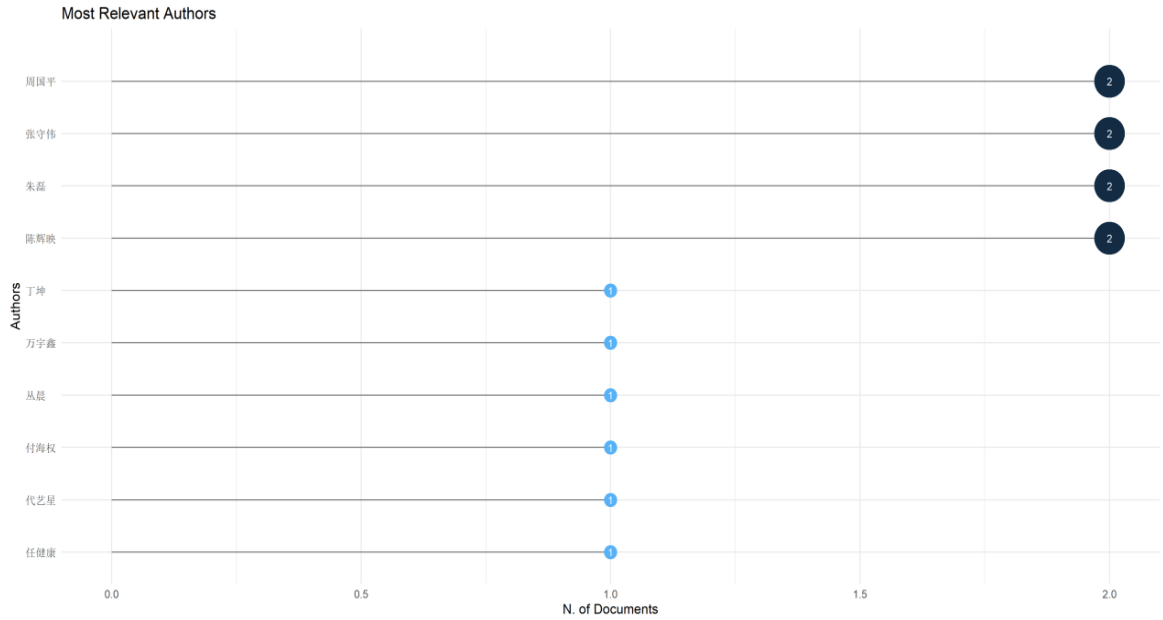


Figure 4. Bar chart showing the top ten authors by number of publications

Based on Price's Law, core authors are those who have significant influence and a prolific record of research output within a specific field [1]. The formula for the minimum number of publications required for a core author is as follows:

$$N_{min} = 0.749\sqrt{N_{max}}$$

Nmax represents the number of publications by the most prolific author in a given research field; Nmin represents the minimum publication threshold for core authors. When an author's publication count reaches or exceeds this threshold, they may be recognised as a core author. In this study, the most prolific authors in the sample had published two papers (Zhou Guoping, Zhang Shouwei, Zhu Lei and Chen Huiying). Substituting these figures into the formula yields $Nmin = 0.749 \times \sqrt{2} \approx 1.059$, which is rounded up to 2. Consequently, authors who have published two or more papers may be designated as core authors.

According to the bar chart of authors' publication output (Figure 4), the four scholars Zhou Guoping, Zhang Shouwei, Zhu Lei and Chen Huiying rank at the top with two publications each, constituting the leading group in this field. Only these four scholars meet this criterion. This indicates that a core group of authors has not yet been firmly established in this field; the leading scholars' advantage is marginal, and there is a lack of leading figures committed to sustained, in-depth research in this area.

2. Scholars such as Ding Kun, Wan Yuxin, Cong Chen, Fu Haiquan, Dai Yixing and Ren Jiankang all rank within the top ten with one publication each, forming the second tier. The data supports this: the bar chart shows that this tier constitutes the foundational force of the research, comprising mainly university lecturers, teaching and research staff, or postgraduate students. As they have published only one paper each, this suggests that most of them have engaged in

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'one-off participation' or 'superficial involvement', lacking the continuity required for long-term tracking and serialised research on this topic. This 'hit-and-run' output model further undermines the deep accumulation of knowledge within the field.

Analysing the author collaboration network clustering diagram reveals six distinct clusters (Clusters 1–6), involving numerous scholars such as Liu Di, Qu Jie, Li Jing, Li Fangfang, Guo Yanling, Zhang Jun, Wang Jing and Zhu Lei. However, the legend indicating node size based on author publication output shows that even the largest node in the network corresponds to only two publications, whilst the vast majority of nodes are extremely small. The clustering diagram reveals certain collaborative links between scholars (such as the collaboration between Zhu Baoyin and Wen Fang, and between Li Binrong and Liang Liqi), indicating that some scholars have attempted to form academic teams or teacher-student collaboration networks. However, constrained by generally low output, these collaborative groups are small in scale and lack stability, exhibiting the characteristics of an early stage: 'networks exist but high productivity is lacking; teams exist but there is a lack of accumulated achievements", and large-scale collaborative innovation networks spanning institutions and regions have yet to be established.

Current research on the role of the 'educator's spirit' in guiding the development of the physical education teaching workforce is in a phase of scattered exploration. The research talent pool exhibits the characteristics of 'a lack of sharp leadership at the top, a weak backbone in the middle, and a bloated tail'. In the future, there is an urgent need to cultivate a cohort of leading scholars capable of consistently producing high-quality research outputs, to integrate the existing six cluster teams, to break down institutional and geographical barriers, and to drive the shift in research from 'individual efforts' to 'team collaboration', thereby establishing a well-structured academic community with stable output.

4.4. From Policy Discourse to Systemic Academic Issues: The Clustering Structure and Knowledge Organisation of Keyword Co-occurrence Networks



Figure 5. Co-occurrence network of keywords

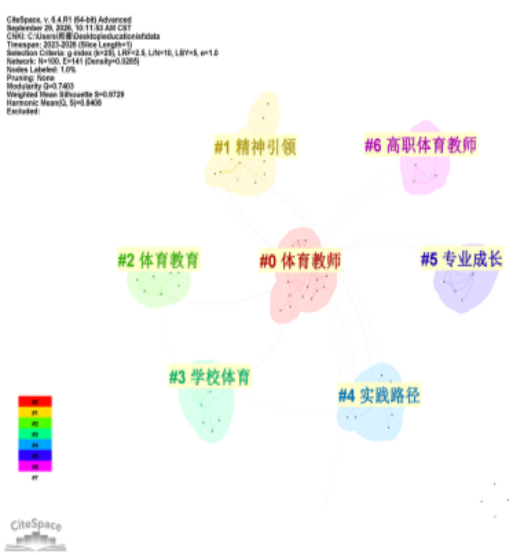


Figure 6. Keyword clustering map

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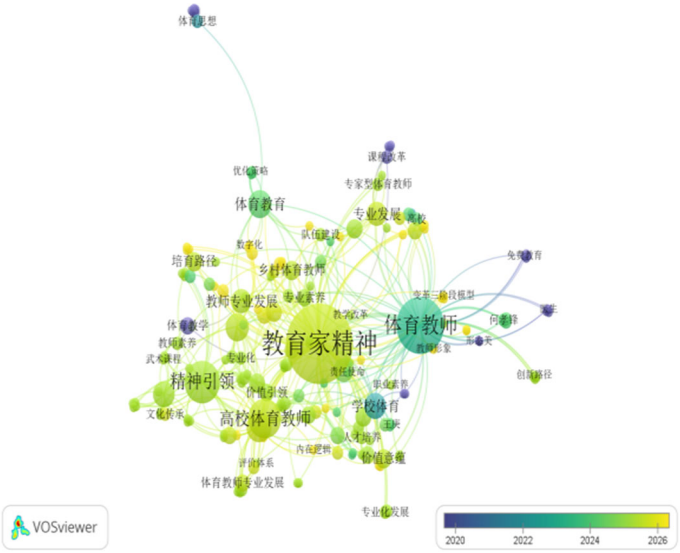


Figure 7. Visualisation of keyword co-occurrence overlays

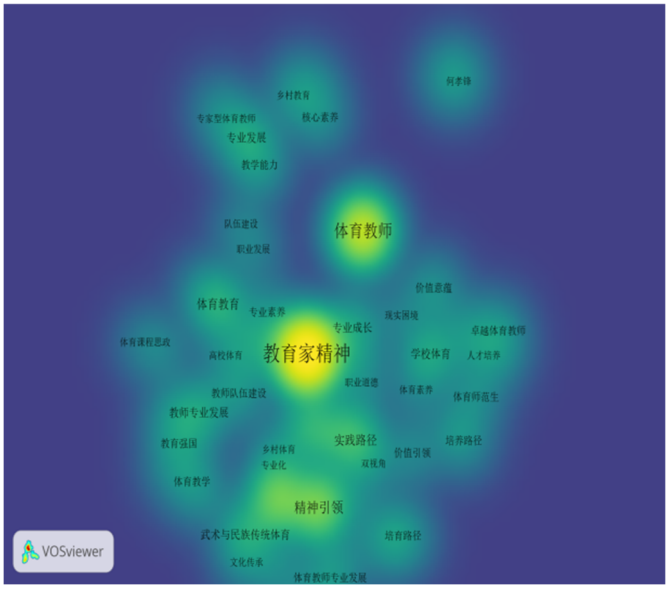


Figure 8. Visualisation of keyword density

Combining the keyword co-occurrence analysis from CiteSpace with the keyword density analysis from VOSviewer , it can be seen that the network in this field centres on 'physical education teachers' as a hub, directly connecting to thematic terms such as 'physical education', 'school physical education', 'core competencies', 'professional development', 'spiritual guidance', 'value-based guidance', 'rural education' and 'home-school collaboration', thereby forming a hub-and-spoke structure. The most prominent dual-core bright spot in Figure 8 is surrounded by nodes such as "professional growth", "practical pathways", "core competencies", "team building", "spiritual guidance" and "cultural heritage", clearly indicating that research in this field is organised around the central theme of "the spirit of educationalists guiding the development of physical education teachers". In terms of overall parameters, the network comprises 100 nodes and 141 links, with a network density of 0.0285 and the largest connected component accounting for 78 per cent, indicating a relatively close association between research themes.

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Table 1. Three-line table for keyword cluster analysis

Cluster number	Number of nodes	Contour factor	Averag e year	Core Vocabulary (LSI)	Key terms (log-likelihood, p-value)	Associated terms (mutual information)
0	21	1	2025	(10.78) Professional development; (10.78) Core Competencies	PE teacher (13.13, 0.001); Professional Development	Values and beliefs (0.77); Teacher professionalism (0.77);
1	13	0.939	2025	(14.95) Spiritual guidance; (8.34) PE teacher.	Spiritual Guidance (15.92, 1.0E-4); Physical Education	Diversity and Inclusion (0.8); Teacher Training Colleges (0.8);
2	10	0.992	2024	(6.34) Physical education; (4.17) Rural primary schools; .	Physical Education (11.16, 0.001); Rural primary schools.	Rural primary schools (0.11); Physical education philosophy (0.11);
3	9	0.983	2024	(10.78) School sport; (4.17) Programme development.	School Sport (14.04, 0.001); Programme Development	Programme Development (0.21); Community Sport (0.21);
4	8	0.9	2025	(8.34) Practical pathways; (8.34) University sport.	Practical Pathways (9.53, 0.005); University Sport	Professional ethics (0.19); Professional competence (0.19);
5	7	0.972	2023	(8.34) Professional development; (4.17) Higher education institutions; .	Professional Development (11.7, 0.001); Higher Education Institutions	Higher education institutions (0.1); Passion for education (0.1);
6	6	0.986	2024	(4.17) Vocational college physical education teacher; (4.17) Physical education.	Vocational College PE Teachers (5.46, 0.05); Team Building	Vocational College PE Teacher (0.11); Team Development (0.11);
8	4	0.995	2025	(1) A leading sporting nation; (1) Pathways to development;	A Nation of Education (6.74, 0.01); Fundamental Characteristics (6.	A Nation of Education (0.06); Fundamental Characteristics (0.06);

The cluster analysis table and the cluster map show that the modularity Q-value is 0.7403 (far exceeding the structural significance threshold of $Q > 0.3$), an S-value of 0.9729 (well above the threshold of $S > 0.7$), and silhouette coefficients for each cluster ranging between 0.900 and 1.000, demonstrating that the keyword clustering structure in this field is highly significant, exhibits strong internal consistency, and is of high quality. A total of eight major clusters were identified in the diagram, with the following specific distribution:

#0 Physical Education Teachers (21 nodes, Silhouette=1, 2025): The core terms are 'professional development' and 'core competencies', constituting the largest thematic cluster.

#1 Spiritual Guidance (13nodes, Silhouette=0.939,2025): The log-likelihood of the core terms reached 15.92 ($p < 1.0E-4$), highlighting the extremely high significance of 'spiritual guidance'.

#2 Physical Education (10 nodes, Silhouette = 0.992, 2024): Includes nodes such as 'rural primary schools', indicating an extension into specific contexts.

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#3 School Physical Education (9 nodes, Silhouette = 0.983, 2024): Covers 'professional development' and 'community sport'.

#4 Practical Pathways (8 nodes, Silhouette=0.9, 2025): Focuses on "university sport" and "professional ethics", with an LLR value of 9.53.

#5 Professional Development (7 nodes, Silhouette = 0.972, 2023): Includes "higher education institutions" and "passion for education"; this is an issue that took shape relatively early, with an LLR value of 11.7.

#6 Vocational College Physical Education Teachers (6 nodes, Silhouette = 0.986, 2024): Focuses on 'team building' and constitutes a sub-field.

#8 Sports Powerhouse (4nodes, Silhouette=0.995, 2025): Includes 'training pathways' and 'fundamental characteristics'; this is a peripheral topic that resonates with macro-level strategies.

Based on the analysis of keywords, the research field concerning the role of the 'spirit of the educator' in guiding the development of the physical education teaching workforce has formed a knowledge structure centred on the dual core of 'the spirit of the educator' and 'physical education teachers'. This structure is organised around competency dimensions such as 'professional development', 'core competencies' and 'teaching ability', as well as constructional dimensions such as 'practical pathways' and 'training pathways', and extends into specific contexts such as rural education and physical education teachers in higher vocational education. Cluster quality indicators (Q = 0.7403, S = 0.9729) indicate that the clustering results exhibit a distinct structure and strong internal consistency, with a high degree of reliability in the organisation of knowledge.This field has preliminarily completed the transition from policy discourse to systematic academic discourse in terms of knowledge organisation and structural differentiation.

4.5. From Core Discourse to Cutting-Edge Issues: The Structural Framework of Core Themes in High-Frequency Keywords and the Evolution of Trending Topics

Table 2. Table showing the 12 key terms that emerged as the spirit of the educator guided the development of the physical education teaching workforce from 2023 to 2026

Keywords	Year	Strength	Begin	End	2023 - 2026
Responsibility and Mission	2023	0.64	2023	2023	
The'Double Reduction'Policy	2023	0.64	2023	2023	
Original Aspiration	2023	0.64	2023	2023	
Education through Sport	2023	0.64	2023	2023	
Outstanding Teachers	2023	0.64	2023	2023	
Team Building	2024	0.55	2024	2024	
Higher education institutions	2024	0.55	2024	2024	
Career Development	2024	0.55	2024	2024	
Rural primary school	2024	0.55	2024	2024	
Training Model	2024	0.55	2024	2024	
Home-School Partnership	2024	0.55	2024	2024	
Spiritual Guidance	2025	2.92	2025	2026	

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Judging by the results of citation emergence analysis, a total of 12 keywords emerged between 2023 and 2026, exhibiting a phased and progressive pattern: the first wave of emergence in 2023 comprised five keywords—'responsibility and mission', 'the "Double Reduction" policy', 'original aspirations', 'sports-based education' and 'excellent teachers'—all with an burst strength of 0.64, and the emergence period was concentrated within that year (Begin=End=2023); The second wave of emergence in 2024 comprised six keywords: 'team building', 'higher education institutions', 'career development', 'rural primary schools', 'training models' and 'home-school co-education', all with an burst strength of 0.55, and the emergence period was likewise concentrated within that year; in 2025, the keyword 'spiritual guidance'—which had the highest burst strength in the entire dataset—appeared, with an intensity of 2.92, and its emergence period extended from 2025 into 2026 (Begin=2025, End=2026), making it the only term to exhibit sustained emergence across two calendar years. The trend topic map reveals the following distribution of popularity for the five keywords between 2024 and 2030: 'the spirit of educators' had the highest frequency (approximately 50), with data points centred around 2027–2028; 'physical education teachers' had a moderate frequency (approximately 20–30); 'Physical Education' has a lower frequency (approximately 10–20) and exists more as a background concept within the discipline; the data points for 'University Physical Education Teachers' and 'High-Quality Development' both fall at the 2030 mark; whilst their current frequency is approximately 10–20, as trends extending to the end of the statistical period, they suggest that future research focus may shift towards the group of university physical education teachers and quality enhancement. Taking both dimensions into account, it is evident that the research frontiers in this field have evolved along the path of "policy concepts (2023) – practical issues (2024) – spiritual guidance (2025–2026)". "Spiritual guidance" exhibits the highest burst strength (2.92) and persists until 2026, making it the most central frontier issue at present. Meanwhile, trend topic data indicates that "the spirit of the educator" and " 'physical education teachers' maintain the highest level of interest, whilst 'university physical education teachers' and 'high-quality development' are gaining momentum as emerging directions. These findings corroborate one another, collectively indicating that the 'educator's ethos' guiding the development of the physical education teaching workforce has become the most central research topic in this field. Future research will further focus on the university physical education teaching community and deepen its exploration of high-quality development.

5. Conclusion

5.1. The evolution of this research has been characterised by policy-driven development, and an initial transition from policy discourse to academic discourse has been achieved.

The number of publications has followed a trajectory of 'initial phase—growth—boom—decline' (5—19—79—36, data for 2026 as at 31 August), corresponding to three phases: policy input and initial formulation of research topics; policy convergence and system construction; and cyclical adjustment and in-depth expansion. The three key policy milestones were: General Secretary Xi Jinping's letter in 2023, in which he first proposed the initiative; the issuance of the Central Committee's guidelines in 2024; and the convergence of the Outline for Building a Powerhouse in Education and the first specialised document on physical education teachers in 2025; The decline in 2026 was primarily influenced by the statistical cycle and the 'concentrated publication' effect. In terms of the journal landscape, frontline practice-oriented journals such as *Chinese School Physical Education*(22 articles) and *Physical Education Teaching* (12 articles) form the main body, whilst participation from theoretical core journals such as *Journal of Physical Education* remains relatively low. This indicates that current research output

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remains predominantly practice-oriented and policy-responsive, with a relative lack of high-level theoretical construction.

5.2. A fragmented and multi-centred landscape in the early stage of research capacity

At the institutional level, the pattern resembles a "one dominant player, multiple strong contenders, and a long tail" structure: the institutional collaboration network comprises only 71 nodes and 10 links, with a density as low as 0.004, indicating extremely sparse collaboration. At the author level, applying the threshold of Price's Law (two or more papers), only four authors—Zhou Guoping, Zhang Shouwei, Zhu Lei, and Chen Huiying—met the criterion. The distribution is characterised by "a weak leading group, a fragile middle tier, and an oversized tail"; the six author collaboration clusters are small in scale and lack stability. Overall, the field is in a phase of fragmented exploration, characterised by "networks existing without high productivity, and teams forming without accumulated expertise."

5.3. Clear hierarchical structure of knowledge; reliable clustering results

The keyword co-occurrence network comprises 100 nodes and 141 links, with Q = 0.7403 and S = 0.9729, and eight main clusters were identified: Physical Education Teachers (21 nodes, 2025), Spiritual Guidance (13 nodes, 2025), Physical Education (10 nodes, 2024), School Sport (9 nodes, 2024), Practical Pathways (8 nodes, 2025), Professional Development (7 nodes, 2023), Higher Vocational Physical Education Teachers (6 nodes, 2024) and Sports Powerhouse (4 nodes, 2025). With ‘physical education teachers’ as its hub, the network forms a knowledge structure centred on the dual core of ‘the spirit of the educator—physical education teachers’. It unfolds along two main axes—the enhancement of professional competence (professional development, core competencies, teaching abilities) and the construction of practical pathways (practical pathways, training pathways)—and extends into specialised domains such as rural education and physical education teachers in higher vocational education. It has thus preliminarily achieved the organisation of knowledge and structural differentiation from policy discourse to systematic academic topics.

5.4. Research frontiers have evolved progressively along the path of ‘policy concepts—practical issues—spiritual guidance’

Between 2023 and 2026, a total of 12 keywords emerged as citation hotspots: in 2023, five terms—‘responsibility and mission’, ‘the “Double Reduction” policy’, ‘original aspirations’, ‘character education through sport’ and ‘excellent teachers’—emerged prominently (intensity 0.64), corresponding to the policy concepts stage; in 2024, six terms—‘staff development’, ‘higher education institutions’, ‘career development’, ‘rural primary schools’, ‘training models’ and ‘home-school collaboration’—emerged (intensity 0.55), marking a shift towards practical issues; in 2025, ‘spiritual guidance’ emerged with the highest intensity of 2.92, spanning two years and continuing into 2026, becoming the most central frontier issue at present.

5.5. Shortcomings and Future Prospects

Current research suffers from issues such as loose institutional collaboration, uneven regional distribution, a lack of core authors, and insufficient participation by theoretical journals; it remains in a phase of fragmented exploration. In future, research should deepen the exploration of the intrinsic mechanisms linking ‘spiritual guidance' with teachers' professional development; expand into specific sub-groups such as rural physical education teachers and vocational college physical education teachers, as well as emerging areas such as digital empowerment; strengthen cross-institutional and cross-regional collaborative research and empirical studies; cultivate leading scholars; integrate existing collaborative teams; and

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promote a shift in this field from ‘policy-driven growth' to ‘academically endogenous growth', thereby establishing a well-structured academic community with stable outputs.

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